Subject: A few questions
Posted by riceburner on Tue, 09 Mar 2004 18:04:09 GMT
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All the best large concerts have flown arrays that give long throw right?How does this translate to benefit at home in hifi speakers?What are the best connection diagrams for home use? I know there aredifferent array types, but don't have a clue which is which. What arethe pros and cons of each one?I see Eminence has made a new speaker designed to be used in arrays.Has anybody here built speakers with them?

Subject: Re: A few questions
Posted by Bill Wassilak on Tue, 09 Mar 2004 19:23:51 GMT
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>>All the best large concerts have flown arrays that give long throw right?Nope, the concert arrays form a line that supposedly (and I use that term loosely) change the shape of the sound from a sphereical wave front to a cylindrical wave front, and none of the devices in a line array should interfere with each other, it makes the vertical dispesion very narrow and does not effect the horizontal dispersion. And the frequency that it does this at depends on the length of the line. >>How does this translate to benefit at home in hifi speakers? Keeps the sound from bouncing off the ceiling and floor better imaging I'd guess you would call it.>>What are the best connection diagrams for home use?Not sure Jim Griffen will be able to help you out there. I'm into bi-amping/tri-amping etc. >>I know there are different array types, but don't have a clue which is which. What are the pros and cons of each one?(Some pros and cons to ponder, theres more)Point Source:Pros- used when you can't fly a line array easily, narrow places, smaller places etc. easier to keep the sound off the wallsCons-Falls off 6db for doubling of distance. Can cause comb filtering if not arrayed properly.Line array:Pros- Used in larger areas, even frequency response if flown right, falls off only 3db for doubling of distance.Cons- Need a certain amount of cabinets to form the line, harder to set up so you don't get interference from 1 cabinet to the next. Harder to use in smaller places.>>I see Eminence has made a new speaker designed to be used in arrays. Has anybody here built speakers with them?I havn't, but they look mainly for the midbass-midrange of an array.If you can't tell I mainly know about the pro-audio line arrays not the ones used for hi-fi. Theres a link at the bottom of the page that explains the basic operating principles of a line array.HTHBill W.
Basic line array principle

Subject: Re: A few questions
Posted by riceburner on Tue, 09 Mar 2004 21:15:24 GMT
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Sounds like the main thing is getting slower falloff at greaterdistance. I guess I don't see the benefit for home hifi then.There must be something more, maybe dispersion?

Subject: Re: A few questions
Posted by Bill Wassilak on Tue, 09 Mar 2004 21:42:40 GMT
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Yep, it's all about dispersion, like I said in the one anser, you have a very narrow vertical dispersion and a wide horizontal dispersion that will keep sound from bouncing off the floor and ceiling to maybe give you a better stereo image. Because in the vertical field your direct sound vs. the reflected sound is a lot less, less interference reflections from the floor and ceiling.Bill W.

Subject: Re: A few questions
Posted by Jim Griffin on Fri, 12 Mar 2004 02:04:07 GMT
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Let me chime in to try to address a couple of issues. In pro sound applications line arrays operate in both their near and far fields. The goal is to cover much of the close up floor seats with the near field yet throw the far field into the cheap seats in the rear or balcony. Now in the near field you have only a 3 dB per doubling of distance sound falloff so you don't blast the folks in those expensive seats up front. Yet you can cover the distance listeners with the far field radiation which transitions to a 6 dB per doubling of distance sound fall off. In contrast, my advice for a home application of a line array is to operate them only in the near field. Near field operation is characterized by the lower sound far off so the volume of sound within the room seems virtually constant as you move from front to back of the room. Likewise, the image/soundstage is very wide as the sound fall off from side to side of the room is less. I call it a sweet area versus a sweet spot as the imaging is nearly wall to wall. The biggest difference in my mind for near field operation is that you do have a significantly higher direct sound to reflected sound ratio. In the near field the vertical sound radiation is perpendicular to the array so little energy bounces off of the ceiling or floor. It is truly a wall of sound radiating toward the listner. Bottom line is that near field listening assures that you hear more of the sound from the speaker and less of the reverb from the room. Meanwhile in the horizontal plane the line array's radiation is dependent to the capability of the drivers to have a wide radiation pattern--you have used up your degrees of freedom by stacking all those drivers in the vertical axis. Hence, the result is that you have wide sound radiation in the horizontal axis--just as you would have with conventional point source speakers--but with the reduction ceiling and floor reflections due to the vertical axis shaping.My white paper (see the link) explains this performance. Jim
Near Field Line Array White Paper

Subject: Re: Thanks Jim
Posted by Bill Wassilak on Fri, 12 Mar 2004 15:25:19 GMT
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Thanks Jim for making that a little clearer, I was extremely hungover and trying to explain it. But wasn't to sure about in a home enviroment.Bill W.

Subject: Re: A few questions
Posted by riceburner on Fri, 12 Mar 2004 18:06:09 GMT
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Those look faaaabulous! What do you call them? 2 more questions: Whydo the speakers on the left have one ribbon and the speakers on the righthave a long line of ribbons? I'm sure they both sound great, but why didyou do that? Also what drivers do you use?

Subject: Re: A few questions
Posted by Jim Griffin on Fri, 12 Mar 2004 19:57:03 GMT
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Riceburner,The arrays on the left do no maintain a near field completely across the frequency band but have exceptional sound quality. They were named best of show at the Atlanta Southeastern DIY speaker show last fall. The small 'woofers' are Tang Band W3-871S drivers while the ribbon is the Aurum Cantus G3. They need a subwoofer below 120 Hz as you can only get so much from 3" diameter drivers. Total cost for the parts kit and plans is $1000 from www.creativesound.caThe arrays on the right are the Linus 2 from www.selahaudio.comwho offer both parts and plans in a kit. This array is a true near field array across the band. The drivers are Vifa TC14's which is a 5.5" mid-bass and the Silver Flute YAG20-1 (from Madisound). Jim