Subject: Array types
Posted by GGeorge on Mon, 07 Jun 2004 22:47:18 GMT
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Quick quiestions:Is a line source always a vertical array?Is a Bessel array always square?What are other arrays that make sense?

Subject: Re: Array types
Posted by Bill Wassilak on Tue, 08 Jun 2004 17:23:44 GMT
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>>Is a line source always a vertical array? Yes, they have a very very narrow vertical dispersion, while maintaining a wide horizontal dispersion.>>Is a Bessel array always square? Usually, or close to it, so you can do some neat things with them, like high SPL's or for beam steering applications and frequency shading and some other things. JBL has a tech paper on beam steering and freq. shading for bessel arrays and the principles behind it, see link below.Phillips corporation holds the patent and licensing for Bessel arrays so if you're going to use them commercialy(sp) you may need a license.HTHBill W.
JBL tech paper on bessel array layouts

Subject: Re: Array types
Posted by Jim Griffin on Thu, 10 Jun 2004 19:05:43 GMT
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Well Bill answered some of your questions but let me weigh in and give you another viewpoint. My viewpoint comes from application of line arrays for home usage (vs. the usual pro sound use). First of all, let me say that Bessel arrays are not a very smart idea for most applications. How many current home or pro sound applications have seen that utilize Bessel arrays? Very, very few. Bessel array ideas are like urban myths--they come around every few months but quickly fade as they are shown to be plenty dumb ideas. I doubt that Philips's Bessel array patent has paid them much money over the years. Bessel arrays operate in the far field (listening position would be typically 20 to 30 times their height away from them). Their efficient is typically little more than a single driver source within the array so why do it? Don Keele published an excellent paper on "Effective Performance of Bessel Arrays" in the Journal of Audio Engineering Society in October 1990. He studied 5, 7 and 9 source Bessel arrays. His conclusion was that only the 5 source Bessel array made any sense at all and even that array has shortcomings versus a 5 element linear array. For my applications I really like near field line arrays (NFLA)--especially for home usage. See my white paper on NFLA design considerations for more details. NFLA provide effortless sound which has a huge image field plus nearly constant sound level within the

room. NFLAs come the nearest to having the impact of a live sound venue that I have experienced.Let us hear about your line array application and perhaps a more detailed answer can help you reach a solution.Jim
 Near Field Line Array White Paper

Subject: Re: Array types
Posted by Wayne Parham on Fri, 11 Jun 2004 10:18:07 GMT
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That's a great white paper, Jim, thanks!What frequency do you crossover the larger pair at? About 2kHz or so I'd guess? How about the smaller pair? Maybe 3.5kHz?

Subject: Re: Array types
Posted by Jim Griffin on Fri, 11 Jun 2004 11:29:07 GMT
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Wayne,The larger array is crossed at 2300 Hz while the smaller array crosses at 2000 Hz. I wanted the smaller array to be crossed at 3500-4000 Hz but the array gain falls enough that a lower crossover was necessary.Jim

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Subject: Re: Array types
Posted by Wayne Parham on Fri, 11 Jun 2004 11:39:45 GMT
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Gotcha, that's interesting.Is the array gain a function of driver-to-driver spacing?

Subject: Re: Array types
Posted by GGeorge on Fri, 11 Jun 2004 22:29:54 GMT
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I will have speakers made for my home, and I am planning on using a line source for left and right and smaller sealed speakers for center and surrounds. Where can I get plans for those speakers you have shown?

Subject: Re: Array types
Posted by Jim Griffin on Fri, 11 Jun 2004 23:33:42 GMT
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Parts and plans for the smaller arrays (I call them the Needles array) in the picture attached to my earlier message are available from Bob Reimer at:http://www.creativesound.ca/details.php?model=NEEDLESThe larger array is the Linus 2 for which parts and plans are available through Rick Craig at:www.selahaudio.comThe Linus 2 doesn't show up on Rick's hot keys on the home page but you can e-mail for details. Take a look at some more Linus 2 examples in his Gallery photos. Thanks for the interest. Contact me for any more general line array details. Jim

Subject: Re: Array types
Posted by Jim Griffin on Fri, 11 Jun 2004 23:40:01 GMT
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Yes, array directivity is a function of center-to-center spacing which means that once you go beyond a one wavelength c-t-c you start to lose directivity. However, that doesn't tell the whole story and measurements are really needed to assure that you develop a crossover that is flat around the crossover frequency. In this case the sensitivity of the array started to drop before the one WL spacing frequency.