Subject: Line array question using Bandor 50mm driver?
Posted by Norris Wilson on Sun, 05 Sep 2004 02:31:20 GMT
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Hi everyone,I have a few basic questions about what effects combing would have above the critical area where it starts by using the 4 ohm Bandor 50mm driver?http://www.bandor.com/products_frame.htmI would like to eliminate the use of any crossover components inline with these drivers in an array, but may just be dreaming. Could the negative combing effect be allowed to be unchecked with out a problem to the overall sound quality of the array? Also, would an array of tweeters be needed to compensate for the high frequency roll off of the Bandor drivers due to the combing effect?The 50mm Bandor drivers are claimed to be able to go from 100Hz to 20kHz in a 2.5 liters sealed box.There are a few commercial array speakers that use this drver with out a crossover or an extra array of tweeters to reproduce the high frequencies.Could some type of EQ be used to boost the high frequency to compensate for the combing effect with out problems, again Duh?It is obvious that I do not have a good understanding of the nearfeild effects of high frequency combing. I just read the white paper kindly offered by Jim Griffin for the first time, and very little of it has sunken in, maybe after reading it a few dozen more times. I do want to thank Jim Griffin for all of the work that he has put into this white paper and bringing it to our attention.Mini array: http://www.seventh-veil.com/products_nonsuch4.htmThe speaker in the link below is the only picture that I could find, but no other information wass available.Full array with 16 drivers: http://www.audience-av.com/contact.htm Any and all information will be appreciated.ThanksNorris Wilson

Subject: Re: Line array question using Bandor 50mm driver?
Posted by Bill Fitzmaurice on Sun, 05 Sep 2004 12:59:37 GMT
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The combing effect here would only extend a few inches out from the baffle at best, so that's not a particular concern. What would likely be problematic is off-axis response. The axial charts look OK out to 12kHz or so but with a 50mm radiating plane it's a very safe bet that the -6dB response at 30 degrees off-axis won't extend beyond 10kHz at best. Good HF dispersion requires no more than a 25mm radiating plane with point source drivers, and smaller than that is even better.

Subject: More line array questions using the Bandor 50mm driver?
Posted by Norris Wilson on Sun, 05 Sep 2004 14:38:51 GMT
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Thanks Bill for your reply,I would like to ask a few more questions to make sure I've got it right?I undersdtand from your reply that there would be no need to use a crossover with the Bandor

50mm drivers, they can run full range without a great deal of negative sonic contribution?But there is a need for the use of a tweeter array crossed over below where the -6db response at 30 degree off-axis begins, somewhere around 10kHz?The use of planar or ribbon tweeters with a rectangular face plate seems to be the best approach due to their close spacing ability. But, there is a great deal of difference in sensitivity between most ribbons, or any tweeter for that matter, and the Bandor 50mm driver.Do you have any suggestions for a tweeter to be used here and how to impliment it, type of tweeter, crossover slope ect?Also, what would be the proper length of the tweeter array in reference to the woofer array, lets say a woofer array of 48" in length would be used?Thanks again for your "HELP" to this unexperienced newbie.Norris Wilson

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Subject: Re: More line array questions using the Bandor 50mm driver?
Posted by Jim Griffin on Sun, 05 Sep 2004 17:18:08 GMT
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Norris,Perhaps you should read my white paper on Near Field Line Arrays as it will address many of your questions. Another place to look for performance of a full range driver line array would be Darren Kuzma's design at:
http://www.partsexpress.com/projectshowcase/Kuze3201/Kuze3201.htmlLook at the response data before equalization to understand how the response of a full range speaker array suffers across the 10-20 kHz octave. Jim
Near Field Line Array White Paper

Subject: Re: More line array questions using the Bandor 50mm driver?
Posted by 7V on Sun, 05 Sep 2004 17:38:53 GMT
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Just one extra point, Norris. I would be inclined to keep the volume to below the 2.5 liters per drive unit that you quoted before. To minimize cone excursion and help power handling, keep the size to below 2 liters per driver. I believe that Qts will still be below 0.7 even as low as 1.5 liters.

Subject: Re: More line array questions using the Bandor 50mm driver?
Posted by Bill Fitzmaurice on Mon, 06 Sep 2004 12:38:45 GMT
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You can run the bandors full range with no ill effect except that they won't have great dispersion characteristics above 10kHz, but depending on the listening zone that maight not be problematic for you.If you do go with tweeters then the usual crossover point is no higher than where the woofer 30 degree off-axis response drops to -6dB. The sensitivity differential question can be

addressed both by the wiring scheme, using different impedances of the woofer and tweeter lines to better match sensitivity, and with the crossover. With an 8 ohm woofer line, for instance, you can wire the tweets to 4 ohms or 16 ohms to raise or lower the relative tweeter sensitivity by 3dB for better matching. It's a good idea to have the tweeter and woofer line heights reasonably close to each other, so that they will have the same radiation characteristics at the crossover frequency.