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Subject: Array Theory

Posted by [goskers](#) on Tue, 25 Oct 2005 13:21:41 GMT

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Hello all,I am trying to finish an array that I started quite some time ago. While doing as much research on the subject as possible I have some questions that I can't seem to find reasonable answers to.In regards to the column vs spherical wavefront:How can the upper ends of a mid/woofer array be limited in vertical dispersion? Looking at the polar responses in Dr. Griffin's paper the picture supports this but Meyer Sound seems to contradict this for near field listening.If this is true then the gain offered by the room with reflections to increase the length of the array is questioned as well.I'm not trying to cause a fuss here, I would just like to know more behind the physics.Thanks

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Subject: Re: Array Theory

Posted by [lcholke](#) on Tue, 25 Oct 2005 16:00:43 GMT

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How can the upper ends of a mid/woofer array be limited in vertical dispersion? I think the vertical dispersion limit is for the line wave front. It is also freq dependent. As is near and far field. One good example of this is the sweet spot of a ribbon tweeter. You can hear the fall off above and below the "beam".-Linc

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Subject: Re: Array Theory

Posted by [Jim Griffin](#) on Tue, 25 Oct 2005 18:19:32 GMT

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Goskers,I would like to reply on your reference to the John Meyer's magazine article. First of all, the 'cylindrical waves' statement is true to a degree. But in the near field the vertical wavefront (created from overlapping outputs from the drivers) is concentrated between the ends of the array--very little energy impinges from the floor and ceiling surfaces. The near field energy flow radiates parallel to these surfaces versus the normal spreading flow from a point source. Furthermore, Meyer's own data does support an average of 3 dB per doubling of distance sound falloff if you look at his data in Table 1 for the 4 and 8 meters distances (practical in-home near field distances unless you live in a castle). Furthermore, John's concerns about high frequency extension are difficult to mitigate for a high power pro sound line array but can be easily overcome via readily available small ribbons and such. Bottom line is that pro sound and in-home line array design/usage are vastly different issues. John's article is good magazine material for a pro sound line array audience but can be a misleading interpretation for an in-home near field array. My work has been focused toward the use of a line array within a typical home situation.Jim

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