Subject: Acoustic treatment and the nearfield Question
Posted by Marlboro on Mon, 06 Nov 2006 13:29:08 GMT
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Lately I've been reading up on acoustic treatments since I am redecorating the lower level for a TV/HomeTheater/concert listening room.Does anyone know how the effect of listening in the nearfield of an array is compared to listening in what is the farfield of all point source speakers?As I read the information about speaker placement and room treatments, all of the presenters assume that one is looking at point source speakers which have huge amount of reflected sound before it reaches the listener; ie, farfield listening. If one is within the wall of sound produced by a properly designed array speaker system(that is, Jim Griffin's white paper), is there as much(I'm not saying zero) issue with room problems as there is with a point source system?Marlboro

Subject: Re: Acoustic treatment and the nearfield Question
Posted by Duke on Tue, 07 Nov 2006 01:08:01 GMT
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In my opinion you are absolutely correct - the "near field" extends considerably farther back from a line source speaker than from a point source speaker. Remember the name of the company that made the Pipe Dreams? "Nearfield Acoustics".I would guess that the nearfield extends about 10 or 12 feet from a line source speaker, whereas it extends about 5 or 6 feet from a point source speaker. This is strictly a SWAG (so correct me, Jim!).Anyway Marlboro, I would still want to diffuse or (if necessary) absorb the first sidewall reflections, as they are the ones most likely to be detrimental to imaging. The floor and ceiling bounce are usually the reflections most likely to cause tonal coloration, but the directional properties of a line source take them out of the picture.Something else a line source gives you - a wider sweet spot. The loudness discrepancy between the two speakers is less for off-axis listeners, so you get good soundstaging across a wider listening area. Just my $.02.Duke

Subject: Re: Acoustic treatment and the nearfield Question
Posted by Marlboro on Tue, 07 Nov 2006 03:36:58 GMT
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Duke,Yeah. Thanks. I really hadn't noticed inappropriate reflections with my array, but that was before I started building the home theater room. Actually in Jim's paper, one can guage the distance of the nearfield by the length of the lines, in his chart. For me its about 9 feet for the tweeters and much larger for the midranges. its one of the reasons why I keep gradually enlarging the tweeter array(I'm using domes rather than ribbons.)Marlboro

Subject: Re: Acoustic treatment and the nearfield Question
Posted by Anonymous on Tue, 07 Nov 2006 16:47:55 GMT
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I always have weird ideas. Try this. Place your line array outsidein an open area and listen to it. Get familiar with the sound and make a mental note. Compare this sound to what sound you hearwhen the line array is in the untreated room. Now you have tworeference points and you should be able to solve the problem, ieif it sounds better outside, then install room treatments in stagesuntil you reach the happy stage. If it sounds better inside, thenno room treatments needed right ? lol

Subject: Re: Acoustic treatment and the nearfield Question
Posted by Jim Griffin on Tue, 07 Nov 2006 22:16:08 GMT
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I would guess that the nearfield extends about 10 or 12 feet from a line source speaker, whereas it extends about 5 or 6 feet from a point source speaker. This is strictly a SWAG (so correct me, Jim!).Duke,Thanks for the insight and answers. As always you are right on in your comprehension of line arrays. Comments below: 1. Duke said: "I would guess that the nearfield extends about 10 or 12 feet from a line source speaker, whereas it extends about 5 or 6 feet from a point source speaker. This is strictly a SWAG (so correct me, Jim!)."Essentially a point source will have a near field that extends just inches from it while a near field line array extends its near field over most of the listening space in a normal room application. In my white paper I have the equation and a graph for those less mathematically inclined. 2. Duke said: "Anyway Marlboro, I would still want to diffuse or (if necessary) absorb the first sidewall reflections, as they are the ones most likely to be detrimental to imaging. The floor and ceiling bounce are usually the reflections most likely to cause tonal coloration, but the directional properties of a line source take them out of the picture."Yes, a near field line array will have very little radiation that impinges off of the floor and ceiling surfaces. Thus if you are listening in an imperfect room such which might have a valulted or built-up ceiling or a reflective floor then a near field line array will offer benefits. 3. Duke said: "Something else a line source gives you - a wider sweet spot. The loudness discrepancy between the two speakers is less for off-axis listeners, so you get good soundstaging across a wider listening area."Yes, the image space is greater with a near field line array as the sound decreases just 3 dB per doubling of distance from the source vs. 6 dB for a point source. Thus the line array image area and soundstage are wider than you may have grown to anticipate from point sources. Jim