Subject: Re: Time delay revisited
Posted by Wayne Parham on Tue, 12 Sep 2006 01:03:44 GMT
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Arrays are different than point sources. A line array has the same distances between each driver and the listener as you move perpendicular to the line, but movement parallel to it changes the relationships. The array designer does this on purpose, using dense interference to provide directional control and to smooth response along the plane of choice.There are a few different modes that any (finite) array will work through. One is where wavelengths are so long with respect to array size that it acts as a point source. Next is the range of frequencies above that, where the array is acting as a line source and low enough that center-to-center spacing is less

greater than optimal, but still not so large that each driver is several wavelengths apart. That's the range where lobing starts, but response is probably usable. And then there is a range above that where each element of the array is several wavelengths apart and no longer summing at all.Arrays act differently in each of these modes. In some frequency ranges, you'll treat them just like point sources. In other ranges, you'll treat them more like averages. This is where experience comes into play, and I'll defer that to Jim Griffin because arrays are his specialty. But you can get started by looking through some of those links I provided. There is information there about arrays, sound source interactions, phase, summing, etc.