Subject: Re: DSP xover and EQ with line arrays?
Posted by Jim Griffin on Sun, 28 Nov 2004 15:12:34 GMT
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Denverdoc,A comment or two along the way. First, I'm not sure that equalization alone can make various speakers all sound the same. But if you start with low distortion, high sound quality drivers you can more easily yield great sound. Over equalizing less capable drivers will not produce world class sound in my opinion. You said: "I was looking at the Seas drivers but there has been a lot of fanfare over the about to be released adire 6.5 and 4 inch drivers."I (and most everyone else for that matter) have not heard the new Adire drivers so I'll reserve judgement on them until enough users have reported. One comment is that the 4.5" driver (and perhaps even the 6.5" version) may not have enough cone area to carry the sound impact on open baffles, that is, if you like sound pressure in your room. Linkwitz uses 8" drivers in his Orion implementation.

You said: "Now a dozen a-c G1's would cost me a cool 5k or so.....and half dozen a-c's per side (christ what would the efficiency of the tweet line be--around 110db/2.83v?)."No, you don't necessarily get array efficiency gain with ribbon tweeters. The ribbons (like the Aurum Cantus G1 and G3 plus the Fountek Jp-2 models) have limited vertical dispersion so when arrayed their sound fields don't overlap across the entire frequency band. Hence, don't count on huge efficiency improvements with ribbons. On the other hand remember that these ribbons have sensitivities in the 100 dB 1w/1m SPL range. Therefore, you can count on SPL capabilties far greater than 110 dB SPL with ease in the array. You said: "If using active xovers, then could tapering be achieved thru insertion of passive series resistors w/o messing things up too much otherwise?"The way I do power tapering is to feed more signal to drivers near the center of the array than the outer edges. This works for passive and active crossovers. No resistors are involved. One example for 10 drivers is to wire the bottom three drivers in series, wire the top three drivers in series, and then wire the center four drivers in two pairs of two series drivers. Hence, you have a 3/2/2/3 configuration. Now parallel each of those sets and you have the resultant tapered configuration. Tapering of less than 2:1 power ratio works best for me and prevents too much center weighting.You said: "The other mandate of my design besides having the usual virtues of -3db/distance doubling, low distortion, huge dynamics, is not to store a single erg of energy in the enclosure/baffle..."I'm a believer in near field line arrays (3 dB per doubling of distance far off) as you can read in my white paper. The issue with the open baffling of the array is the lack of bass which will necessitate a lot of equalization to overcome that issue. As a compromise, I like sealed enclosures as they can yield a natural sound (good transient response) yet provide some bass. With an open baffle arrangement you will have to go to a set of woofers (dipole or U-frame) to carry the load down low. Again, Linkwitz provides some help on the dipole side of the equation but even he suggests sealed subwoofers for the low end (below 40 Hz in the Orion) if you really need sonic impact. Finally, remember that dipole or open baffle speakers will require a room large enough to move the speakers away from at least the rear wall. Placement would be best more than 4-5 feet or so from the wall.Good luck in your quest. Let us hear on your progress.Jim