Subject: Symetrical Array (and crossover issues...) Griffen? Craig?
Posted by Greggo on Fri, 19 Oct 2007 14:58:23 GMT
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If I was just interested in a line array from 90hz on up, and was going to use 3-4 drivers tightly spaced on each side of a very narrow planar or ribbon driver (I know, they don't exist yet, but I may do something to change that) what issues would you focus on and how would you approach solutions. For example:1)Most builders of line arrays seem determined to get their crossover points to the tweeters as low as possible. Why not push it out to 3.something kHz to avoid the areas where we are supposedly the most sensitive to crossover affects (1.5-2.5 kHz is the last range that was defended by someone else in a manner that made sense to me)?2) I am becoming a fan of controlled directivity designs, waveguides and horns design to have their main axis cross in front of the listener to minimize side wall reflections and have controlled dispersion up top that matches the lower end of the tweeter with the upper end of the woofer. Is it possible to model such effects from the horizontal double driver approach, one small mid-bass on each side of the tweeter so as you go out to one side of the listening sweet spot there is more lobe induced cancellation that creates an effect similar to a waveguide?3) Would something like the hi-vi B3S be a good starting point as you could do two vertical lines, one on each side of the tweeter line, and keep the c-t-c around 3", and then if you could find a tweeter with an assemply (maybe you remove the flange and mount from the magnet and/or rear assembly of the driver of less than 2" wide then you have a less than 5" c-t-c which I believe would allow a crossover point between them all of somewhere around 3kHz before serious lobing would set in on axis (not sure if I have these effects straight)4) In one of Rick's posts to this forum he mentioned that advantage of using a line of inexpensive mid-bass drivers on each side of the tweeter line would include things like doubling of mid-bass cone area to further limit excursion and distortion, and lowering of side wall reflections. The latter point intrigues me the most as it does seem to fly in the face of line array dispersion benefits such as very wide even dispersion in a cylindical wave shape, but it does play into my goal of building a speaker that requires a great deal of toe in to cross just at or in front of the listening seat and to limit the level of early side wall reflections (the one beside the speaker) and maximize the later side wall reflections (the wall across the froom from the speaker) a la Earl Geddes or something like that.Any thoughts? I am thinking seriously about working with a driver manufacturere to design a single faceplate hosting two mid-bass drivers with a planar tweeter in the middle, with the tweeter in an isolation chamber to protect it form the mid-basses, and an fs or around 80hz on the midbass and a driver design that would allow it to perform nicely with steep digital slopes around 90-100Hz to hand off to a sub tower and up to 3kHz with a smooth roll off beyond to allow a nice passive crossover from mid to tweeter, along with a very narrow plannar tweeter that can be crossed as low as 3.5khz. Then we you have an array of anywheres from 4-25 of these things you get the best out of the drivers without excursion/distortion problems and have ideal crossover points that you keep you out of the most sensitive zone. Kind of like an array that plays into the crossover point of Dr. Griffins Jordan/Ribbon monitor design.Regards,Greggo