Subject: Answers on Array Wiring
Posted by Jim Griffin on Tue, 17 Aug 2004 00:18:09 GMT
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Paul,I'll try to answer your comments/questions below. If you haven't downloaded and read my white paper you really need to do so. 1. 60 tweeters. A lot of holes to drill. I like the 6 to 7 inch long planar or ribbon drivers for a tweeter line as you get better performance than small dome tweeters.2. "Array gain of this size tweeter. will there be any and how high will it be maintained if they are mounted with flanges touching? they are rated @87db , and i am hoping for much more than that(??).Array gain should occur when the tweeters are spaced within one wavelength center to center. With flanges touching that would be about 10 kHz. But you may not notice too much rolloff in the 10-20 kHz area due to less ear sensitivity in this range. Expect 10 log n gain where n is the number of arrayed drivers. That would be 17.78 dB for 60 per side if you maintain the same array impedance as for the individual driver. This is an overall sensitivity of 87 + 17.78 = 104.78 dB. In practice I observe less than theoretical performance but this is a place to start. 3. "My other question is in wiring so many drivers. Can I wire all these tweeters in parallel and simply add a series resistor of my amps choice?"Paralleling all of the drivers and adding a resistor isn't a good thing. What you need to do is to have strings of series drivers which are placed parallel in groups so that you can achieve the overall impedance that you wish to have. Let us say that you have 60 drivers (8 ohms nominal impedance) and you connect 10 of these drivers in series (a total of 80 ohms for each series string) and repeat this to eventually have 6 groups. Then parallel connect these 6 groups and you will yield an overall array impedance of 13.33 ohms. Various combinations of series and parallel drivers can be used to work to attain the overall impedance you wish. An example would be 64 drivers with 8 in series and then 8 in parallel yields an overall array impedance of 8 ohms which would work great with most amplifiers.4. "Seems that all tweeters have some form of padding resistors in series with them." For a line array you may have to pad down the tweeter line (in the crossover) to match with the woofer line sensitivity for sound balance.5. "If practical, how would this work (adding resistors to achieve a specific impedance) on mid-woofer arrays(150hz+)."Don't add a resistor into the woofer line to pad its output down as you will likely mess up the box tuning of the woofers.Jim
Near Field Line Array White Paper