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Subject: Theater 4pi horn/woofer time alignment?

Posted by [mhammill](#) on Sun, 09 Jun 2002 13:19:38 GMT

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Greetings, I've been considering building Yuichi inspired wooden horns for my three front channel speakers. I like the horn having the same length at all angles due to the curved face. The two mains will be tall Theater 4's, I haven't quite figured out the center channel because it needs to be compact. I want to use the same horn and retain a similar tonal balance but with less bass extension and efficiency (due to the size, WAF) My rear channels are 2pi like towers. This brings me to the question. 1. Are there any trade offs with the Yuichi vertical curved design against a design with more of a horizontal radius like the Peavey? 2. What is the ideal distance from the face of the PSD2002S before the threads to the baffle for time alignment with the delta 15? I have the threaded drivers because I have both Peavey and the larger cheapo Part Express threaded horns. 3. Is this a factor in the soundstaging or over all realism as it can be in so many other designs? 4. Since I want to build my own horns this seems like the perfect time to ask what would make them match the woofers in this and any other way possible, My primary listening will be with just the two 4pi's and paramour/foreplay combination so I want that to be as good as I can get it. The height will put the horns at ear level with the woofers close below. The rest of the crossover, interior volume, birch ply with lots of bracing (although the bracing will be setup to break up the vertical standing waves since I'm not using the golden ratio in that dimension), and port tuning (26hz?) is pretty much standard so far. Any other suggestions or corrections before I start cutting? 5. Any ideas for a small front channel design? Maybe two 6" or 8" on either side of the horns? Thanks, Mike H

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Subject: "Time alignment," revisited

Posted by [Wayne Parham](#) on Sun, 09 Jun 2002 17:57:03 GMT

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These speakers are designed for the horn to be flush with the baffle, which offsets the HF driver approximately 3" behind the midwoofer. See the post called "Phase angles, crossovers and baffle spacing" for more information. You might also be interested in paper called "Improvements in Monitor Loudspeaker Systems," which was published in volume 31, number 6 of the AES Journal. The authors are David Smith, Don Keele and John Eargle and it describes the same design principles.

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