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Subject: Re: Horn Depth & Mouth Diffraction  
Posted by [Cuppa Joe](#) on Thu, 15 Mar 2007 01:56:46 GMT  
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Path length difference is one of the main reasons why I prefer an active crossover for a live SR system. The other two reasons are rolloff slope and ability to apply electronic delay, if necessary. For me, there's no comparison. Given the fact that a horn has to terminate into open air at some point, I tend to surmise that there must be a LITTLE expansion beyond the boundary edge as the pressure is released, even within the horn's pass band. Is my hunch correct, or am I way off? If there's some meat on that bone, then my concern is that two tightly arrayed traps (covering the same frequency range) splayed at different angles might also create the phase-delay problem Dana mentioned. Someone standing on axis to one trap might get a delayed spillover from the other, resulting in time smear due to the differing path lengths to the listener. Any significance to this? Yes, I've heard HF comb filtering in a large outdoor venue, where wide-coverage 2" horns were stacked next to each other horizontally. As I walked across the coverage area, it sounded like a wind storm as I heard the phase shift with every step. However, I did notice two things: One is, the farther I walked away from the stack, the less combing was noticeable (line array theory?). And two, when I stood in one place for long enough, my ear "adjusted" to the sound. The system was actively crossed and delayed, so I wasn't experiencing any multiple arrivals that I could detect. My conclusion: You can "get away" with a certain amount of comb filtering in certain frequency ranges if there aren't any other outstanding acoustic problems. I know, call me nuts!

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