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Subject: Re: Horns vs Arrays

Posted by [Duke](#) on Mon, 10 Dec 2007 05:56:38 GMT

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I'll take a shot at pitching the horn side of things, as Marlboro has done a very good job of describing the advantages of a line array. Let me preface by saying I haven't built a modern line array, but I did build a few based on a widerange planar magnetic driver back in the 80's. I currently build horn systems. Now note that some of the general statements about horns do not apply to high quality horn systems such as what Wayne offers. Over the years there have been many harsh and fatiguing horn systems, so if we talk about the "average" horn system it's probably not something you'd be interested in. But a high quality horn system is capable of combining lifelike dynamics and natural timbre of voices and instruments better than any other reasonably-priced format - at least in my opinion. From my point of view the most valuable characteristic horns bring to the table is radiation pattern control. All direct-radiator drivers are omnidirectional or nearly omnidirectional at low frequencies, and their radiation pattern narrows (beams) as we go up in frequency. This results in relatively more energy going out into the reverberant field at frequencies where the pattern is wide than where the pattern is narrow. So with conventional speakers, the reverberant energy will have a different spectral balance than the direct sound. Note that live instruments generate a reverberant field that has very close to the same tonal balance as the direct sound (a live piano still sounds like a piano when you're in the next room, where all you can possibly hear is the reverberant field). Because a horn controls the radiation pattern of the driver, with a well-designed system there is little discrepancy between the spectral balance of the direct and reverberant energy. This contributes to natural-sounding timbre. The 7 Pi cornerhorn is an example of a speaker that has this characteristic - it has excellent radiation pattern control, and sounds very natural and realistic even from the next room. All that being said, one of these days I'd like to attempt a speaker that combines line-source-propagation characteristics with the radiation pattern control of a good horn system. Some custom components would be required, and I'll have to make a lot more money before I can afford to have them fabricated for me. Duke