Subject: Comparing components verses comparing systems
Posted by Wayne Parham on Wed, 06 Oct 2010 23:16:53 GMT
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The thing is, you have to do some work to optimize a loudspeaker system properly, and you can't really compare the horns until you do. On the other hand, you can make some measurements of the horns by themselves for comparison. This will allow you to make some educated guesses about how each will do when put into a system.

Generally, if the horns are about the same length, width and height, you can expect to have about the same issues when implementing them. There are a lot of other things that are important, of course, including flare rate and profile. But disregarding certain directivity details and other quality metrics for a moment, the basic dimensions have to be somewhat similar to even get close to an apples-to-apples comparison.

The center-to-center distance between the tweeter horn and the next adjacent subsystem (midrange or midwoofer) is largely set by its height. This is a big part of what determines the size of the forward lobe, the distance between vertical nulls. The length of the horn creates a fixed delay, and it's other properties cause it to be partially reactive, especially down low, where crossover usually happens. So these have affect the phase, in part setting the position of the forward lobe and ultimately driving the crossover design which has to take this into consideration. It's not just a matter of splitting out the lows to protect the driver, but it must also provide mass-rolloff compensation and phase manipulation to position the forward lobe.

The bottom line is it is impossible to fully compare the loudspeakers that may be made from two horns without doing some designs and tests. You can compare the horns, but that's not the whole story. If they're similar enough, you can make soem assumptions that will probably hold true. But you won't really know until you've successfully built with them.