Subject: Short Coaxial Horns
Posted by DR Carlson on Wed, 04 Aug 2004 16:27:13 GMT
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Does any one have any info on using multiple drivers in a horn, which in turn shortens the length of the horn by a third or half or more? I came across the two sites listed below that mention it, but do not give any real specifics.Steve Deckert at Decware:http://www.decware.com/paper11.htm“BUT MY FAVORITE is a ZEN DESIGNED series of cabinets I called the Wicked One. Pictured on the left, this formula for a binaural folded horn can be scaled also to work with a large family of drivers. It's neatest feature is the fact that I figured out you can share the last order of a horn flare between two horns if you couple them properly, thus reducing the size of your enclosure by half. A Wicked one is 12"H x 36"W x either 24" or 36"D depending on where you scale it. Not very big at all considering what it does. Trust me the name says it all"And at the JBL site:http://www.jblpro.com/pub/technote/PD%20HF%20TechNote.pdfTech note Volume 1, Number 29 pg.7JBL Precision Directivity PD700 Series Co-Axial Mid/High Speaker SystemIt states that in using two drivers side by side, they are able to shorten the horn by 33%if anyone has more info on this it would be very helpful thanks

Subject: Re: Short Coaxial Horns
Posted by Bill Fitzmaurice on Wed, 04 Aug 2004 17:59:28 GMT
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As to the Wicked One, it's not as good as it sounds. I did basically the same thing with my Doppelganger Snail a few years back. If you load two drivers sharing the same horn mouth the SPL goes up by 3dB compared to one driver using the same mouth area, and that 3dB comes exclusively from the aditional power handling of two drivers versus one. To me 3dB is nothing to get real excited about. Take the same two drivers loaded in either separate horns or one horn with a double the mouth area of the first example and you will get 6dB additional- 3dB from the extra power handing, 3dB from the increased radiation efficiency gained by doubling the radiating(mouth) area. In short the Wicked One isn't quite what the author of the piece thinks it is. Is it better than the same horn with one driver? Yes. Equal to the same two drivers in two horns of the same size? No. As to the JBL example, the shortening of the horn loses 3dB, which by doubling the drivers is gained back. The bad news is that the shortening occurs at the throat end of the horn, not the mouth, so the actual overall cabinet volume reduction is not 33%, it's more like 10% at best, and you've incurred the cost of a second driver. If you really need the space and are willing to spend the extra money then fine, but that pretty much goes counter to the usual intent with a horn.  Bottom line: there still isn't any free lunch.