Subject: initial exponential horn design
Posted by Adam on Tue, 23 Apr 2002 21:08:03 GMT
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I drew up a sketch of my 40 Hz exponential horns and I decided to post it to see what everyone thinks.It's actually even bigger then I originally posted. The design I was looking at was for a 1/4 space horn and this is going to be an all-out 1/2 space design.The mouth area is 4,550 sq inches, dimensions on the mouth are six feet wide and six feet tall.In this picture, the horn is 72" tall and 58" deep. Also, the entire thing would be 72" wide as well.The first expansion is a horizontal one, coming from the throat down to the first fold. It expands from a 49 sq inch throat (14"x3") to the widest it can get which is 72". So at the 1000 sq inch mark, the horn folds, and then the expansion continues vertically to the mouth of the horn. This is a rough drawing, but the estimated horn length is 11.5 feet, -3db points at 39 Hz and 285 Hz.So, any comments? I know bracing is going to be rough, I'm just hoping that having the two lengths sharing one wall will help cancel out vibrations. I'll use cross bracing inside the horn to bind opposing walls together, add stiffening ribs every ten inches or so and use expanding foam in the cracks.I think it's a pretty good design, except that when I build it I'll probably not have the first expansion follow the wall of the second expansion so closely, so it isn't bent like that. That should simplify things.P.S. the entire volume of the horn (externally) is about 117 cubic feet!Adam

Subject: Ooops, picture here...
Posted by Adam on Tue, 23 Apr 2002 21:09:37 GMT
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Adam

40 Hz horn

Subject: Big!
Posted by Wayne Parham on Tue, 23 Apr 2002 21:19:36 GMT
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That's one big horn!I gotta see this thing. You could move in a bed and live in that thing!

Subject: Re: Big!
Posted by Adam on Tue, 23 Apr 2002 21:27:03 GMT
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I'll make it a self contained trailer if I have to :PAdam

Subject: Re: initial exponential horn design
Posted by replay on Tue, 23 Apr 2002 21:32:24 GMT
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in lima we hooked up the altec a4's. 8 feet tall and made out of 3/4" ply. the cabinet echoed like a canyon, obviously lacking in the brace dept. yet they still sounded good. actually real good. not much energy below 60 hz though. adam, when you crank'em up do you think i'll here them, only 2 hours away.cheers,george

Subject: Re: initial exponential horn design
Posted by Adam on Tue, 23 Apr 2002 21:39:22 GMT
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You can come see/listen if you want... We'll have a field day over at the trebuchet with a pair of ten pi's, this thing and some rocks to huck :)Adam

Subject: Re: Big!
Posted by bmar on Wed, 24 Apr 2002 00:37:09 GMT
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you should just build two garages. one in each corner of your yard. call them a speaker during a concert and a garage the reast of the time! these things gotta be great. :)