Subject: Re: new subwoofer
Posted by Wayne Parham on Tue, 09 Nov 2004 04:27:42 GMT
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boundary loading. Of course, boundary loading will have an influence but the horn was designed to not need constrained space to work properly. It's not really intended to be used indoors, at least not in small rooms. It's made to be used in very large areas. It is overkill for a medium size theater or club and definitely larger than what I think most people would want in their homes.What prompted my work on this was the fact that most folded basshorns work best from midband up, but are somewhat at a disadvantage at the low end of their response curves. Many have what I would consider excessive ripple and all have distrortion that rises rapidly at lower cutoff and below. At the lowest frequencies, all basshorns become direct radiators in a fancy box. So my focus was on doing things that improved the performance of the system at low frequencies near cutoff. That's where I thought improvements were most needed.One way to improve distortion performance of the driver is to employ a shorting ring large enough to reduce distortion at low frequencies. Another is to use the push-pull configuration to cancel harmonics.There are several

So there are already top-quality statement products available for home use. I believe there is something for just about every price point.I had considered building a push-pull version of the

are hidden and fire into a constrained space. Cancellation would be good because the corner loading would couple the two drivers well, like slot loading does. And the woofers are hidden from view, so it would be attractive too.But I have access to very nice woofers with flux stabilization which does the same thing. It came down to a cost factor - Two good woofers without flux stabilization were more expensive than one with. So I realized that it might be better to use a single woofer with a shorting ring than two without. It was really a cost thing. I still think a

some work to determine the best venting and the best folding pattern. I can go with the "W" fold, a "Z" fold or a spiral. Each has its own sets of benefits and each also has some things I'll have to work around.I also want to do a few tests to see how audible venting noise is, and the best ways to vent cooling air in and out of this thing. I don't want air trapped in a small rear chamber, but I don't want it to be an air slug moving back and forth in a long hose either. The voice coil gap connects the cooling vent with the rear face of the speaker, so whatever configuration chosen will act like a tiny, resistive "stir straw" sized port connecting the two. I have to do some testing to know the consequences of this. It can be analyzed with a computer model, but it's probably easier to build a physical model. So I think that's the way I'll handle it; Sounds like a good winter

before its done.The two things I am sure of are that the push-pull plenum will reduce 2HD significantly and that getting cool air to the vents will improve power handling at high output. Now it's a matter of investating to find the ways to exploit each of these improvements to get the most from them.