Subject: scanspeak 10"
Posted by dtkky on Mon, 02 Apr 2001 05:08:10 GMT
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Hello Wayne,I have been surfing your website and would really like to try building a pair of corner horns for some scanspeak 10" that I have. The T/S parameters are as follows:Sd 298cm2Vas 270 litresFs 20 HzQts 0.22Xmax 5.5mmRe 5.5 ohmsPmax 130WLe 0.12mHSns 91 dBDo you think it's feasible to cover 30Hz to 500 Hz?Your Pi-align software suggested a 2.1 cu.ft. box tuned to 34.5 Hz. (correct me if I'm wrong). This is smaller than what Boxplot suggests as optimal. Is this always so?Also, can I stack 2 corner horns one on top of the other with a midrange horn in between? (D'appolito style)I would really appreciate your words of wisdom before I start cutting up my wood.David Tan

Subject: Re: scanspeak 10"
Posted by Wayne_Parham on Mon, 02 Apr 2001 13:51:08 GMT
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PiAlign will often pick a smaller box than BoxPlot's "align" function does. Seems like for motors having very large Q, it recommends larger boxes than BoxPlot's align function and with those having smaller Q's, it recommends smaller boxes. It's a different alignment.

Subject: Your system's response curve
Posted by Wayne_Parham on Tue, 03 Apr 2001 15:37:39 GMT
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I took a moment to enter your specifications into PiAlign, and then the resulting cabinet into BoxPlot. The response curve is nice and smooth.Specifications:PiAlign[entered values]Vad = 9.5 cu. feetFrd = 20 HzQd = 4.5[calculated values]Ideal Ve = 2.1 cu. feet Actual Ve = 2.1 cu. feetIdeal Fre = 33.75 Hz Actual Fre = 33.4 HzIdeal Qe = 1.22 Actual Qe = 1.25This is obtained by having enclosure volume of 2.1 cubic feet and a port of 2.2" long. If it's cylindrical, it should be 2.3" diameter and if it's rectangular then it should be 2.72" x 1.53".I would consider the cylindrical port to be in tolerance if a 2.25" diameter port were used that was 2.25" long. Likewise, I would also consider a rectangular port of 2.75" x 1.5" and 2.25" long was also within tolerance. But don't forget to calculate the volume displaced by the woofer, tweeter, port and anything else internal. This should be added to the enclosure volume when determining actual box dimensions. And don't forget wood stock size - whether you use a cylindrical or rectangular port - its dimensions are inside dimensions.BoxPlot[entered values]Fs = 20 HzVas= 9.53 cu. feetQms = 2.2Qes = 0.25Qts = 0.22448 Note: You didn't specify Qms and Qes; TheseRe = 5.5 ohms values were chosen because they deriveLe = 0.12 mH Qts to be 0.22, as you

specified.Pd = 130 wattsSensitivity = 91dB@1W/1MBox Volume = 2.1 cu. feetBox resonant frequency = 33.4 HzFrom the specifications you've given, this will make an excellent bass reflex or cornerhorn speaker. While its sensitivity is a bit low, I think you can expect good performance. I would assume maximum output to be about 110dB at full power. All in all - 40Hz and 110dB - that's pretty good for a 100 watt ten inch woofer.Let us know how it turns out!

Subject: Re: Your system's response curve
Posted by dtkky on Tue, 03 Apr 2001 19:47:12 GMT
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Hi Wayne,Thanks for taking the time to confirm my findings. In view of the lowish sensitivity, I would like to use 2 speakers per side. Now, would it be better if I use 2 drivers in one enclosure that is double the volume or can I stack one corner horn on top of another and get away with a smaller footprint?

Subject: Re: Your system's response curve
Posted by Wayne_Parham on Tue, 03 Apr 2001 21:30:32 GMT
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You can put two drivers in one cabinet if you like, or you can separate them and tune them individually. There is very little difference either way if the the two separate cabinets are tuned the same as one larger cabinet housing both drivers.
