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!