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Subject: Re: 8 Pi Tuning

Posted by [Jeff Aiken](#) on Fri, 24 Sep 2004 04:37:18 GMT

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Hi Wayne, thanks for the reply. I did make a mistake in that I calculated the driver volume to be .75ft<sup>3</sup> instead of 75in<sup>3</sup>. So, here's the internal volume I calculate, now (sorry so lengthy, my geometry is a little rusty ;). Using the 8 Pi external dimensions I've subtracted 1.5" from each dimension (2\*.75" material) to arrive at the internals. 1) I calculated the front "cube" portion of the cabinet first: 24.5"W x 30.5"H x 9.6"D = 7173.6in<sup>3</sup> or 4.15ft<sup>3</sup> 2) I calculated the rear "trapezoid" portion as  $(A=h/2(b_1+b_2)) * Height: (5.25/2(12.5+24.5))in^2 \times 30.5"H = 2962.3125in^3$  or 1.714ft<sup>3</sup> 3) Add front and rear portions and get 5.864ft<sup>3</sup> total internal before subtracting mid-horn or bracing. 4) I estimated the mid-horn flare w/mounting plate to be about 1.12ft<sup>3</sup> and the driver to be .043ft<sup>3</sup> totaling 1.163ft<sup>3</sup>. 5) Subtract 1.163 from 5.864 and total volume remaining is 4.701ft<sup>3</sup>. 6) I only subtract 5% for bracing giving 4.466ft<sup>3</sup> total internal volume. According to WinISD, using 3 ports (1.625x3.5 as the plans suggest) this tunes a 4.466ft<sup>3</sup> cabinet to 62hz with a F3 = 50hz and a 5.4dB peak at 70hz with the Alpha 10. To get a flat response to 40hz WinISD says the ports would each have to be 4.43" long. Am I still calculating something wrong? Is WinISD's vent calculation inaccurate (seems I read that somewhere)? Wayne, if you're bored (you have to be if you've read this far ;p) and enjoy toying with the mathematically challenged I still appreciate your help and now your patience. ;^> Sorry, if I'm beginning to aggravate. Just trying to grasp things before I make the plunge. Thanks, Jeff

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