Subject: Wayne and other MathGuys: a little help with volume and port length please?
Posted by BillEpstein on Fri, 11 Oct 2002 23:21:02 GMT
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The almost 2Pi in my post below consists of a bottom cubisty deal 10X15X3 and an upper trapezoidal thingy shape that tapers back from the front so the top is 6 1/2X15, 22 1/2" up from the top of the base. Overall height of the entire speaker Q.E.D. = 25 1/2. Facil, N'est pas?So is that somewhere close to the normal 2Pi volume? I have plastic ports,1 7/8" I.D. X 4" long max. Enough?Hey, I know enough math that I was long 300 OEX puts on October 19, 1987, so there!

Subject: Composite solid geometry
Posted by Wayne Parham on Sat, 12 Oct 2002 00:03:15 GMT
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The way I would calculate volume of your cabinet is in two parts: First calculate a box with dimensions of height x width x depth of your cabinet at its smallest depth. Then calculate the volume of the wedge shape seperately. The dimensions of the wedge would be found as the difference in the cabinet depth at the bottom and depth at the top times the height x width divided by two.So do two things:Box = H x W x D (at the thinnest section)Wedge = (H x W x D) / 2 (calculates the "slanted section")Add 'em together and you have the total volume. This is called "composite solid geometry" and is simply a matter of dealing with complex shapes by modeling them as a composite group of primitive shapes.

Subject: Re: What you said
Posted by BillEpstein on Sat, 12 Oct 2002 00:23:28 GMT
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Okay. I got 590 cubes for the missing section and 3700 something for the overall cube which gives me 1.87 cu ft. 2Pi is 1.909 so close enough, yes? Keep the port at 1 7/8" long?Thanks, Wayne.

Subject: Re: hows 1.3 cu/ft sound
Posted by bmar on Sat, 12 Oct 2002 00:27:58 GMT
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Tillthis is what I calculate for your inside volume for this box.I'm guessing the MDF is 3/4"?The cross sectional area is 167 square inches* 13.5" inside width = 2,254 cubic inches2,252 / 1728= 1.30 cubic foot inside volumeyour on your own with the port!bill

Subject: Yup! Yup! Yup! 1.36 internal, Yup! NT
Posted by BillEpstein on Sat, 12 Oct 2002 00:40:33 GMT
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nt

Subject: Perfect!
Posted by Wayne Parham on Sat, 12 Oct 2002 01:02:35 GMT
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That's perfect - As you said, the cabinet is 1.9 cubic feet external volume, and that corresponds to 1.4 cubic feet internal volume. So you can use the port specified in the plans and expect good results.Let us know how they sound when you're done!

Subject: Perfect!
Posted by Wayne Parham on Sat, 12 Oct 2002 01:08:11 GMT
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That's perfect - The cabinet is designed for 1.4 cubic feet internal volume, so the port should be as specified.Did you get a pair of those 0.5mH coils to add in-line with the midwoofers? Silver label Alpha 10's really need the coils and they really sound good with 'em. The change is pretty subtle, but I like the results.