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Subject: Oops.. too big!

Posted by [SteveBrown](#) on Sat, 27 Apr 2002 10:40:18 GMT

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Remember that old saying, measure twice cut once.. good, no one has to rub my nose in it :-). So I somehow ended up making my 3pi Thermionic cabinets 400 cu in. too big. The external dimensions of mine end up giving a volume of 12070 cu.in. but the plans call for 10890 cu.in. When I account for the fact that I used 3/4 material and the plan uses 5/8 material, the inside volume difference is about 400 cu.in. The first question is, will this need to be corrected, is it a significant error? Second question is, right now I'm about 3,400 cu.in. too small for a Theater 4pi. Would it be possible to add stuffing to bring up the volume and go that direction? Thanks for the help! Steve

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Subject: Brace the heck out of them!!!(nt)

Posted by [Garland](#) on Sat, 27 Apr 2002 11:37:06 GMT

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nt

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Subject: based on my vast experience with 2 boxes:)

Posted by [Sam P.](#) on Sat, 27 Apr 2002 12:56:19 GMT

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I would say "go for it"...if you use R13 to cover the entire rear wall, the bottom wall, and one side wall...my 2.5 cu.ft. "net Volume" boxes have consistently "tuned" as if the boxes were at least 3/4 cu.ft. larger than their actual physical size. Mine were acting like the "apparent volume after R13 stuffing" was increased by over 30%. Even after reducing the port tubes to half the original length, my tuning (50Hz) was still several Hz. lower than "Pi alignment specified". I recently removed a portion of the R13, and feel the tuning shifted a bit higher. Probably closer to 52Hz. Fb now. I had started with 1.2cu.ft. of R13 'glass inside the 2.5cu.ft. box...may have been overdamped...twin peaks (at Fl and Fh) were only 20 ohms. Sambtw, go easy on the silicone seal holding the port tubes in...a beetch to pull loose from a 1/4 in. deep recess...and I'm pretty darn sure adjusting the length is often needed...only a careful z plot will tell you where you are for certain.

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Subject: Re: based on my vast experience with 2 boxes:)

Posted by [Adam](#) on Sat, 27 Apr 2002 13:12:04 GMT

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Sam, how did you figure out the tuning of your enclosure? Adam

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Subject: per weems, you

Posted by [Sam P.](#) on Sat, 27 Apr 2002 13:25:07 GMT

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need to identify three freq.s using a z plot test setup. The lower peak is  $F_l$ , the upper peak is  $F_h$ , assuming a vented reflex enclosure. Then  $F_c$ , a single peak is found with the port sealed.  $F_b = \text{sq.rt.}[F_l^2 + F_h^2 - F_c^2]$   $F_b$  is the box tuning of the whole system, after all is said and done. A 'scope can also be used, the ellipse will go into a flat line at  $F_b$ . Of course, your accuracy depend upon your sig gen calibration, that's life...but the sig gen cal can be verified against line freq (60Hz), so how far off will you be to either side...not much. Sam

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Subject: Cabinet and alignment tolerance

Posted by [Wayne Parham](#) on Sat, 27 Apr 2002 16:49:26 GMT

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If you have only 400 cubic inch variance, you are well within tolerance. There will be no measurable difference, and certainly no audible difference. Change the size of the cabinet this much using a program like Boxplot to see what I mean. You can vary the size by a small amount or the tuning frequency and see its effects. You'll notice that this alignment is pretty tolerant of

change, particularly when box volume is slightly increased.