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Subject: Dimensions clarifications

Posted by [joshua43214](#) on Sat, 07 Apr 2018 19:03:50 GMT

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I was drawing up the 2Pi Towers, and noticed the note about changing the port diameter if 3/4" material is used. Looking closer, it was apparent that the dimensions on the plans are all external dimensions.

This caused me to double check the 6Pi dimensions and I found some inconsistencies. I went and reread the white paper on uniform directivity, which led to even more confusion over dimensions.

Someone asked in a previous thread if the horn dimensions are internal - and the answer was yes.

When I made my drawings, I worked from an internal mouth opening of 12"x24" tapering to 4.5"x4.5", then found a depth for the horn that averaged out the error between the 11" and 14.5" dimensions given in the instructions. The error here is pretty big, something like 3/8". The resulting horn depth is 10.25" not including the driver mount.

I referred to the white paper for help. The white paper is calling for 45x90 degrees, but the horn as drawn is closer to 40x87 degrees.

So what exactly are the critical dimensions here? The white paper says 90degrees by approximately 45degrees. 87 seems close enough, but 40 is pretty far off.

I am assuming the actual horn depth is not terribly critical, but the 4.5"x4.5" opening is important due to horn loading.

Would I be better off starting with tapers at 90 and 45ish from the 4.5"x4.5" opening and let the rest of the dimensions just follow so it fits into the cabinet?

The images below should help. The image is the space inside the horn flare itself.

This image is the flare using the dimensions as best as possible from the instructions.

This image uses flare angles of 45x90 and a 4.5"x4.5" opening.

Note the second image works out pretty nicely, except the flare mouth is almost a full inch larger than specified, though after fitting the cabinet will only be a bit oversized.

Thanks for you help,  
-Josh

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### File Attachments

1) [Clipboard01.jpg](#), downloaded 1865 times

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2) [Clipboard02.jpg](#), downloaded 1780 times

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