
Subject: Eight Pi

Posted by [tomlang](#) on Tue, 08 Feb 2011 15:15:01 GMT

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Regarding enclosure mods, I'm definitely going off half cocked here so bear with me but it seems others have done some mods to the enclosures and asked about them also so here goes.

I have been playing with the 8 pi design in Google Sketchup (a great excuse to learn it finally) and would like you to consider the attached model. My first priority would be integrating the tweeter horn as a part of the main enclosure rather than a separate box. A couple ways come to mind, a partition inside so the original enclosure volume for the woofer is not changed and secondly, actually utilizing the extra volume around the tweeter. Is there any advantage to a larger box?

Secondly would be changing the lines into more of a trapezoid shape as shown. As long as I keep the same inside volume is this ok, or does it ruin the design?

File Attachments

1) [8pi_long_trap_half.jpg](#), downloaded 3680 times

Subject: Re: Eight Pi

Posted by [Wayne Parham](#) on Tue, 08 Feb 2011 15:57:35 GMT

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It's hard to say what the mods you've proposed will do. Baffle mounting of the tweeter is not a problem, but resizing and shaping the box is not so easy to judge. You'll need measurement equipment to know for sure.

The thing to watch out for is internal standing waves. In any cabinet larger than about 2ft³, you have the potential for internal standing waves making ripples in lower midrange response. At higher frequencies, the insulation effectively damps the sound inside the cabinet. At lower frequencies, cabinet dimensions are too small. But in the upper midbass to lower midrange, where the cabinet dimensions are at wavelength scale, standing waves form and they can adversely affect response significantly.

This is a tough range to deal with. You have to use a multi-faceted approach, putting source locations and cabinet boundaries in the right positions with respect to each other. The goal is to make internal reflections line up so that pressure nodes aren't in troublesome positions (like where a driver or port is). It also helps to space insulation out away from the cabinet walls (in addition to the sheets that line the walls). A properly placed sheet spanning the cross-section will damp the difficult lower midrange frequency modes better than just lining the walls will. This is especially true if the insulation is where a high pressure node sits. It will damp that node best.
