Subject: 3 Pi dimensions and QSC 152 waveguide
Posted by Maxjr on Sun, 07 Aug 2011 18:39:36 GMT
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Wayne,

Can the 3 Pi box be altered into a taller and slimmer version as to eliminate the need for stands while maintaining the internal volume?

Also, can the QSC 152 waveguide be used with the DE250 compression driver? Would the passive crossover need to be changed with these alterations? Thanks for all of your help!

Cheers,
Joel

Subject: Re: 3 Pi dimensions and QSC 152 waveguide
Posted by Wayne Parham on Sun, 07 Aug 2011 20:36:46 GMT
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I wouldn't modify the plans unless you have good measurement equipment and time to setup the crossover. You have to take on-axis and polar measurements, to get good response and place the nulls outside the horn pattern. It is not a trivial matter.

If you want to design a speaker or to modify an existing design, here is a link that may prove helpful:
Crossover optimization for DI-matched two-way speakersAs for box dimensions, they are pretty important too for a full-range speaker this size. Standing waves develop, often creating ripples in response in the midbass or lower midrange, where damping material is ineffective. So cabinet size/shape and the positions of the midwoofer and port become important for mitigating response ripple.

Subject: Re: 3 Pi dimensions and QSC 152 waveguide
Posted by Maxjr on Mon, 08 Aug 2011 09:42:11 GMT
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I read through your white paper on waveguides and constant directivity. I didn't know the amount of research and thought that went into every detail of your designs. Incredible! Although most of it went over my head, I learned so much, and am going to read it through once more tonight.

Wayne, I recall reading a post by Zilch where he said something along the lines that 12" mid woofers are better matched with waveguides. Maybe this was a generality because he did say your 4Pi was a great design. Im curious on the differences between choosing a 12 or 15 as the

midwoofer. He also tried to get the midwoofer and waveguide as close as possible on the vertical axis. What are your thoughts on this?

Subject: Re: 3 Pi dimensions and QSC 152 waveguide
Posted by Wayne Parham on Mon, 08 Aug 2011 13:10:16 GMT
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The Econowave was based on my design, and its design principles are the same. What you read in the High-Fidelity Uniform-Directivity whitepaper is what the Econowave borrows from.
High-Fidelity Uniform-Directivity LoudspeakersBoth a 12" and a 15" midwoofer can be used to good effect in a system like this because both are large enough to become directional in the upper midrange. This is a sweet spot, in that larger drivers can't reach high enough and smaller drivers don't become directional enough. But 12" and 15" midwoofers can be used to make a great DI-matched two-way loudspeaker.
