
Subject: Pi 7 Information

Posted by [Jeff D](#) on Tue, 17 Apr 2012 08:38:42 GMT

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Hi Wayne

I am a newbie considering the construction of your cornerhorns. I have read some posts but still would like your opinion whether my lounge will be suitable for your corner horns. The speakers will be in the main rectangle which is 27 x 17 feet (7'9" ceiling). They will be across the shortest dimension. The corners have a window between them starting at around 5' away and one corner has another window at around 3' distance. I found your comments recently suggesting avoidance of openings and doorways within 6' and wasn't sure if windows would be classed as openings for cornerhorn purposes? Will there be some disruption to the speaker output arising from the window recess (3'3" wide), albeit only a foot or so deep assuming the window is mostly closed? Regarding assembly of parts, I am in the UK so I expect to assemble many bits locally because of shipping costs and import tax. What is the difference between an Eminence Delta 10 and a 10a please?

I know I need your xovers, hf waveguides and mid range spacers. Is there anything else I cannot source here or you recommend I source from you?

Regards Jeff

Subject: Re: Pi 7 Information

Posted by [Wayne Parham](#) on Tue, 17 Apr 2012 19:10:57 GMT

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Read the material at the following two links:

High-Fidelity Uniform-Directivity Loudspeakers

Speaker placement and wavefront launch

Ask yourself the following two questions:

1. Is there at least six feet of unobstructed wall space from the apex of each corner?
2. Will you be sitting behind where the forward axes cross?

If the answer to both of these questions is yes, then constant directivity cornerhorns are your best option.

Closed windows and bookshelves are OK, as are small furniture items and things like that. It is preferred that the walls be completely unobstructed and smooth, but those small deviations aren't deal-breakers. Open windows, doors and entryways are. If the window is open, it disrupts the expansion.

the parts locally except for the crossovers and waveguides. That will keep your shipping costs down.

Subject: Re: Pi 7 Information

Posted by [Jeff D](#) on Wed, 18 Apr 2012 10:26:39 GMT

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Hi Wayne, thank you for the reading material. It is excellent as is all the information you provide. I don't pretend to understand it all but hope to improve.

Provided the windows mentioned are not a real problem and that the crossing of the forward speaker corner axis is around nine feet from the front wall then the answer is yes. Would blinds or curtains improve or help the situation? I know curtains, rugs and wall hangings can generally help high/mid frequency reflections but don't know how this works so close to your constant directivity cornerhorns.

Can you please confirm the impedance of all the driver choices is 8ohm like the mid unit. Does the choice of driver eg JBL 2226H or Omega 15 make a difference to the crossover stuffing? Are there any special versions required like the mid - 10A not 10?

I first came upon your products after reading about the multi sub approach to modal calming. I think I read the cornerhorns don't benefit from flanking subs but I assume may still require up to four subs for ultimate bass fidelity.

Please may I have a copy of the Seven Pi plans.

Subject: Re: Pi 7 Information

Posted by [Wayne Parham](#) on Wed, 18 Apr 2012 15:18:55 GMT

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Curtains are particularly helpful for constant directivity cornerhorns. They tend to help most at HF, at higher frequencies, the angle of incidence from tweeter to wall makes any reflection run nearly parallel to the wall. The grazing angle is very small and any reflected energies will have to pass longwise through a lot of curtain material. So curtains are very effective when placed near constant directivity cornerhorns.

All loudspeakers used indoors will benefit from multisubs. Constant directivity cornerhorns don't need flanking subs, but they can still benefit from multiple subwoofers. They just don't need to be placed in a flanking configuration. I highly recommend multisubs for any home hifi or home theater installation, truly for any sound system run indoors in a room smaller than about 2500 square feet.

Using four subs, you can place them just about anywhere (except grouped together) and expect good results. You might go with a Welti configuration (four corners or four wall midpoints) or go with a Geddes placement (one corner, one midpoint and one random). With four subs or more, it almost doesn't matter where you put them as long as they aren't tightly clustered. Space them apart from one another.

Subject: Re: Pi 7 Information

Posted by [Jeff D](#) on Tue, 24 Apr 2012 18:24:26 GMT

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I am about to pick up some JBL 2226h bass units soon and this started me thinking about the build. Some of you who have already built the cornerhorns may have been concerned about their WAF if they are to go in the lounge. My better half is fairly flexible with most of my daft ideas as long as they sound good. First, I suggested they would disappear into the corners and that definitely earned me brownie points (she is currently staring at a pair of large pro Tannoy cabinets). However, when I showed her some pictures of both demonstration and home built versions that enthusiasm reduced. I wondered if any of you have come up with some cosmetic surgery that I might copy to make them more acceptable ?

I have done some sketching to try out ideas and she would prefer it if the bass cabinet front panel was the same width as the midrange horn cabinet. This means extending the front panel by adding 4.25" wings to both sides. Do you think that would screw up the performance ? Similarly, to make another tier similar to the midhorn cabinet for the tweeter to keep the side profile the same all the way up and provide a flat panel on the top. The last would at least allow me to add weight and damping on the top inside that box.

Any ideas appreciated, negative or otherwise, feel free to shoot me down ...

Subject: Re: Pi 7 Information

Posted by [Wayne Parham](#) on Tue, 24 Apr 2012 19:50:25 GMT

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I guess I'm not much help, maybe proud papa or something, because I always thought the cornerhorns were the coolest looking speakers I ever made. The cradled wood horn tweeter on top is the pièce de résistance for me. Even when done with a plastic waveguide in a box on top, I think my constant directivity cornerhorn is a very artistic design, one where form follows function but highly artistic, nonetheless.

Subject: Re: Pi 7 Information
Posted by [Jeff D](#) on Tue, 24 Apr 2012 22:20:53 GMT
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Oops, sorry Wayne. I don't want to upset you ! Agreed, it's beauty comes from form following function. In my opinion, the great strength of your cornerhorn design is it's flexibility to accommodate change. I am sure it will continue to develop as the years roll on. However, I hope you will agree that beauty is always in the eye of the beholder. This request is being driven by the female element within the household and must be taken seriously even if I eventually build it stock after negotiation. Any alteration I make, may of course back fire and reduce performance in my example or render it less able to accommodate future improvement. I assume the wings I suggested for the bass box front panel don't cause you much excitement as you didn't mention them. Anybody out there have the temerity to suggest cosmetic changes now ?!

Subject: Re: Pi 7 Information
Posted by [Wayne Parham](#) on Tue, 24 Apr 2012 23:46:12 GMT
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Oh, heavens, you didn't upset or offend.

I'm just sayin'...

I'll bet if she were at a show and saw my pair of cornerhorns, she'd think they looked great. Women tend to like them even more than men. But they have to actually see and hear them to fall in love with them, I suppose.

When women come into a relationship with a man that already has cornerhorns, they never want any other kind of speaker from then on. I've seen it on several occasions. I guess I never really thought about how maybe they wouldn't have picked the speaker in the first place, but once they live with it, they love it. Maybe that's it.

I always figured it was because they are tucked back into the corners, out of the way of room furnishings and decor. But women also have really good hearing so maybe that's part of it.

Subject: Re: Pi 7 Information
Posted by [skywave-rider](#) on Thu, 26 Apr 2012 17:22:38 GMT
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Recently I showed the Pi cornerhorn design to a female architect friend. I am always interested in how others see these objects; because speakers play into interior design fundamentally, in my opinion. And I tend to see technical objects as beautiful, almost automatically.

In Wayne's photos, the wood is different on the naked horn and the LF unit. Instinctively I told her to imagine that the wood color/grain would be matched. She said, "no, it is beautiful this way."

I was surprised. But she has an ability to visualize what things will eventually look like in a room.

Having said that, of course you're right, to each his or her own.

Subject: Re: Pi 7 Information

Posted by [Wayne Parham](#) on Thu, 26 Apr 2012 19:22:09 GMT

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Yeah, two-tone. Gotta love two-tone cabinets. A dark wood grain and a light wood grain, sometimes separated with a black or gold pin-stripe to make the contrast pop even more. Used to be more common, even table radios had this aesthetic:

By the way, notice the speaker cutout. This is before the days of CNC, and those decorative curved cutouts were done by hand. Hard to imagine, these days. But look closely at any older tube radio with a wood cabinet and you'll see hand-cut parts, sometimes so precisely made you'd think they were done with automation. They're really impressive to me, the products of skilled craftsmen of a bygone era.
