
Subject: Various questions regarding 7Pi
Posted by [JakobR](#) on Sun, 17 Sep 2017 20:21:52 GMT
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Hi there,

I'm really interested in this design. However I have a few thoughts about some alterations I have in mind. I'll be using my BSS BLU unit for crossover so I have some flexibility there.

Regarding the mid horn:

- 1) Is it usable below 200Hz?
- 2) Would it be a bad idea crossing it over to a JBL 2451 coupled to a ptf95 wg at a lower frequency than 2 kHz, lets say 7-800 hz?
- 3) Would a jbl 2123 work ok in this horn up to 1kHz?

Regarding the corner bass horn:

- 1) Will the height be taller if built for a Jbl 2242 18"?
- 2) Do you have any simulations with 15" and 18"?
- 3) If loaded with an 18", will it still perform as good as the 15" version in the higher region where it blends with the mid horn 10"?

Last question: as I'm living in Sweden, what would the shipping cost for the mid horn flatpack?

Best regards,
Jakob

Subject: Re: Various questions regarding 7Pi
Posted by [Wayne Parham](#) on Mon, 18 Sep 2017 23:33:36 GMT
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Answers by numbers:

Midhorn questions:

100Hz to 200Hz region. There is enough output from both sound sources to mitigate vertical room modes and floor bounce. Proximity to the corner provides boundary loading and the horn was designed with that in mind. But midhorn output is obviously reduced below 200Hz compared to the midband. It doesn't need as much output down low because the bass bin takes over.

slopes chosen with each subsystem and driver in mind. Other choices could be made, certainly, but I cannot really say which might be improvements, which might be detrimental and which would just be changes, without any positive or negative impacts. I know of all the horns, waveguides, drivers and the various crossover topologies I chose while developing this system, these are the ones that worked best for me. There are a handful of drivers available and those are the ones I found that tested well. Each driver has its own optimizations in the crossover. The crossover

schematic shows what components are needed for each driver.

3. The JBL 2012 is the only JBL driver that has tested well in the midhorn when used in this design.

Bass bin questions:

1. Yes, the version that uses an 18" driver is much larger. It's 46" x 24" x 12" and has a 4" diameter port that's 1-1/2" long.

2. Yes, the 18" version rolls off lower, as you might expect. You can model it yourself easily enough using the dimensions listed in answer #1, above.

3. Yes, the blending with the midhorn is done low enough in frequency that even a large woofer has smooth response. The only real disadvantage is the large size of the bass bin. I tend to prefer the smaller size of the 15" version, and for deepest response, augment two subwoofers at opposite corners, crossed over very low, e.g. 50Hz. This gives modal smoothing in addition to deeper extension. This philosophy incorporates a multisub approach, and is, in fact a Welti configuration with woofers in all four corners.

As for freight costs, the best way to get shipping quotes is to put an item in the shopping cart and begin the checkout process. It will ask you for your address and use that to calculate shipping by several methods and shippers. It doesn't ask for payment information until after it has calculated shipping costs, so this is a good way to check prices.

I would also recommend using a freight forwarder. They will provide a USA address, which you will then use in the Pi Speakers cart, by entering the address they give you. This will make your shipping costs much lower. Do a search on the internet to find out what freight-forwarding companies are available to you in your area.

Subject: Re: Various questions regarding 7Pi
Posted by [JakobR](#) on Tue, 19 Sep 2017 20:47:28 GMT
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Thank you Wayne for your extensive answers.

When it comes to the corner bass bins: how far away from the corner can one put a floorstanding object (f.e a book shelf) without affecting the sound / output from the corner bass bin?

How rigid must the walls and floor be in the corners for optimal bass sound?

I think I have found a forwarder, thanks for the tip! How much will a pair of flat pack midhorns weigh?

BR Jakob

Subject: Re: Various questions regarding 7Pi
Posted by [Wayne Parham](#) on Wed, 20 Sep 2017 15:48:00 GMT

The walls don't need to be rigid; In fact, a lossy wall is best. Just not one that buzzes as it vibrates.

The reason we like a lossy wall is it damps room modes. Ideally, we'd like a wall that became increasingly rigid above the Schroeder frequency, around 200Hz. Below that, we'd prefer that the wall act as a panel absorber.

As for items in the room, of course, the only real answer I can give is "it depends." Not what you were looking for, I'm sure. But it's true. Still, common sense works here. If the bookshelf only extends away from the wall into the room a foot or so (as I would expect), then it's probably fine. We aren't really concerned about radiation at that grazing angle anyway.

But if the shelves shadow the listeners, then obviously, that's bad. Or if it vibrates or something on it reflects towards a listener. Books on the shelves usually act as diffusers, which tend to be a good thing. But if you have some large smooth rigid object on the shelves that reflects from the tweeter to the listeners, that would really be noticeable. It would create a phantom source and throw imaging off.