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Subject: Subwoofer position with Seven Pi corner horns?

Posted by [Norris Wilson](#) on Mon, 07 Sep 2009 19:55:03 GMT

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Have you used subwoofers with your Seven Pi corner horns?

Obviously, if stereo subwoofers are desired. The space between the corner horns would be the logical choice.

But, would this be the only choice, especially if you use four subwoofers in a distributed arrangement?

Are there any problems with this subwoofers between the mains arrangement in an average sized living / listening room? Problems like reduced stereo imaging in the bass region?

Are there any subwoofer placement alternatives over being placed between the corner horns, like ahead of the mains along the wall?

Or, would that create a timing issue?

Thanks

Norris

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Subject: Re: Multisubs with Seven Pi corner horns

Posted by [Wayne Parham](#) on Tue, 08 Sep 2009 02:23:51 GMT

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Yes, I've used subs (actually multisubs) with cornerhorns. This is the best sound system I've ever heard, but you have to have a room with the right corners to do it.

With my DI-matched two-ways, I usually run what I call "flanking subs" so I can lift the mains up on stands. The idea is to have subs close enough to run at fairly high frequency without localization problems. This smooths floor bounce.

You don't need flanking subs with cornerhorns because the bass bin and midhorn are blended in the lower vocal range. This blending does the same thing as the flanking subs - it smooths the modes in the upper modal range, the last ones up near the Schroeder frequency, before they become so tightly spaced as to become indistinguishable. This frees your placement choices somewhat. Subs don't need to be placed close to the mains, and in fact, are probably better when placed further away and low-passed lower.

I don't think there is a good rule of thumb that can be used for identifying the best placement for subs, except one: More is better. The more subs you have, the less important it is where each one is placed. If you have just one, there is no real good placement. With two or three, I would use CARA to find the best positions to put them in, and then fine tune with measurements. With four or more, put them anywhere convenient (except grouped together) and you can expect good results.

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Subject: Re: Multisubs with Seven Pi corner horns  
Posted by [Norris Wilson](#) on Wed, 09 Sep 2009 12:04:10 GMT  
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"but you have to have a room with the right corners to do it."

This has been an issue that I want to remedy, not having the proper corners for these horns.

The only room large enough to handle corner horns and multiple subwoofers has a door right at the only wall that could house a stereo system.

This is an open doorway from my living room where the stereo would reside, and the hallway to our bedrooms.

My thought is to install a door on this open doorway. And to build a false wall platform for the corner horn to set on.

Possibly I could get away with just building a false wall with casters on the bottom that would cover the doorway. A platform in an L shape that could be rolled in and out of the corner.

Have any of your customers built such a false wall-corner before?

If so, what were the results versus a real corner in the listening room?

As you know, I would prefer a three-way speaker with a smaller midrange driver due to my hearing preception of breakup in the upper midrange lower treble region when using a 15" woofer in a two-way speaker.

Thanks

Norris

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Subject: Re: Multisubs with Seven Pi corner horns  
Posted by [Wayne Parham](#) on Thu, 10 Sep 2009 02:40:08 GMT  
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for.

Of course, I'd suggest the optional JBL or AE woofers. I think you've seen from the measurements that there's no breakup up high with them and response is nice and smooth. Respectfully, I think you expect breakup and this makes a sort of psychoacoustic situation for you. Measurements clearly show there is no anomalous behavior in the passband, which is all that matters.

The midhorn is a nice subsystem to use, but it is sized for corners. It can be used outside corners, after all, just being inside provides some boundary reinforcement. This gives the right acoustic loading and keeps response flat but it does not give the same benefit in terms of directivity. You could use false walls, but I can't imagine a situation where that would work in terms of aesthetics or decor.

evaluation. Augment them with flanking subs, just like I have. I love this setup and I think you would too.

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Subject: Re: Multisubs with Seven Pi corner horns  
Posted by [Norris Wilson](#) on Thu, 10 Sep 2009 03:11:25 GMT  
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Wayne,

I need to make it over for a listen to your latest Four Pi set up with subs.

It seems like every time that I want to plan a trip over, something comes up.

" Respectfully, I think you expect breakup and this makes a sort of psychoacoustic situation for you."

That is a good possibility, or I have something wrong with my hearing where I get a distortion from my ear drum in the frequency range around 1kHz.

Thanks

Norris

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Subject: Re: Multisubs with Seven Pi corner horns  
Posted by [Wayne Parham](#) on Thu, 10 Sep 2009 13:03:13 GMT  
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Measurements show the speakers are very smooth in this range so it must be something else. There are definitely a lot of speakers with cone cry in the overtone region, sometimes pretty severe. It's common. But the JBL 2226 and the TD12S are smooth as silk in the midrange through the crossover point.

One thing I find very common is people think they can hear breakup in a large driver simply because they expect it should be there. This is probably due to the fact that some (perhaps most)

large drivers have terrible breakup, causing people that are exposed to them a lot to form a Pavlovian reaction to all large drivers. It's a conditioned response. Whenever they see a large driver, their expectation of it to sound bad at high frequencies is more than just a simple preconceived notion, it is an actual physical reaction.

This is a real phenomenon that is repeatable and can be shown by demonstration or experiment. When a person hears or sees something repeatedly, it is sort of "burned" into their brains and they will always expect it. They will have physical reactions to what is actually an expectation. So you can quite literally have a reaction by just seeing a large woofer, because of others in the past, even if the one you are listening to is flawless. However, if I put the speaker behind a curtain, you will no longer experience the reaction because you cannot see it.

The JBL 2226 and AE TD12S woofers have smoother response between 500Hz and 1.5kHz than many 8" and 10" drivers. There are many 8" and 10" drivers that have good midrange response but my point is that there are also some 8's and 10's that don't. For that matter there are some 5" and 6" drivers that don't either, especially those with polypropylene or metal cones. Breakup is largely determined by diaphragm material and shape, not just size. If you were to measure a lot of drivers, you would see what I mean.

The thing is, like I said, it is very common for people to expect breakup in larger woofers in a very real psychoacoustic sense. It isn't that they have bad hearing, in fact, it is their good hearing that setup the Pavlovian reaction in the first place. But when they encounter a good woofer, they then do not recognize it as such. If you were to see measurement data and listen to the sounds that correlated with the charts, you would begin to develop a different set of responses eventually, essentially changing your conditioned responses to more closely correlate with what you hear.