Subject: cornerhorn Qs
Posted by Tightwad on Fri, 18 Apr 2003 15:51:05 GMT
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If one built simple boxes for the cornerhorns (as opposed to the doghouses), and placed them correctly w.r.t. the corners . . .does the placement require an exact 45deg angle? Or does it merely depend on the woofer pointing at the corner from the correct distance?

Subject: Cornerhorn Answers
Posted by Wayne Parham on Fri, 18 Apr 2003 17:28:43 GMT
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You can simply point the bass bins into the corners and expect the same results. The whole deal with these things is that as long as the source is close enough to the corner's apex, it is effectively coupled to the apex. A good rule of thumb is that the sound source is coupled to the apex as long as it is 1/4 wavelength or closer. Above this point, the speaker begins to act more like it is in freespace with the walls being reflectors instead of flare walls. So the closer it is, the higher you can expect to be coupled.You can manipulate the spacing to change the point where you have this transition if you wish, and you can also put a constriction ring on the woofer to increase compression ratio above 1:1. These are some simple changes that have been done by lots of people on this forum. I prefer to have position, angle and 1-to-1 compression be permanently set, but that's just my personal preference.About the angle - If you crossover low, the angle is unimportant. But if you allow the LF section to generate output up high, then the walls act as reflectors and the orientation angle becomes important. At frequencies above that where the distance between the radiator and the walls is one wavelength, the walls begin to act as reflectors.Any high frequency output from the cone that is radiated at an angle greater than a few degrees off-axis is directed out because of the angle of the walls. This angle is the same on both sides, and it amounts to a few degrees on each side. By changing the angle, you'll also be changing the proportion of horizontal axis that is promoted on each side. So this angle will change the character of the LF subsystem at high frequencies, above the point where the distance between the radiator and the walls is around one wavelength.By leaving off the portion of the cabinet that fixes the position in the corners, you can move the speakers around to set the freespace transition point. You can pretty much put any radiator in a corner and tailor position and angle to suit your needs and/or tastes. Your room boundaries form the flare of a large conical horn, and the position, orientation and compression of the diaphragm are things you are able to easily set with your loudspeaker cabinet.

Subject: Thank you . . .
Posted by Tightwad on Fri, 18 Apr 2003 17:39:54 GMT
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. . . for the great response. A lot to mull over.If I were to build cornerhorns, I think I would like the

flexibility of toying around with placement. (Slightly simpler to build, too.)Anyway, cheers,Steve

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Subject: Re: cornerhorn Qs
Posted by Rider on Fri, 18 Apr 2003 21:08:56 GMT
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I have some CD flares on the horn section of PI 7's and have a long room. I point the horns right at me to get a better sound stage. The bass doesn't seem to suffer for the move off of 45 degrees, but the sound stage is great. You don't have to use them tight to the corners to get that incredible bass either.If you hear the corner horns you'll be VERY impressed. They do take space though. Grant.

Subject: Re: cornerhorn Qs
Posted by Ian Douglas on Sun, 20 Apr 2003 05:30:16 GMT
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Can you clarify what CD flares are? If you have them pointed right at you, wouldn't that basically be the Pi 4's? Sorry, probably I'm just confused by your post but interested in your comments about adjusting the 7's for better soundstage, since I'm considering building the more flexible design so I can play with stuff like this.-Ian

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Subject: Horn shapes
Posted by Wayne Parham on Sun, 20 Apr 2003 16:37:59 GMT
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CD flares are those that have straight sides, often with sections separated by sharp edges. Their main strength is that they exhibit constant directionality regardless of frequency, hence the name.Personally, I prefer radial horn shapes, with straight side walls matched by catenary radius from the throat angle and exponential curvature of the top and bottom walls. This provides a narrow vertical pattern, usually with some collapsing directivity in the vertical plane at high frequencies. Horizontal directivity is uniform, although not generally as much as a sectioned CD horn at low frequency. The sections in CD horns widen the patten down low, maintaining constant directivity down low, just before the horn loses pattern control. This offers a slight improvement in coverage but there's a penalty in smoothness of response as a result.You can find some good useful general information and brief history of various horn developments in Quadratic horn

whitepaper. This document is commercial in nature, intended to introduce you to specific Peavey's horn products. But the description of various horn shapes is good.

Subject: Re: cornerhorn Qs
Posted by Rider on Sun, 20 Apr 2003 19:33:44 GMT
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Hi Ian.I see Wayne got the question on the CD flares. Your second question was whether the 7 Pi's would be like the 4's if they were pointed right at you. The 7's are 1) corner horns and 2) quite a bit larger than the 4's. These 2 points make for a speaker with a lot of bass. The down side to corner horns is you need open corners in a fair sized room. The 4's don't need corners and don't take so much space.Good luck with whatever you choose. One thing you can be sure of. There is lots of playing you can do. Grant.
