Subject: midbass horn with 2226
Posted by andreas paulsen on Tue, 11 May 2004 21:54:51 GMT
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Hi AllDoes anyone has a good suggestion on bridging the gap between the Labsub and waynes midrange horn?. I am contemplating a front loaded 100Hz horn using a 2226 15" jbl as they are at hand. the 2245 is also a possibility but its not the first driver which comes to mind when one says "midbass".Cornerhorns are definately a possibility and such is the Pi-10, albeit its rather large for a midbass horn.Cheersandreas

Subject: Re: midbass horn with 2226
Posted by Wayne Parham on Wed, 12 May 2004 04:05:50 GMT
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midrange horns can be used at the crossover point. Its two reflectors are each angled so that high frequencies are directed out the mouth, but you're right, that makes it large. You don't need to crossover all that high if you're using a large-format cone-driven midrange horn, so you can use a much smaller horn with tighter folds instead.I suggest you might check with Mike E because he's built physically small 40Hz horns using the JBL 2226. Seems like he's made several models (both computer and physical) of 40Hz horns that use the 2226 and in cabinets no larger than 8ft3, maybe smaller. I'd expect them to work well in the application you've desctibed, from 40Hz to 300Hz or so. John Sheerin has also made a 40Hz horn for the 2226, so you might ask him about it. Maybe those guys might share their ideas with you.

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Wed, 12 May 2004 20:18:45 GMT
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Yes I have seen Mikes and johns horns, looks interesting. I mostly have been thinking about a straight horn though. But I realise that I probably are planning to far ahead. But imagine a system with a labsub, midbass horn with 2226, Pi midrange horn with 2012 and finally stageaccompany ribbon (prob with horn extension). I have most of the parts and amplifiers, but I am sincerely lacking room for such a monster of a systemCheersandreas

Subject: Re: midbass horn with 2226
Posted by Wayne Parham on Wed, 12 May 2004 20:39:41 GMT

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Yeah, that's a monster. Your midbass horns will need to be five to seven feet long if they aren't folded. I'd probably not limit myself to a straight horn when the upper frequency requirement wasn't high. But it would be a great horn though!

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Thu, 13 May 2004 07:28:51 GMT
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Hmm it might be pleasing to the eye, if the midbass horn shared the same size as the labhorn, might just be doable. Hmm.Cheersandreas

Subject: Re: midbass horn with 2226
Posted by Wayne Parham on Thu, 13 May 2004 08:03:42 GMT
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What about crossing over directly from the basshorn to the midhorn without a midbass in between? Cluster a couple in a tight array and they will do nicely.

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Thu, 13 May 2004 09:20:45 GMT
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Nice idear Wayne, you mean cluster a couple of midrange horns i presume?. The Labsub does not feel really well above 150 (pref 100) Hz. However the idear was to make a hifi system, albeit a rather large one. So i dont know about a cluster in such a situation.Maybe i should think about a folded horn anyway (or Writing up my PhD thesis, which is what i should do!)cheersandreas

Subject: MTM Pi midhorns
Posted by andreas paulsen on Thu, 13 May 2004 13:13:07 GMT
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HiHow low du you presume the lower cutoff will be on two midhorns in an MTM arrangement, with approximately 6" between each horn ? Just room enough for the SA tweeter.cheersandreas

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Subject: Re: MTM Pi midhorns
Posted by Wayne Parham on Thu, 13 May 2004 17:11:57 GMT
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Being this close, they'll act as one unit at the lower crossover point. Wavelengths are several feet

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Subject: Re: MTM Pi midhorns
Posted by andreas paulsen on Thu, 13 May 2004 18:22:35 GMT
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Thanks Wayne, i have difficulties grasping the effect of clustering several horns. Do you mean the horns should be further apart to go down lower, or should one cluster fx 4 horns to extend response.cheersandreas

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Subject: Re: MTM Pi midhorns
Posted by Wayne Parham on Thu, 13 May 2004 21:00:15 GMT
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There are a few things that happen when you array horns or place them near boundaries.As long as the two horns are less than a quarter wavelength apart, you can consider them tightly spaced. In fact, this is true up to about a third wavelength spacing. The idea is that the difference between each sound source and the listener shouldn't be a half wavelength or multiples of a half wavelength because that causes cancelation nulls.When placing horns near a boundary or other similar horns, it changes their radiation angle. This has several effects on their performance, potentially changing their response and dispersion and making them act like a larger horn. This is like the way some antennas work, having a single conductor but forming a dipole using a large metal surface or the ground as a reflector or "ground plane." Every car antenna is done this way, with the body of the car functioning as a ground plane. It effectively doubles the length of the antenna. This same situation is also true of the boundary conditions for horns.A sound source

the baffle restricts output towards the rear. If placed in a 90o reflector, like the floor/wall or

themselves are fundamentally devices that reduce the radiation angle to some fractional amount.Other sound sources act as reflectors too. Using another antenna example, look at what is used for beam antennas. Not many homes have them anymore, but just twenty years ago, you'd see an array antenna on every home for the television. It's formed by having a series of dipole antennas spaced so that parasitic radiation from each element interacts with the other adjacent elements to control the pattern. The situation is similar with horns, in that if you take two similar horns and mount them one above the other on a baffle, the horns will act as reflectors to one another. Assuming each horn is driven with the same electrical signal and they are tightly spaced, each horn will only have to cover quarter-space. The baffle reduces radiation angle to half-space, and each horn takes half that.In the case of loudspeaker horns, I find the most common reasons to use methods that decrease radiation angle are directional control, increased output and improved low-end response. Prosound applications often focus on directional control and increased output. But high-fidelity applications almost always have the priority on frequency response. Folks put their basshorns in corners so the bottom end is made deeper and less peaky. In fact, the corner does most of the job and the part of the horn that's inside the cabinet does very little. Midbass and midrange horns are also often improved using similar approaches, baffle mounting or near proximity to room boundaries.Even into the lower midrange, wavelengths are still pretty large. Middle C is 260Hz, with a wavelength of over 4 feet. Just one octave down, you're at 130Hz, which I'd consider to be roughly the start of the midrange band. This is nearly nine feet long. So a midrange horn that doesn't have dimensions of this general scale is really undersized somewhat. You'll sometimes find midrange horns that large in theaters, but most of even the largest home speakers get nowhere near this big, certainly not for a midrange horn.That's where boundary conditions and reduced radiation angle can really help. At low frequencies where the mouth may be too small to control dispersion, output is still limited to the radiation angle formed by the environment. This is why small horns receive more benefit from reduced radiation angle than larger horns do. A small horn becomes less effective at low frequencies, and the boundary conditions themselves become a significant part of the horn.Using room boundaries, close proximity to other horns or even baffle mounting, the horn is made to act like a larger horn, particularly at the lowest frequencies where it becomes weak. This is true not only for basshorns, but also for midbass and even midrange horns up to a few hundred Hertz. Most of them are really a bit small. As the frequency drops, the horn becomes too small to maintain the directional pattern of its side walls and the pattern widens. At the lowest frequencies, it becomes practically omnidirectional. So an undersized horn is unable to perform at the lowest frequencies unless it is used in an environment where radiation angle is constrained in some way.Hope this have given you some thoughts to ponder, and helps with some ideas for implementing your midbass and/or midrange horns.

Subject: Re: MTM Pi midhorns
Posted by andreas paulsen on Fri, 14 May 2004 05:31:18 GMT
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Thanks Wayne !! really a good explanation. On the other hand I nearly fell guilty at having you write i up.Cheersandreas

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Subject: Re: midbass horn with 2226
Posted by Mike.e on Sun, 16 May 2004 01:59:37 GMT
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hiyaa Frequency response like this is what your looking for?with only 1800cm mouth doesnt make much difference.Have you see volvotreters website? he uses a 12" for 100hz+ Cheers!

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Sun, 16 May 2004 06:02:25 GMT
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yes thats what i am looking for. I think a 12" would be better for the frequency, but the 2226 are allready in stock, so to say. cheersandreas

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Sun, 16 May 2004 10:14:43 GMT
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Hi Mike.eWhat do you mean by 1800cm mouth, do you mean 1800cm^2 area, or ?Cheersandreas

Subject: Re: midbass horn with 2226
Posted by Mike.e on Sun, 16 May 2004 10:42:01 GMT
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yes 1800cm^2 sorry. Id hate a late night out * loud drum n bass until 5am :-) *:-)

Subject: Re: midbass horn with 2226
Posted by Mike.e on Sun, 16 May 2004 10:42:29 GMT
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It seems to cover the approximate range you want yes?Cheers

Subject: Re: midbass horn with 2226
Posted by andreas paulsen on Sun, 16 May 2004 11:14:53 GMT
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Ohh yes it does, just what I want., however baby screams from 5am has taken it's toll on by brain :)And by the way i need a new place to put the goddamn horns. Baby's taken up an awfull lot of room.cheersandreas

Subject: Re: midbass horn with 2226
Posted by Wayne Parham on Mon, 17 May 2004 02:59:36 GMT
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I remember those days. No sleep, lots of frustration. A baby crying at 5:00am is like an air horn in your ear. So it was funny that the links at the bottom of your post were for air horns. That must be why God made sex so pleasant, 'cause it it weren't really great, no one would ever have kids. But you gotta love 'em. And it gets better in a few months.