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Subject: Horn Cab for the Lab 12  
Posted by [Carl Huff](#) on Thu, 13 May 2004 21:14:43 GMT  
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I've seen a couple of people on this board speculate on bulding a simpler and much smaller folded horn subwoofer cab (smaller than the Labhorn) for the Eminence Lab 12 loudspeaker. Has anybody actually done it? Were you dissappointed? I've got some Lab 12's coming and was toying with the idea of experimenting with a 'non Labhorn' cab.Regards,Carl Huff

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Subject: Re: Horn Cab for the Lab 12  
Posted by [GraemeG](#) on Fri, 14 May 2004 11:24:45 GMT  
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Depending on your required usage, results may be dissappointing. As the Lab12 was specifically designed for the LabSub, I doubt any other variations will approach its performance. As far as folded horns go, the LabSub is quite simple, and any attempt to make the cabinet smaller will, out of neccessity, decrease path length and reduce mouth size - resulting in inferior low end response. If the application is home use, then corner loading plus the use of electronic equalisation (making use of the Lab12's excursion, with appropriate power requirements) may provide a usable combination.Cheers

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Subject: Re: Horn Cab for the Lab 12  
Posted by [Wayne Parham](#) on Fri, 14 May 2004 22:09:57 GMT  
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Hi Graeme, good to see you. I haven't seen you around in a while. What's the latest on your part of the planet? Any new loudspeaker creations?About smaller systems suitable for the LAB12 woofer, Mike E has built some smaller horns, and they modeled quite nicely from 40Hz up. The LABhorn was designed for 30Hz, I believe, and so Mike's horn trades 10Hz on the low end for size.Another thing I think is pretty attractive is to use them in a 2ft3 to 6ft3 cabinet tuned to 22Hz. That will provide maximum output of about 115dB at full power, which is not too bad for home use. The small size is nice too.I understand that lots of people using the LABhorns for home theater are EQ'ing them below 30Hz. Down where the horn unloads, the system becomes a direct radiator so that makes sense. Removing the horn makes this unnecessary, but the obvious reason is that now the entire subwoofer range requires more power.

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Subject: Re: Horn Cab for the Lab 12

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Posted by [GraemeG](#) on Sat, 15 May 2004 13:25:31 GMT

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Hi Wayne, Been lurking around in the background still! Currently CADing up my new horn sub - settled on Beyma 12LX60 for widest pass band and flattest response down to 30Hz or so. Am planning some high-mid horn experiments with Eminence Alpha 6 soon (hopefully within this next month) - setting up some trial phase plug designs on CAD now. Starting to get colder now here as we head towards winter, which is a bit of a pain for building stuff outdoors...CheersGraeme

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Subject: Re: Horn Cab for the Lab 12

Posted by [Wayne Parham](#) on Sat, 15 May 2004 21:30:39 GMT

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Sounds interesting. What shapes of phase plugs are you considering? What frequency range are you planning for the Alpha 6 horns? Adrian Mack did some work with these drivers too and came up with a real nice horn. And what does that subwoofer look like? How are you folding it?

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Subject: Re: Horn Cab for the Lab 12

Posted by [Mike.e](#) on Sun, 16 May 2004 01:51:15 GMT

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hi carll modeled up a 40hz horn for the lab12, for corner usage in a home. No doubt, im sure it would be impressive. I have a 40hz horn already, and i like it alot, in fact most the time (depending on program material) i cant tell if im using the 40hz horn or 33hz tuned jbl (ported) as i switched between them alot comparing. Certain tunes will use that low end extension. I certainly would think a 40hz F3 is a valid target for most music especially in pro usage. Sizes were about 300-400Litres depending on if its a corner use horn or stack of 2 or 3 in 2pi space. Although never built (due to \$ cost) Everyone on the forums trusts mcbeans program to model an accurate response. Cheers! Mike.e also <http://homepages.paradise.net.nz/quadroph/ts/ts.html> Btw my 40hz horn does 126db in the car with 20watts :-)

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Subject: Re: horns

Posted by [GraemeG](#) on Sun, 16 May 2004 02:32:50 GMT

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I want to push the Alphas as high as I can get them (around 3.5kHz) as I prefer compression drivers and crossover points out of main vocal area. To achieve this will require complex phase

plugs akin to what you would see inside a typical JBL compression driver (concentric slots). Starting with a design using two concentric slots. Alpha dust cap arrangement doesn't make this much easier. For the sub, I was originally planning something along the lines of the LabSub. However, as these will be for pro use, I decided I am getting to old to continually lug that sort of weight around. Therefore I will be using single driver cabinets in multiples. Compared to the Labsub, these will be a bit taller (which gives better height for top boxes), about 60% the width, and not as deep (easier to fit in some venues). In that I can get longer horn path and larger than half LabSub mouth - should work well. Folding is along the LabSub lines, however longer path means more spiral overlap - looks like cross between LabSub and spiral horn. Autocad makes designing this much easier. Cheers Graeme

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Subject: Re: horns

Posted by [Wayne Parham](#) on Sun, 16 May 2004 03:55:32 GMT

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Hi Graeme, I agree with you 100% on the crossover point for compression drivers. I know some of the really old stuff was made to be used down low, but the new parts don't sound good to me when crossed over low. Plus they don't handle any power so you lose all the dynamic range benefits if you push 'em too low. And probably more than all of that, I just don't like having a crossover in the vocal range. Your subwoofer sounds great. I'm interested to see it when you get it done. I've had a few new projects on my plate too, so I've been too busy to look around and see what everyone else is doing these days. Please keep us posted. Wayne

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Subject: Re: Horn Cab for the Lab 12

Posted by [Wayne Parham](#) on Sun, 16 May 2004 03:59:42 GMT

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Hi Mike, thanks for posting the plans. It still busts me up to see your basshorn in a compact car. How I wish you would pull up on the local strip here in Tulsa with that thing blaring. I'd love to see their jaws drop when your car glass vibrated an inch from the SPL. Wayne

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Subject: Re: Horn Cab for the Lab 12

Posted by [Carl Huff](#) on Mon, 17 May 2004 09:18:38 GMT

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Mike, What are the throat details? The slot that the speaker works into is 6.97cm by ????. And I presume that a top view would show 'angled boards' that run from the throat to the first fold up at the front of the cab, right (ie: expanding throat)? Regards, Carl Huff

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Subject: Re: Horn Cab for the Lab 12  
Posted by [Mike.e](#) on Mon, 17 May 2004 09:30:52 GMT  
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just an example i dont have that CAD file anymore. Its a simple matter of redoing it, to your exact specifications. Email me with Exactly what you need, and i can CAD you up a similar thing. Notice also that the lab12 is a physicaly HUGE woofer, huge magnet, that woofer in the diagram was just a test. Cheers!

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Subject: phase plugs  
Posted by [Adrian Mack](#) on Mon, 17 May 2004 22:41:25 GMT  
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Hi Grame Will the phase plugs look anything like these? Looks like a lot of precision is needed, looks hard! Can you post results here of what happens when you get around to building some phase plugs. By the way those scans above are from AES Preprint 1384, application of bob smiths phasing plug. Adrian

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Subject: Re: phase plugs  
Posted by [Adrian Mack](#) on Mon, 17 May 2004 22:43:52 GMT  
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Sorry about misspelling your name. Man, I dunno how I did that, I even checked to see if I spelt it right because I spelt it with a 'h' before in the past so I wanted to make sure I got it this time. My eyes must be playing tricks on me cuz I swear I had it spelt right when I typed it out :p

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Subject: Re: phase plugs  
Posted by [GraemeG](#) on Tue, 18 May 2004 10:42:08 GMT  
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Hi Adran.... (small dig at spelling!!!! - but used to spelling mistakes on these forums) Yeah, a bit like figure 5, but with only two rings instead of four. This will be reasonably small, so a bit of precision and patience will be required. Once I get a design I am happy with, I will investigate getting them moulded in fibreglass. BTW recognised the scan - I have that article. Cheers Graeme

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Subject: Re: phase plugs  
Posted by [Adrian Mack](#) on Tue, 18 May 2004 22:04:30 GMT  
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Hi Graeme hahaha. Will you make the phase plugs yourself? Perhaps CNC/CAM would make things a lot easier. Adrian

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Subject: Re: phase plugs  
Posted by [GraemeG](#) on Wed, 19 May 2004 05:22:28 GMT  
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I will make the initial ones from layered MDF and lathe to shape - it's a lot easier than you would think. Cheers Graeme

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