
Subject: DCA Driver in a PAWO horn

Posted by [akhilesh](#) on Sun, 30 Apr 2006 20:05:29 GMT

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Hi Everyone, A friend of mine, David Merrill, sent me a pair of drivers that he sells for \$40 a pair (!). These have a rubber surround & paper cone with no whizzer. They are about 4 inches. I put them in a BR box of about 1 cu foot, tuned to about 90 HZ. they sounded very nice. Next, he sent me the same driver in a PAWO horn. I put them on a couple of days ago & was amazed at the bass. The bass starts off at 45 HZ and goes on up. Very good from a 4 incher! The bass quality is good as well. The highs over 4000 Hz are a bit high, esp in my very live family room. A very impressive effort indeed. I plan to demo these (I am not a representative or anything: no commercial interest in this driver or company whatsoever, he is just a friend with a good product) at GPAF for half the time (the other half I'll simply play my own wide range driver based system). Do come & listen. I'll run them full range with no BSC or other circuit, and no subwoofer..just full range. Hope to see you all there!-akhilesh

Subject: Re: DCA Driver in a PAWO horn

Posted by [lon](#) on Sun, 30 Apr 2006 21:31:24 GMT

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There's been a lot of interest and work done with a horn design called the BIB (Bigger Is Better) first built by TerryCain from some plans in Japanese. All of these BIBs use 4, 5 and in one case 8 in. drivers but those would be huge. The design is like a Voigt Pipe with an extra fold that fires out the top instead of the bottom. When placed in a corner, the walls load and essentially increase the flare of the horn mouth or terminus. With the driver specs that you have the gang that's building the BIB site at: <http://www.zillaspeak.com/bib.asp> can give you some dimensions. One design element of that site is it's not real clear on how to move around. Click in the red "how To Build a BIB" to see basic design principles. Click on the speaker logos for alignments and specs for individual drivers. Have fun.

The BIB thread at DIY Audio

Subject: Re: DCA Driver in a PAWO horn

Posted by [akhilesh](#) on Mon, 01 May 2006 01:39:04 GMT

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Thanks lon. Here is the link for the PAWO

horn: <http://www.audio-resolution.com/zhorn/fr125s.html> I have never actually indulged in backloaded horn construction, and this is my first real experience with one. I find this PAWO horn to be an elegant design (in terms of space) and more to the point, sounding SIGNIFICANTLY better than a BR box in terms of bass.

PAWO horn on Zhorn website

Subject: Re: DCA Driver in a PAWO horn
Posted by [lon](#) on Mon, 01 May 2006 02:04:09 GMT
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Yes, lately these have gone through a number of significant developments over at the Full Range Driver Forum. There's one called the Houston and the Dallas since the designer is from Texas. Use of CNC on these adds a new technologic wrinkle. It has definitely added new interest to speaker building.

Subject: Re: DCA Driver in a PAWO horn
Posted by [Jim Griffin](#) on Mon, 01 May 2006 12:20:51 GMT
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I will bring a pair of bipolar MLTL speakers to the GPAF which uses the CSS FR125S and WR125S (one per side). This is a true full range speaker with BSC built in. Bass to 40 Hz.

Subject: Re: DCA Driver in a PAWO horn
Posted by [akhilesh](#) on Mon, 01 May 2006 20:26:25 GMT
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Cool Jim! Can't wait to hear them. -akhilesh

Subject: Followup on DCA Driver in a PAWO horn
Posted by [akhilesh](#) on Tue, 09 May 2006 10:59:15 GMT
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Hi Everyone, I used the DCA (D'Charles Audio) driver in the PAWO horn at the audio fest to demo the enhancement of a single driver. I liked it so much, that I bought it off Dave Merrill! Here are my thoughts on this driver in this box: 1. The driver has a rubber surround and is capable of some serious Xmax. It also has a paper cone. IF you run it "pure full range" it produced very decent bass down to about 45 HZ, but the driver really works it's little tush off, and this causes the highs

to become edgy. 2. Crossing it at 70HZ with a 24 db Xover, and a sub greatly reduces the Xmax and smooths off the highs as well. I think that this is a must do with this driver, unless all you like is acoustic/jazz type music at moderate levels (in that case pure full range will do).3. The driver box combo is capable of 45 HZ which gives us almost an octave to spare if crossed at 70 Hz. This leads to better integration with the sub. 4. The reason I bought this was that when crossed with a sub, this is a very musical driver, with great performance in a small to medium sized space. It's efficiency is about 90 db, and it can handle 20 watts. THIS makes it go upto pretty loud levels, and the dynamics are pretty good for a small to medium sized space. 5. The cabinet itslef is very elegantly designed in terms of space saving. Just my thoughts on this" my latest acquisition! I'll probably run it in my office with a cheap sub. -akhilesh

Subject: Re: Followup on DCA Driver in a PAWO horn
Posted by [Norris Wilson](#) on Tue, 09 May 2006 16:43:44 GMT
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Hi Akhilesh,I am glad that you bought these speakers. I know from what I heard from them at the show. They will provide you with alott of musical enjoyment.I was thinking that these drivers could make a killer line array.Thanks for all of your efforts at the show, it was fun and infomative.Norris

Subject: Re: Followup on DCA Driver in a PAWO horn
Posted by [Shane](#) on Tue, 09 May 2006 19:41:31 GMT
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Akhilesh, could you send me the contact info for your friend? I can't remember if I wrote my email info down for you or not. If no it's shanemail-forums at yahoo dot com.Also, what DBX model Xover were you using?Thanks, Shane

Subject: Infor on Dave Merrill Plus DBX Xover
Posted by [akhilesh](#) on Tue, 09 May 2006 21:10:55 GMT
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Hi Shane,His name is Dave Merrill,and his email is:AMERRILL AT WEB-STER DOT COM. He is a single driver fanatic, and has built all sorts of stuff. He is selling these drivers (with plans for the horn that are free off the web anyway) for \$40 a pair. Just to clarify, I have no commerical interest in this whatsoever, hence am posting it here and not in the SWAP forum. Drop him a line. He is a nice guy. My DBX crossover model is: DBX 234. It was made in 1999. Not sure if DBX makes it today. It's an analog stereo 3 way crossover. Other companies that make these are ART, Behringer, etc etc. IF you awant to spend more bucks, get a Rane. DBX is good middle of the

pack. Hope this helps! -akhilesh

Subject: Re: Followup on DCA Driver in a PAWO horn
Posted by [akhilesh](#) on Tue, 09 May 2006 21:12:11 GMT
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Thanks Norris! I was going to send them back to him, but they sounded so musical with help below 70HZ that I decided to keep them. In my office they will go.

Subject: Xover question
Posted by [Shane](#) on Wed, 10 May 2006 01:39:25 GMT
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Thanks!What minimum adjustments should I look for in a crossover? And specifically, would it be better to have a 24dB/octave unit such as the DBX, as opposed to a 2nd or 3rd order, in this instance?

Subject: Re: Xover question
Posted by [akhilesh](#) on Wed, 10 May 2006 14:05:01 GMT
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Hi Shane, Well, one can look at natural rolloffs of driver-box configurations & design crossovers with slopes that augment certain criteria (like flat response, uniform sound energy, etc). In my experience the more nuanced your analysis, the less the return (a lot of the nuanced design stuff becomes less audible and in my experience is inaudible) and the more room dependent the speaker becomes (a speaker designed to sound great in an anechoic chamber can sound pretty terrible in some rooms). Several very experienced speaker designers have pet metrics they like to optimize, and often come up with pretty terrible sounding systems because they sacrifice so much to optimize that one particular metric they think drives good sound (and often it doesn't). My approach is more seat of the pants: Get multiple driver/box systems, and use a line level 24 db/octave crossover to cut off at levels that leave around an octave or so spare head room between the systems. Thus, my mid can play an octave below the crossover point. The sub can play close to an octave above. Same with the tweeter & mid. I find this makes for the best sounding system. Is the freq curve the flattest...not really! Are crossover points optimized? nope. Does it sound fine? Yes. The alternative is to painstakingly design the optimal passive crossover for that room/driver config, which is costly. Since I also believe in letting one wide band driver do the work from 70/80/90 hz to at least 1500 and upto 3500 hz, i find that the lack of optimality in crossover design at those crossover points does not bother me at all, sonically. IN fact, the active

Xover gives us the ability to really tune the system to the room by changing the crossover frequencies without thrtowing an equalizer in the mix(which is another ball of wax). I like to look for a 3 way stereo crossover. Most pro models have all the adjustment you'll ever need. Hope this helps. -akhilesh
