Subject: Open Baffle Bass - Why Not ?
Posted by wunhuanglo on Sun, 04 Jan 2004 18:26:38 GMT
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Has anybody here experimented with open baffle/dipole bass? I'm kind of intrigued because, from what I understand, very good quality can be achieved with what is obviously simple construction.There are many car audio woofers with low Fs, high Qts and large Xmax ratings that

simple to wire in series for an 8 ohm load.Bad idea?

Subject: Re: Open Baffle Bass - Why Not ?
Posted by hurdy_gurdyman on Sun, 04 Jan 2004 20:46:42 GMT
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I've been using OB for bass for about a year now. It's the cleanest bass I've ever had in my house. Like all other types of bass cabnets, it has advantages and disadvantages. The biggest advantage, to me, is the figure 8 response pattern. Energy to the sides of the baffle is neatly canceled out. There is much less room activated bass, thus the bass coming from your speaker is what you hear, not a lot or reenforcement and cancellation waves. Also, lack of box resonance is nice. Disadvantages include lack of efficiency. It takes either more power or more drivers to get loud and deep. My OB's work well in the corners, so they don't take up a lot of room space.Dave
My Site

Subject: Hi Dave
Posted by wunhuanglo on Sun, 04 Jan 2004 21:30:21 GMT
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What sort of power are you talking about? I saw on your site that you use a Citation 16?Charlie

Subject: Re: Hi Dave
Posted by hurdy_gurdyman on Sun, 04 Jan 2004 21:37:30 GMT
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The harman-kardon citation 16 puts out a clean 240 watts a channel into 4 Ohms. It goes into clipping about the same time as my 20 watt per channel Scott tube amp driving my Heresy's. The Heresy's are fairly efficient, the subs can't come close in efficiency. The resulting sound is great, though, so I can live with the efficiency difference. The gap in efficiency will narrow as more OB

drivers are added (future project).Dave :^)

Subject: Re: Check out Linkwitz
Posted by Bill Martinelli on Mon, 05 Jan 2004 00:11:33 GMT
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Hi Charlie,Take a look at Linkwitz site if you havnt already. Wayne and I talked about a dipole bass box for a while but never got it off the ground. The basic idea, and exagerated for this discussion. You can use two 25 dollar woofers and have high efficiency and very low distorion as you would expect from a 300 dollar woofer. Linkwitz has some dimensions and instructions for a few of these last I saw.BillLove your VOTT's too
http://www.linkwitzlab.com/index.htm

Subject: Re: Check out Linkwitz
Posted by wunhuanglo on Mon, 05 Jan 2004 01:05:25 GMT
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Thanks, Bill.I've given his Orion a cursory look in the past. Truthfully, I was trying to stimulate some conversation among people who "don't have a dog in the fight". Also, for a dummy like me picking out the bottom-line from SL's expositions is more than a bit difficult (I guess I lack sufficient will).What sort of arrangements did you and Wayne discuss?Charlie

Subject: Re: Check out Linkwitz
Posted by Bill Martinelli on Mon, 05 Jan 2004 04:01:26 GMT
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The Di pole design cuts back on second harmonic distortion primarily. I'm not an expert in these regards so for the hard dry facts you need to work with the pocket protecters! As always theres no free lunch, meaning your not going to get 30hz, 100db and 1 cubic foot all in the same speaker. Like I said the biggest advantage here is to get very low distortion using 'lesser' quality drivers that would cost a fraction of a single 'good' driver. It also seems possible to have a little more bottom end from this arrangment too.The best bang for the buck drivers that came to mind would be an Eminance Delta12LF. There are some Pioneer drivers I have used in 10" that are in th 20 -30 range. These would also be great drivers. The feelings I got from poking around would be to slot load the drivers. With the two driver facing each other and a slot for an opening. This could be just a simple bottom section to a cabinet with a mid and horn built into the top. Like your jbl driver on the VOT. You can even corner load the slot for room boundry gains. Olsen did some work with two driver in a few different arrangements. This is similar to Isobaric, but perhaps not in the true

sense. Again, more of an engineers reference in needed here. This sure isnt anything new. Actually, it's all been done before! Just another version as we move on. I dont have any thing on paper that you can build from. If memory serves There are drawings and dimensions around at a few places and the dimensions can be changed for the spec on the drivers your using.Bill

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Subject: Re: Check out Linkwitz
Posted by Wayne Parham on Mon, 05 Jan 2004 04:21:03 GMT
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It's the push-pull configuration that reduces second harmonics, not a single driver dipole. The idea is that if there is uniform asymmetrical motion from the suspension or the motor, driving two similar devices in opposite directions will cancel it.The dipole configuration has a lot of advantages, directivity being one of its biggest. But I wasn't planning to use this arrangement. I

ported motor chamber and not a dipole. Just thought I'd clarify.

Subject: why not!
Posted by Mike.e on Tue, 06 Jan 2004 14:36:06 GMT
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There are many car audio woofers with low Fs, high Qts and large Xmax ratings that would seem

in series for an 8 ohm load.I know one has to buy Car audio generally-i notice many kicker brand subs have super high Qtsthe dayton 15" IB woofer comes to mind, 109$ on special lastweek i saw.....i like high SPL though,like 115db at listening position,so IB doesnt appeal to me at the moment.but if i have my horn subs for high output,i would like to try this dipole ideaSmaller box too!:-)

Subject: Re: Yes, push pull
Posted by Bill Martinelli on Tue, 06 Jan 2004 15:38:17 GMT
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That's the configuration. Thanks

Subject: Re: Open Baffle Bass - Why Not ?

Posted by JLapaire on Fri, 09 Jan 2004 17:42:20 GMT
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I admit that even after following this thread and the links, it seems counter-intuitive that you could get low AND powerful bass from the little H-boxes or similar dipoles due to cancellation. Guess I'll have to surf some more and maybe try one. For sure having a major null at 90 deg would be wonderful for DJ use where the speakers are often at either end of an 8' table.That Meyers rig looks very interesting, anybody know how the rear woofers can be both additive and produce a 25db null behind the enclosure?John
Meyer's sound-cancelling sub

Subject: Directivity and bass cabs
Posted by Mike.e on Sat, 10 Jan 2004 03:06:44 GMT
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This subject is more complex than i thought!i found this linkalsolabhorns exhibit approx 6db increase in SPL infront of the array,when stacked with enough cabsCheers!
prosound web article

Subject: Cardioid subwoofer
Posted by JLapaire on Mon, 12 Jan 2004 12:09:48 GMT
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Augsperger's cardioid looks very much like what Meyer is doing. A second driver 34" behind the first, inverted and delayed, produces the rear null. Within the cabinet, the rear driver might be assisting the front driver like a push-pull in spite of the delay.Would a U-shaped baffle with the leg length chosen for 1/4 wavelength also exhibit a cardioid pattern or at least a dipole pattern with reduced rear projection?In any case, it looks like progressive cancellation at low frequencies is going to nix the use of open-baffle types for DJ use where weight and bulk are important considerations. I might try some in my sunroom where room modes are a problem and high SPL not necessary.John