Subject: Port air speed.
Posted by dbeardsl on Thu, 04 Apr 2002 17:34:43 GMT
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Has anybody ever done some calculations on port air speed for some of the Pi Models? I just put the specs into a program called WinISD (a lot like boxplot). I gave me a Mach of .34 for Theater series Four Pi.I have some large 3 ways which I just dropped the JBL M252-8B into. the port on this is rated at mach .24 and 32hz. When I play any kind of sine wave below 50 hz or so, the port is hideously wooshy, you can't hear it that much in normal music, though it's rather loud on some R&B.The other PI models, like you said, are smaller cabinets with bigger ports, so it's not really an issue. Has anybody tried a different port configuration, but with the same tuning?

Subject: try to avoid operation below Fs
Posted by Sam P. on Thu, 04 Apr 2002 18:09:51 GMT
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as distortion will be increasing rapidly. To determine actual system Fb with a certain enclosure/port configuration, measure the frequency of the lower and upper z peaks. Those are Fl and Fh. Now seal the port, and determine Fc, the single z peak. Fb = sq.rt. (Fl^2 + Fh^2 - Fc^2) Should be about where the dip was between the peaks when vented. Box plot advises keeping BELOW MACH 0.2 with your port velocity...if too high, as you noted, it can be audible under some conditions...Sam

Subject: Re: Port air speed.
Posted by Wayne Parham on Thu, 04 Apr 2002 20:55:42 GMT
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Maximum port airspeed is only realized at frequencies near fb, and only at high power. I've run these speakers at full power for extended periods and never heard any turbulence at all. Above fh the woofer is actually moving very little, so the air in the port moves at much lower velocity.Honestly, I think the program is wrong, or something has been entered improperly. The airspeed is nowhere near 260 miles per hour, even at fb and full power. I don't think it exceeds 60-70 miles per hour, which is low enough you can't hear any turbulence. It has never even been

close enough for me to investigate.

Subject: Re: Port air speed.IS BASED ON MAX POWER ON ISD
Posted by mhammill on Thu, 04 Apr 2002 22:54:46 GMT
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If you change the max power rating on the driver specs on WIN ISD to the power you use the air speed will drop proportionatly. I never use more than 50 watts so thats what I base my port dimentions on.Good luckMike H.

Subject: we don't need no stinking subject.
Posted by dbeardsl on Fri, 05 Apr 2002 05:07:01 GMT
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Thanks Wayne. Cool, I believe ya, makes sense, as long as I'm not feeding it a big sine wave at box resonance, air speed should be fine.I was just suprised my the amount of huffing when I played the M252's at real low in a box tuned to 32hz. Anyway, those M252's sound pretty good, not quite as quick (read punchy) as the EV 15TRXB's they replaced (the M252's have a heavier cone and stiffer suspension), but a few Db more efficient and can take a heck of a lot more punishment.Question, How does one filter out all below resonance information? would I have to get an active crossover? or would I have to make a real steep passive filter.Thanks,Danny

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Subject: 20Hz High pass filter
Posted by Wayne Parham on Fri, 05 Apr 2002 06:10:38 GMT
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To limit VLF, use a steep high-pass filter set at or above fl. It's probably best to use an active

filter, because components for a passive (speaker circuit) filter will be large and expensive.

Subject: fanning air vs. imparting a compression wave
Posted by Sam P. on Fri, 05 Apr 2002 16:05:24 GMT
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is why they sound like "huffing" way low. Air is wooshing around, but not being "excited"...it is moving instead of carrying the sound. As you said, just watch it with the sine waves. Even the jbl4648a-8 will "chuff" at resonance (40Hz) with only 2.83 vRMS/1 watt input. Each woofer is only being driven by 1/2 watt! SPL was only 86dB, but glass knickknacks were hopping up and down across the room. At their rated power input of 1200 watts, those voice coils would be embedded in the wall 22. ft. away!!! Trying to actively filter the LF below 20Hz. is not an issue with music in a home setting. If your preamp has a passive filter, and it does not impair the sonics, use it. For instance, my low filter cuts -5dB@20Hz, 6dB/octave. Helps when playing vinyl to reduce subsonic crap too. Supposed to be unobtrusive, I usually hear no difference, but leave it "off" except w/ warped vinyl...woofer cones would slowly move in and out...goes away w/ the 20Hz. filter engaged. Sam

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