Subject: Pi7 Mid Horn Question's
Posted by OldHornFan on Sun, 15 Jul 2012 05:18:25 GMT
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Hi Pi Speaker Forum,

I'm old but new here so please bear with me.

I have some old gear here I would like to use to build a horn loaded, (I'm a hornaholic, the kids won't like it but I will) home theater system around, i.e. EV Sentry IVB components, XO's, T35A tweeters, and SM120 horns. Unfortunately EV-1823M horn drivers are scarce so when I found the Pi7 mid horn I said, Self! this may fill the mid gap, and they look easy enough to build with materials I have laying around. Not sure what to do for bottom end yet. I have 15" JBL 2220A's and Gauss 5840's to work with, cabinets TBT. (Any suggestions??)

Anyway my first, (real!) question is will the Pi7 horn work with the IVB XO's, (400Hz & 3500HZ) if another Eminence driver say the Deltalite II 2510, (48Hz-4KHz); Alpha 10A, 57Hz-4.5KHz); Basslite CA2010, (48Hz-7KHz) or Legend B810, (49Hz-5.1KHz) is used? If so could the dimensional geometry be provided for the mid horn so I can start nesting layouts for the ply laying around in the shop?
Money is tight so I'm trying to use up things in hand.

Also would some sort of phase ball/plug device at the throat help with the higher XO?

Any assistance will be greatly appreciated.
Regards,
Old Horn Fan

Subject: Re: Pi7 Mid Horn Question's
Posted by Wayne Parham on Sun, 15 Jul 2012 05:52:26 GMT
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something I would suggest in a high-fidelity loudspeaker system for two reasons. First, driver output at the upper end is mostly cone breakup, amplified by the horn. If it's well damped, that may be fine but it sometimes isn't. Second, even if the cone is well-damped and response is smooth, there is still too much vertical distance between the midrange and tweeter source locations for me to feel comfortable crossing above 3kHz. It makes the forward lobe too narrow in the vertical plane. I suggest bringing the crossover point down below 2kHz for best results.

Subject: Re: Pi7 Mid Horn Question's

Posted by OldHornFan on Mon, 16 Jul 2012 04:05:31 GMT
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Thanks Wayne, information very helpful. I looked at various other sites for store bought systems and 1 to 2KHz XO range seems too be a recurring theme these days. I will scrap the Sentry idea and present another scenario. I also have Altec 809-8A, (800Hz) XO's with attenuation so now I'm thinking build a reflex/sub bottom to 300/400Hz, (will have it's own amp) and run the Pi7's from the 809 with either the SM-120's or McCauley 456 slant plate lensed horns, (Peavey 22A drivers).
Any thoughts or suggestions??
Regards,
Old Horn Fan

Subject: Re: Pi7 Mid Horn Question's
Posted by Wayne Parham on Mon, 16 Jul 2012 12:46:56 GMT
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Not sure what you are suggesting. But if you deviate from the plans, all the testing goes out the window and you'll really need to measure your modded speakers to verify the results.

Subject: Re: Pi7 Mid Horn Question's
Posted by chrisR on Thu, 19 Jul 2012 19:06:30 GMT
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Don't know if this helps, but I've got a sort-of hybrid system where I originally built the 2-way's (close to 4 Pi), then went about adding the mid horn + high horn. Without disturbing the original boxes, the mid/high setup is Wayne's midhorn with the Delta10's, then I used Altec 811-B's + Selenium D220Ti drivers. The crossover points are left at 300-400 and 1.6KHz, but this is all tri-amped with a digital crossover. No idea if this is anywhere near ideal, but I think it looks very cool and it sounds pretty good to me. As Wayne says, if you change the design, it's on you to verify that the changes aren't negatively impacting the performance. Good luck, Chris

Subject: Re: Pi7 Mid Horn Question's
Posted by OldHornFan on Sat, 21 Jul 2012 02:35:19 GMT
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Thanks Chris,

Every bit of info helps. This is going to be part of my winter project as I want to have the old tunes playing while I finish the rest of the room.
May I ask what your digital Xo's are?? Maybe its time I started thinking about using some gear

from this century.
Regards,
OldHornFan

Subject: Re: Pi7 Mid Horn Question's
Posted by chrisR on Sat, 21 Jul 2012 02:50:29 GMT
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Hi, I've got pro "wanna-be" equipment, meaning Beheringer digital XO, and digital EQ, 2 Beheringer amps, and one QSC. I don't need real pro level stuff, and these suite me fine. The source material makes way more difference now than switching any electronics in or out. As for the horn drivers, I have a pair of Altec 806-8A's, but they don't sound identica so I assume the diaphrams aren't matched, so the Seleniums were easier and maybe cheaper. Again, not pro level like the JBLs or B&E's, but I like them. And I think the Altec horns are just cool looking. The digital EQ includes an RTA so I can tune the response somewhat. The biggest anomoly is bump and dip around 80Hz. Not sure if it's the speakers, the room, or the combo, but I adjust it out and move on. :^)

Subject: Re: Pi7 Mid Horn Question's
Posted by Wayne Parham on Sat, 21 Jul 2012 16:03:11 GMT
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I'd bet a month's pay that your anomaly at 80Hz is from standing waves in the room, or more likely from a reflection from the wall behind the speakers. They are similar issues, both self-interference from room boundaries. Those kinds of issues are really common in the 80Hz to 160Hz octave and are what flanking subs seek to correct.

There are also modes in the 30Hz to 80Hz range. Those require more distant subs to smooth. I don't find them to be as noticable as the midbass/midrange modes though, especially if they're below 50Hz. The common 35-40Hz dip is not nearly as noticeable as one in the 80-120Hz range, both because of our ear's increased sensitivity in the higher range and because the ripple is usually larger in amplitude.
Room modes, multisubs and flanking subs

Subject: Re: Pi7 Mid Horn Question's
Posted by chrisR on Sun, 22 Jul 2012 15:24:40 GMT
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I'm sure you are right. I'd probably never have known without the RTA, mic, and noise generator. If nothing else, that piece
of gear enables you to see lots of things you can't accurately hear. All this is set up in a nice sized bedroom, maybe 14'x15' with 10' ceilings, and the rest of my music crap (nothing soft except the

carpet). After playing with the EQ part to get close
to a flat (equal amplitude across freq) response in the room, it's interesting to watch the RTA run with regular music playing. Nothing flat about that at all. Thx, Chris