Subject: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Wayne Parham on Thu, 08 May 2008 02:57:35 GMT
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I've setup a page that has links to the audio recordings of the seminars at LSAF 2008. We're planning to upload the slideshow presentations too, as people have time to send them to me. And we'll also add links to write-ups, as they filter in.If you see comments about LSAF around the internet, please link them here. I'm eager to see what people are saying. There was plenty of good buzz at the show but I haven't seen that translated to written comments yet. So please post your impressions, and if you see comments on other sites, link them here as well.There's a similar page for last year's LSAF, so I'll link it here in case any of you missed it:Lone Star Audiofest 2007 CoverageLone Star Audiofest 2008 Coverage

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Shane on Thu, 08 May 2008 04:41:18 GMT
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My impressions were that all the rooms sounded good, but the one that really blew me away was Duke's Audio Kinesis room. I walked in and he was playing some sort of very relaxing classical type music (duke if you remember what that was could you post it?) that nobody wanted to take out. The Dream Makers were being pushed by the NTV amps. The kicker besides the sound being just fantastic and completely enveloping in the room was that the amps were being controlled by a tiny little pre running a single 12AU7 that wasn't even cased up. I asked Duke what the design for the pre was, and he just laughed and said that I could never find out, only that it started as a Bottlehead Foreplay he thought.All of the people were so friendly as well. It was nice to sit and listen to them explain the ins and outs of their particular setup and what it's strength's and weaknesses were. And you could ask any question and they would answer it to the best of their knowledge (which was sometimes quite expansive). Just an all around great group of people.

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Keith on Thu, 08 May 2008 05:52:56 GMT
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No room sounded bad given the acoustics. I'd say each room sounded good and so we're talking degrees of goodness here.

The winner for wow factor had to go to the Maxxhorn room. Defintely the coolest looking rig there.

It sounded good but wasn't my favorite sounding system. The Audiokinesis speakers sounded good but they were a little on the boomy side for my tastes. Pi Speakers were natural with clean midrange and tight bass. They were my show favorites. The Audio Note system was nice but I didn't get a chance to hear it with music that I liked. I should have stayed longer to give another chance but the room was full and I thought I'd come back. Jumping Cactus had good tone and was definitely a contender. John Bush had a nice sound as did Hawthorne. I would give open baffle speakers a listen if you haven't before.

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Wayne Parham on Fri, 09 May 2008 17:19:15 GMT
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Don't leave out Skip Pack and Bob Brines. They generally have very good sounding systems. I regret that I didn't get a chance to stop by and listen. Too much to do!About Duke's speakers, I was able to listen briefly and what I heard sounded very good. The source material may have been responsible for a perceived "boominess" when you were there. Or maybe it was the room, I don't know. But I thought it sounded great in his room when I was there.To be honest, there is very little difference between our design philosophies. We're both concerned with creating a uniform reverberent field, and we both use constant or uniformly collapsing directivity to accomplish it. Our speakers are DI matched at the crossover point, as are other similar designs like Geddes Summa loudspeakers.I remember when I first heard the Summas in Duke's room at

nearly identical. They're DI matched two-way speakers with a constant directivity horn for the tweeter, using similar components for woofer and tweeter and similar crossover topologies. So naturally they would sound very much alike. Later, when Duke started making his Jazz Modules, he stuck with that design approach.There is only one significant difference, in my opinion. Duke LeJeune and Earl Geddes both use round horns with a symmetrical 90° radiation pattern, and I use rectangular horns with a 90°x40° pattern.

The woofers in each speaker radiate omnidirectionally at bass frequencies, but the pattern begins to narrow into a cone shape in the midrange. Where the woofer pattern matches the horn, that's where crossover is done. In Duke's and Earl's speakers having round horns, the pattern remains a constant cone shape above that point, up to about 10kHz where it narrows to the compression driver exit angle. There are also lobes that appear in the crossover region above and below the speaker, off-axis in the vertical plane.

continues to collapse. The horizontal radiation angle is matched at 90° at the crossover point and remains constant above that point, but the vertical angle narrows to 40°, right where the lobes fall. In my design, the vertical pattern remains narrow from the crossover point up, actually taking advantage of those lobes.

I personally prefer this approach for two reasons. First, the narrower vertical pattern reduces

ceiling and floor reflections. As I demonstrated at LSAF, if you clap your hands you can hear the HF ringing from reflections off the ceiling, and that's something I try to avoid by narrowing the vertical pattern at high frequencies. The second has to do with the vertical off-axis lobes I mentioned above, symptomatic of all DI matched loudspeakers like this. The position of the drivers on the baffle determines the angles where lobes fall, and this sets a maximum vertical angle for uniform response. My speakers have HF horns with vertical angle less than this, to avoid ripples in vertical off-axis response. The tweeter horn would not have pattern control in the vertical plane at this low frequency because it is too small. So these lobes actually help set the vertical pattern around the crossover frequency, and above that, the HF horn provides control.

I use a similar approach on my cornerhorns too, but instead of matching DI from a woofer with collapsing directivity, each susbsystem has equally matched directivity throughout the band. This has the advantage of being more uniform since directivity doesn't change, and also has reduced IMD by virtue of reduced bandwidth through each subsystem, i.e. three-way verses two-way. Of course, room modes shape the bass energies in the room, but if the opposite walls were anechoic, directionality would be truly constant through the entire band. Since no room is anechoic at low frequencies, another improvement one can make is to use multiple subs. Add subs, not just to extend the response but more importantly to smooth room modes.And that brings me to a second difference that Duke included in his Dream Maker design. I think this is a great idea. Each speaker uses a second rear-facing woofer. This woofer is located in a different position in 3D space, which helps to smooth floor bounce and room modes. It works like a 2.5 way speaker or like having a subwoofer placed right beside or behind your mains, and located also at a different height.In my opinion, this is the most effective way to smooth bass modes caused by standing waves in the room. It increases the number of bass sound sources, puts them in different points in 3D space, yet maintains symmetry and physical nearness to the mains so that the apparent source is the same. The woofers are far enough apart to average the bass nodes, certainly enough to fill in the floor bounce that would otherwise exist having a midwoofer placed at ear level. Yet they're close enough together to prevent any summing or localization problems.Just from looking at the setup, I think it is a very good layout and I'd like to see measurements of it. I usually recommend to people installing subs that they model their rooms with CARA, and to try to achieve a room layout something like this. I suggest finding symmetrical arrangements that smooth room modes by putting the woofers in different places in 3D space, but physically close to the mains. This is built-in to the Dream Maker design.

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Keith on Fri, 09 May 2008 20:17:14 GMT
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Don't get me wrong, I didn't think the Dream Makers sounded bad. They sounded good to me. Overall they are very balanced and pleasing to listen to. The slight bass hangover was the woofers I think. It wasn't the material because I listened to two songs and walked by the room a few more times and heard the same signature sound. Everybody there has the same room, so I don't think it was that. The bass was just a little too bloomed for my ears thats all.

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Martin on Fri, 09 May 2008 23:07:20 GMT
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I really enjoyed listening to Bob's quarter wave seminar. It was a great discussion and I wish I was there to participate. Well done.Martin

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Duke on Thu, 15 May 2008 07:10:28 GMT
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Thanks, Shane!I think the classical piece you're referring might have been Rachmaninoff's Symphonic Dances and Etudes, Eiji Oue and the Minnesota Orchestra, on Reference Recordings. It was great meeting you, and you can ask Richard about the preamp if you want. Shoot me an e-mail if you like and I'll give you his phone number.Duke

Subject: Yup, we preach pretty much the same gospel
Posted by Duke on Thu, 15 May 2008 08:17:37 GMT
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I really think that getting the power response right by controlled directivity and pattern matching in the crossover region is basic to getting decent sound quality in a room. Vastly more important than a "flat" on-axis curve when the response is roller-coaster off-axis.Whether this or that variation on the one true gospel is the most correct, I dunno. I still remember vividly my first encounter with you (crossover design seminar), and later with your speakers (seven Pi's) at the Midwest Audio Fest. Even from around the corner, your speakers sounded just lovely. Before I even saw them I knew they were something very special.I've played around with bipolar speakers since the late 1980's, but it wasn't until I learned how to get radiation pattern control that I finally had the tools I needed to try to make a bipolar speaker that would "get it right" (in my opinion anyway). By the way, I agree with Keith's observation about the bass being a bit heavy in my room. The Dream Makers were designed with the expectation of getting relatively little assistance from boundary reinforcement, as they like to be out in the room a good 5-6 feet. They were getting more bass reinforcement than they were designed for. While their port tuning is somewhat user-adjustable, it's not as adjustable as their sibling Jazz Modules - which are the more room-adaptable speaker. Note that I'd planned to show the Dream Makers in a large room, but that didn't work out (originally I set up in king-size room 915 on the top floor, but the whole room vibrated from the air conditioning tower on the roof so I relocated). Next year I might show a satellite-subwoofer system, using my little four-piece subwoofer and some high efficiency satellites (which are still on the drawing board). Assuming the multisub system works as

advertised, that might be the answer to getting smooth deep bass in a hotel room. Duke

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Subject: Axisymmetrical horns
Posted by Wayne Parham on Sat, 17 May 2008 07:11:16 GMT
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I really thought your speakers sounded nice. All the rest of this is academic. But in the pursuit of the best sound we can make, please don't be offended if I make an observation, a question about one of your design choices, really.The one thing that always puzzled me is why you chose a round tweeter horn. I remember talking to Earl about his choice to go axisymmetric on the Summas too, when he could have chosen to use an asymmetrical prolate spheroidal flare instead. That shape is in the same family that he likes so much, with the throat radiused like the oblate spheroidal horn in the Summas.I think you both use 90° axisymmetrical horns and a crossover around 1kHz. They're about 12" diameter, as I recall, so the center-to-center spacing from woofer to tweeter must be about 15" or so. With those general dimensions, I would expect lobes at around 25° above and below the forward axis. In that case, it seems to me it would be better to use a horn with 50° vertical pattern.Why use a 90° round tweeter horn? Do you really want the tweeter pattern to be taller than the lobe angle?
 Baffle spacing, phase angles and time alignment, revisited

Subject: Re: LSAF 2008 - Show Coverage, Seminar Recordings, Slideshows and Handouts
Posted by Shane on Sat, 17 May 2008 09:58:33 GMT
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Yep Duke, that's the recording. That has to be one of the best recordings I've ever heard in any genre. Just spectacular sounding.

I'd love to talk to Richard about the pre, but my lack of specific knowledge about tube circuitry would more than likely frustrate him to no end I just thought it was an interesting pre that sounded good and would love to see a schematic to try and build one.

Subject: Re: Axisymmetrical horns
Posted by Duke on Sat, 17 May 2008 19:22:11 GMT
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Excellent question!It's a trade-off. Yes there is vertical lobing in the crossover region, but the power response takes only a minor dip at worst. Most listening is from far enough back that the vertical lobing in the crossover region isn't obvious when you go from sitting to standing, probably because the vertical pattern at high frequencies is pretty uniform. Indeed, I've had speaker

designers remark unprompted that they can't hear the crossover. Having a round pattern puts more energy into the reverberant field than a rectangular pattern of the same width, but at the expense of increased floor and ceiling bounce energy. I don't know which is the ideal way for that trade-off to go.Another reason for my choice is, the DDS waveguide is available over-the-counter and comes close enough to what I'd ideally want that I can work with it. The cost of having a custom waveguide (perhaps a bispheroidal) designed and molded and manufactured is beyond reach of my R&D budget at this point. That being said, one day I'd like to do a system with an oval-patterned device, perhaps a bispheroidal. It would look embarassingly like a 4Pi!Duke

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Subject: Re: Axisymmetrical horns
Posted by Wayne Parham on Sun, 18 May 2008 22:54:38 GMT
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Yeah, most everything is a trade-off. Very few things optimize more than one parameter at the same time. But I think the rectangular flare in this case is a win-win deal because the lobes help punctuate the vertical pattern. If the lobes limit the uniform radiation angle anyway, it's nice to use them to your advantage.

Subject: Re: Axisymmetrical horns
Posted by Duke on Tue, 20 May 2008 21:12:44 GMT
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Good point - I hadn't thought of that. Another advantage of a rectangular horn is that you can go to a TMM (or would that be HWW?) format and get vertical as well as horizontal symmetry. I tried modelling symmetrical MTM (WHW?) cnofigurations but unless the crossover is quite low (or the horn too narrow in the vertical plane to maintain reasonable pattern control) the woofers end up too far apart and their vertical lobe is too narrow, in my opinion. Of course you'll still have the inevitable vertical pattern "pinch" at the crossover frequency.Have you done any dual-woofer speakers? I don't recall seeing any, but then presumably not everything that happens in the lah-BORE-ah-TORE-ee enters your product line-up. By the way, best of luck with your heat-pipe patent!Duke

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Subject: Re: Axisymmetrical horns
Posted by Wayne Parham on Tue, 20 May 2008 23:41:29 GMT
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There's a similar configuration I like a lot. Some call it a 2.5 way speaker. It's not done for midrange directionality though, it's done for low midrange and bass quality. With two sound

sources operating in the deep bass range, floor bounce and room modes are smoothed. The lower woofer is crossed over pretty low, leaving only the upper woofer to cover the midrange. It's a good idea, in my opinion.The way I implement such a system is to put a subwoofer below or

separate lets the user have some configurability. That way you can put the subwoofer off to the side a foot, and the mains on a short stand, so the midwoofer is in a different location in all three planes. Overlap them through the bass range for best smoothing.Another way I implement

suffer floor bounce. The midhorn doesn't suffer floor bounce because of blending with the woofer. Its response is low enough to smooth some of the higher modal range. Subs can also be added to this configuration to further smooth the lower modal range.