Subject: Anybody want to build a DIY IDS-25 clone (somewhat cheaply)?
Posted by Aaron D on Tue, 13 Mar 2007 04:55:44 GMT
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DISCLAIMER(S):I know about and understand Jim's white paper. Actually I have sat though his array presentation as well as met him. Very nice and smart guy.I realize the ISD-25 has some design flaws that make the price seem pretty "out there".I am interested in this project because of the simple design and realtively high performance/cost ratio.I know this design also needs active EQ for the same reason the IDS does.I would prefer to build a design from Selah audio (and will eventually) but I do not have time to build the no holds barred enclosure that would go along with it.----------So this is what I had in mind...http://www.madisound.com/cgi-bin/index.cgi?cart_id=1762089.15690&pid=1757I need about 50 of these but there is a price break @ 100 pieces. $600 buys 100 of them. If someone is interested I would like to split a 100 piece purchase. Parts Express has these but it is more pricey ($685/100). The Mad driver looks better though...http://www.partsexpress.com/pe/showdetl.cfm?&Partnumber=299-015I could not find any info for the PE Part but the Mad part has a PDF here:http://www.madisound.com/pdf/aurasound/NS3-194-8E%20v2.pdfI posted here first since it is a line array board (obviously) but also because it is neutral ground for the suppliers mentioned. I would appreciate it if you guys might spread the word as you see approriate. I frequent the PE board and watch the Mad board so if I do not get any interested people I will try those boards next.Let me know what you think.Thanks,AaronD

Subject: Why?
Posted by Marlboro on Tue, 13 Mar 2007 13:09:52 GMT
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Aaron,If you read Jim's paper, and sat through his presentation, why would you deliberately do an expensive line array system when you know up front that serious and clearly audible comb filter distortion will kick in at 2700hz.For heaven sake, put a dome tweeter in the middle of them and cross at 2700hz.Marlboro

Subject: Proprietary Equalization needed for this array design
Posted by Marlboro on Tue, 13 Mar 2007 18:07:48 GMT
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Russell's line array doesn't just have required equalization, it has a special proprietary equalization. My bet is that he knows exactly where the comb filtering distortion hits and in what frequencies that it does. He's using a digital equalizer that specifically targets those frequencies

to boost or cut.By doing that, he's able to make the comb filtering distortion appear lessened. I caution you not to try to make his version of the line array unless you are also willing to do considerable measurement, and then use either a 30 slider per channel constant Q equalizer(Rane preferably: looking at about $170 used on ebay), or a digital equalizer(price above $400) to make the comb filtering sound as if its not there.Marlboro

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Subject: Expensive?
Posted by FredT on Tue, 13 Mar 2007 19:14:14 GMT
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I'm not so pessimistic about this project. I heard the IDS array and wasn't distracted by the comb effect, even when I deliberately stood and sat down several times while the music played. I believe the equalizaton in the IDS arrays is less precise and is used to bring up the bass and treble and to equalize out any bumps in between. A pair of arrays using 25 of the Aurasound drivers each will be $300 plus the cost of building the enclosures. Sounds like a fun project for that kind of money, but I doubt they can be used without a subwoofer, so if you don't already have one you have to factor that into the cost.

Subject: Re: Anybody want to build a DIY IDS-25 clone (somewhat cheaply)?
Posted by Jim Griffin on Tue, 13 Mar 2007 23:27:44 GMT
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Aaron,Go ahead and build a full range line array. You be amazed at the dynamics and power. I think that several 3-3.5" drivers are potential candidates for use in such an array. I like the HI Vi units (either the B3S or B3N available in either a square or round frame) and the Aura units (especially the N3-193-08) as the best compromise for a little bass. Of course the highs will not be crisp as you'll realize nor should you expect much bass even with heavy equalization. You'll need a good EQ unit with the 31 band analog versions as the low cost EQ leader while a proper digital EQ like the Behringer DEQ2496 would be the entry point to higher fi. A subwoofer (or a stereo pair) will be needed if you wish for real bass. Having the ability to measure the frequency will be really nice so you can tweak to a specific target.Everyone who wants to do a full range line array really needs to read about Darren Kuzma design in the Parts Express Showcase. It is at the associated link. Pay attention to the unequalized and equalized plots and decide if you like how they look. Once you are hooked on this array, you want to build a two-way unit with better performance. Jim
Darren Kuzma Line Array Project

Subject: Re: Proprietary Equalization needed for this array design

Posted by Jim Griffin on Tue, 13 Mar 2007 23:38:40 GMT
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I suspect that the 'proprietary' equalization for the IDS arrays is just that they have measured a few units and can match them to a desired curve to achieve their target response. Thus the response and EQ is known and they can replicate it on future units with the dedicated EQ unit supplied with the $20K system. With a general purpose equalizer a DIY'er can do the same thing when they measure their unit and work to achieve their desired response. All the DIY'er would need to do is to record their set-up to have a 'proprietary' EQ response.

Subject: Re: Proprietary Equalization needed for this array design
Posted by Marlboro on Tue, 13 Mar 2007 23:48:16 GMT
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RIGHT! Measurement required of course.Jim, do you think this would require a 2/3, 1/3 or would require a full digital equalizer to replicate it for the DIYer?Marlboro

Subject: Re: Proprietary Equalization needed for this array design
Posted by Jim Griffin on Wed, 14 Mar 2007 00:35:55 GMT
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Marlboro,Hard to say without having some data to study. Darren's project with 2" drivers responded well to a 31 band EQ for on axis. A 31 band EQ should be cheap but I like digital equalizers with parametric EQ capability the best. Note that EQ can clean up the on axis response but look at the 30 degrees off axis plot for Darren's project to understand the shortcoming of a full range driver array. No way to recover this off-axis performance.Jim

Subject: Replies for all that have replied so far...
Posted by Aaron D on Wed, 14 Mar 2007 01:53:34 GMT
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Thanks for the input. I appreciate the discussion (honestly I do) but this is mostly rehashed stuff form other threads in this forum. I kind of tried to avoid this w/ the "DISCLIAMER" from the original post. Admittedly I left a few details out of the disclaimer but the point of the post was found in the topic (I am looking for someone to split 100 drivers with). My point was not to defend this project.In no certain order:I am planning on using a sub. In fact I am working on 2 18's that will be powered by a 500 watt Hafler amp. I think I have that covered.EQ: I am planning on getting a

DEQ2496. I have had one on my wish list for quite some time and would like to get one for use the RS8 array eventually. It seems that most agree the 2496 is adequate for this job too.Lack of bass/highs. Bass is covered. When you buiild an aray for $300 in drivers you will sacrifice something, particularly in off axis response.Different divers: I picked these Aura's based partly on price but also because they will do the job. I am sure there are better options but they will more likely improve the low end (which I do not really need) more so than the high end. The low end will (assuming) come at the cost of a larger enclosure and a fair amount more cash.Adding a tweeter: I have considered it as a future option. If I do so I will simply mount it to the side of the existing array as close a possible to the line. I do have a pair of Fountek 3.0's that I got a good deal on that would work great. Definitely worth considering but that is another project for another day...I want to build a set of nice speakers that will sound great for the small amount of $$ spent. Now, does anyone want to go in half on 100 Aura drivers?Thanks,Aaron

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Subject: Re: Anybody want to build a DIY IDS-25 clone (somewhat cheaply)?
Posted by Marlboro on Thu, 15 Mar 2007 02:47:06 GMT
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Aaron,Knowing that you may want better highs eventually, you might consider building it with a 35 inch slot for 30 Dayton Neo 20FA's per side. You can get them for about $3.50 each if you order 60 of them at once. You have to ask though. Then when you want to add crossovers and better highs, you're almost ready to go.When i bought my Sammi's(3.5 inchers) two years ago, i bought just one, and compared it to my then current system. That consisted of a 1.25 inch audax soft dome tweeter, a Vifa BC-14SG49, and a Goldsound(not goldwood) 12 inch 15 mm x-max woofer. I took the woofer out of the circuit, and put the Sammi in a PVC tube . Without the woofer, the sammi was clearly more detailed than the vifa/audax combination on acoutic guitar. Of course when the volume needed to be turned up it lost, or the music got more complex. And when I connected the woofer and played it, anything with bass below 80hz made the Sammi lose. But i suspect that with 34 of them the story would have been different.Marlboro

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Subject: Re: Replies for all that have replied so far...
Posted by Eric on Thu, 15 Mar 2007 16:37:17 GMT
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Hi Aaron. I built a pair of 7ft arrays w/25 of the HiVi drivers and a Beh. 2496. All who hear it are impressed. It is a very live performance sound. Making the listener seem about 2 feet tall.The 24/96 has graphic as well as parametric eq. I canot seem to stop playing with the EQ. I save all of the profiles once I get one I like. I have had it "perfect.. now leave it alone" about 30 times or so. The bass is boosted several times between the graphic and multiple parametric setings. As is the high end, but not so much. It's cool. It's inexpensive, and it looks amazing. It makes great bass. I'll send pics if you want them. They have sold me on the array concept. Like always, I want to move on, to a Selah array next, I think.

Subject: Re: Replies for all that have replied so far...
Posted by Aaron D on Fri, 16 Mar 2007 01:48:54 GMT
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I'd love to see pics. Post links on here if you can, I'm sure others would like to see what you have. As straight forward as the IDS concept is I think it could be designed a little less "plainly". I have a few ideas but there is only so much one can do w/ a tall skinny built on a base.Aaron

Subject: Re: Anybody want to build a DIY IDS-25 clone (somewhat cheaply)?
Posted by Aaron D on Fri, 16 Mar 2007 03:16:11 GMT
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I have kind of thought about something along those lines. For now I am mostly considering a design that will easily allow that as an option later on. If anything I am going to experiment w/ a single Fountek JP 3.0 per side. It will not give me true array performance but it will give a good idea of the high frequencies that I might be missing compared to no tweeter(s) at all. I think it will be a very effective demo but only at a given height and distance.I could easliy add a tweeter "panel" later on. Lots of things to consider...Ideally I would like to have these in my bedroom and build something very nice for the living room. I am trying to not get too carried away.
Thanks,Aaron

Subject: Speaking of Darren's project...
Posted by Aaron D on Fri, 16 Mar 2007 04:10:59 GMT
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After looking at it again I remembered something that puzzled me a while back. How come the highs roll off like they do. It says in the text that a single driver measurement does not show the same behavior. I know drivers behave differently in arrays but I thought one of the effects was to actually flatten the response compared to a single driver. What gives?Thanks,Aaron

Subject: its a bias....
Posted by Marlboro on Fri, 16 Mar 2007 10:25:28 GMT
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My problem with a line array is the expense and the build time.Because of my desire to build using the benefits of tubing as opposed to boxes, and the need for each midrange to have its own

separate but equal enclosure, the build time on my system was two years of weekends. I'm talking about 200 man hours. So when I think of arrays, I can't imagine NOT building the best possible circumstance for the money that I'm spending on speakers, due entirely to the vast amount of time it took to built them.Its a bias, I know.

Subject: Re: Speaking of Darren's project...
Posted by Wayne Parham on Fri, 16 Mar 2007 15:19:48 GMT
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Rolloff up high is from comb filtering, which is caused by interference between drivers. Below the frequency where that begins to happen, each driver's output sums together. The summing averages the response of the drivers and the reflections in the room. This averaging effect greatly reduces the cancellations that result from room reflections compared to a single omnidirectional point source, particularly the notches caused by floor and ceiling bounce.

Subject: Re: its a bias....
Posted by Wayne Parham on Fri, 16 Mar 2007 15:27:22 GMT
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That's how I feel about folded basshorns also. I would never build a "budget" basshorn with a cheap driver and cheap wood. The cost of a folded horn cabinet is significant because it is labor intensive. It doesn't make sense to build one with cheap parts, because the amount of labor is high. Even if a DIY project, if you value your time at all, don't skimp on the rest of it.

Subject: My bias
Posted by Marlboro on Fri, 16 Mar 2007 16:39:23 GMT
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I don't think its necessary to purchase the best speakers in a line array since, as Bill Fitzmaurice says, almost every speaker is pretty flat at low volume. So, when you use a lot of them, the flatness at low volume stays, since you have so many to cover the frequency ranges.I think you can design a quality array using Dayton Neo 20FA tweeters. I did, and I used 60 of them total. That's a huge number of tweeters to spread the sound through. I you use 8 planars on a side, that is a far cry from 30 domes, per side.Additionally, if you use a midrange that retailed for 12-20 bucks each, again you will get high quality sound since EACH they don't have to play loudly. My Sammi's were a great buyout at $3.50 from a regularly priced model of 12-18 bucks(you don't get a 10 oz magnet and an X-max of 3.6 mm for 49 cents!). Other companies besides PE that also participated in the buyouts are now selling them for 7-10 bucks each. Fine little speakers. Going

below those levels may get you an OK system, but below the level that I would consider appropriate for all the work involved. Buying a 49 cent NSB midrange is not appropriate for all the work involved in my opinion. Always compare the quality to what you already have. I did.Marlboro

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Subject: I can agree w/ you for the most part
Posted by Aaron D on Sat, 17 Mar 2007 19:28:58 GMT
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A design of this type can be fairly labor intensive. That is the whole reason I am not building a Selah kit for now. I could build it in a more or less standard fashion but for what the drivers alone cost I feel obligated to go all out on it.In the meantime this seemed like a fairly straight forward project that would not cost much for the performance achieved. A lot of the bang of the buck came from the fact that this is a buyout driver and is probably a decent deal @ the $10.50/each price. If I get 100 of the the price drops over 40%. Couple this with a decently built enclosure (nothing over the top) and the price is about $350/pair. I agree with you about factoring in cost/effort/performance in any project. In something like this I can make some compromises dues to the lower cost and simple enclosure construction. I still think the performance would be impressive but I am doubtful that it would be amazing. For amazing performance I know I will have to spend $2k+ on a Selah kit.Later,Aaron

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Subject: nvxqxbgl
Posted by nvxqxbgl on Mon, 23 Apr 2007 13:31:35 GMT
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Subject: xjniuurb
Posted by xjniuurb on Wed, 23 May 2007 20:52:27 GMT
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Subject: ukzwqusy
Posted by ukzwqusy on Wed, 23 May 2007 20:54:25 GMT
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Subject: kklfwoal
Posted by kklfwoal on Wed, 23 May 2007 20:56:43 GMT
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Subject: Re: kklfwoal
Posted by Marlboro on Wed, 23 May 2007 21:41:58 GMT
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