Subject: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by akhilesh on Wed, 18 Feb 2004 21:55:59 GMT
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HI Everyone,Cool article on TNT-audio by a single driver nut.
http://www.tnt-audio.com/casse/lowtherpm2a_e.htmlHe recommends a horn loaded single driver setup for the 60 HZ to the 15 KHZ, then a supertweeter and a biamped subwoofer (high efficiency vintage). He must have a very accepting wife, and/or a very large room. Obviously he has a larger budget. But overall, I agree with his philosophy not to muck up the major portion of the spectrum. Check it out. -akhilesh

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by Martin on Thu, 19 Feb 2004 02:06:16 GMT
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Hi akhilesh,Lets face it, in the world of full range drivers I am way out on the end of a limb completely by myself. My approach is completely at odds with the generally accepted enclosure design approachs. I can live with that and I have been told I am completely full of crap many times. But keep watching the high efficiency forums and the full range single driver forums. There are a few other people inching out along the same limb and starting to join me out there flapping in the breeze. I have read the review and found it very interesting. But coming from my perspective, I had a slightly different take. Both of us are reading what we want to see into the review and without hearing or seeing what Scott did it is hard to draw a conclusion. I was asked via e-mail for my impressions this afternoon, here was my response :"I saw Scott's review and found it very interesting and a little disappointing. Based on his description of the filter component sizing he did, his choice of using a tube amp, and the slight loss of detail he reported I believe he blew the filter construction. The filter I use is intended for high damping factor solid state amps. For his tube amp, he should have used a lower resistor value. Without knowing exactly what he used I cannot say for sure but I believe he could have achieved better performance.As for the Medallion, I read that part as a big complicated expensive enclosure that immediately required his 15" sub woofer. No bass? Why build a back loaded horn if a sub is going to be used, a much simpler approach would be to size a closed box to give a complimenting acoustic roll - off to cross over to the sub.My somewhat biased opinion is that Scott reported what the politically correct position would be and did not really look to try the different and non-traditional approach. He did the safe thing to maintain credibility. I am happy for the attention, positive conclusion, and my site has lit up the past few days but I think he missed the boat."Now you and I can debate our differing points of view on what should or should not be best for our respective speaker/amp systems until we are blue in the face and probably not get any consensus. So let me propose the following test. For a couple of dollars you can build your own correction circuit and assess its performance for yourself. Maybe it will screw your system up or maybe for a few dollars it will be a huge improvement and your world will be rocked. Everything you believe to be correct will come into question. Is it worth a couple of dollars to try something that is easy and reversible? Are you up to trying something that cannot possibly work.For a first pass here is how you can size your own correction circuit. Ignoring the Zobel for this first cut, you will need an inductor and a resistor for

each channel. Here is how the inductor should be sized.WB = baffle width in inchesf3 = 4560/WBL = Rdc / (2 x pi x f3)so for example if your driver has a Rdc of 8 ohms and your baffle is 10 inches wide.f3 = 4560/10 = 456 HzL = 8 / (2 x pi x 456) = 2.792 mHI would recommend starting with 3 dB of baffle step correction so the resistor is sized as follows.R = Rdc x (10^(dB/20) - 1)so for 3 dB of attenuation to go with your tube ampR = 8 x (10^(3/20) -1) = 3.3 ohmsNow the trick is to adjust the resistor value up or down to fine tune the result. Increase the resistor if the speaker sounds to bright (4-5 ohms) or decrease it if the speaker sounds lifeless or dull (2-3 ohms). When it is right, it will be obvious!What do you think? Are you up for this experiment?Martin

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Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by GarMan on Thu, 19 Feb 2004 14:07:47 GMT
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Definately a cool article. But techically, the writer's system wasn't single driver though. Doesn't the sub and super-tweeter make it a three-way? Granted, the Lowther does do its duty across the entire midrange.

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by akhilesh on Thu, 19 Feb 2004 15:09:49 GMT
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We each have our definition fo single driver. To me, as long as it is used to produce sound from...ohh say 60-70 HZ to ohhh say 12-15 KCPS, it is single driver. It really is unreasonable (and in my miond too compromising from an engg perspective) to expect a drive to do the ENTIRE audible spectrum perfectly....it just ain;t gonna happen without major compromises.

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by akhilesh on Thu, 19 Feb 2004 15:29:47 GMT
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Hi Martin,Thanx for your considered reply. I think the TNT article is clearly written by an enthusiast, and was fun to read. I kinda agree with the backloaded horn that he did, because if he had not, then with Lowthers he would have gotten maybe 150HZ on up. In my mind this would have compromised his imaging, since the subs would have done all the bass work. I think he did OK to flog the last HZ he could out of the lowthers, before using the sub. I do think he could have used a simple powered sub at those frequencies (below 50HZ). Not sure why he went in for the humongous 2 woofer with 2 tube amp setup...to me that smacked of plain....uhhh...enthusiasm.[Aside: OF course, now he has bass coming out the back, coming out

the subs, and I have no idea what that has done to his imaging. IMHO horns don't really image well for that reason (we have sound coming out from all over the place, to put it loosely).]I am ABSOLUTELY going to try your approach...and will then happily be in a position to have a more empirical data based viewpoint, as opposed to the "thought experiment" viewpoint I have at present. If you don't mind,I will send you a separate mail asking for more details on how to implement it, and then will try it as soon as I can...hopefully this weekend. I am now getting down to about 50-55HZ in my single vintage drivers, and would LOVE to get 10-15HZ lower. Actually, since my drivers roll off at about 14-15 KHZ they are probably not going to be as bright as the Lowthers, which means your approach will probably work better on my drivers (meaning I can tweak the resistor till I get the bass I want without making the drivers sound too bright). Also, I have a super tweeter, and i can always adjust it...it's cap is not been finalized yet... and i can buy different caps and play around. I am excited! Thanx for your patience, and BTW, based on reviews I have read, I dont think you are alone on that limb. Hey, who knows, I may join you there after the experiment. -akhilesh

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Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by Wayne Parham on Thu, 19 Feb 2004 15:32:46 GMT
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I don't think I'd consider your design approach to be "way out on a limb" or "at odds" with others. Most high-fidelity speakers incorporate circuits for impedance and response compensation.I think that some single-driver enthusiasts prefer to avoid electronic components and that high-efficiency speakers in general often have minimal electronics. That's popular in the high-efficiency and single-driver camps. But they are in the minority really, because there are far more people that prefer the sound of speakers having such electronics than those that don't.I'm not really making a point for or against either approach, but I am making the observation that speakers having impedance and response tailoring circuits are far more popular than those without. In my opinion, you're you're sort of bridging the gap between these two philosophies.

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by Martin on Thu, 19 Feb 2004 16:32:57 GMT
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Wayne and akhilesh,OK you two, get off of my limb! I like being the martyr, the heretic, and getting people pissed off and yelling at me on the forums. If they don't yell at me I have no way of knowing if anybody actually reads the stuff I write on my site. At least I know people are reading and thinking before they flame away. Now get off my limb before the branch snaps and we all end up falling into the boring mainstream of audio. I have to come up with some new off the wall designs for the Lowthers in my collection.akhilesh, e-mail me any time and tell me about your drivers and enclosures so we can take a more intellegent stab at a baffle step correction circuit.Martin

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Subject: But you gotta yell back sometimes
Posted by Wayne Parham on Thu, 19 Feb 2004 19:57:26 GMT
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Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by hurdy_gurdyman on Fri, 20 Feb 2004 14:36:52 GMT
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I agree with your assessment that one driver can't do it all. Helping on the extreme ends doesn't take away from the single driver sound, it just augments it and makes it better. My own vintage EV's, in open baffles, cover the range from 80 Hz to around 11 kHz, and I consider these "fullrange" drivers (they can go down to 55 Hz in the right box). I use a sub and tweeter to extend that last little bit on each end. This has less compromises then expecting any one driver to be able to do it all. I think the majority of fullrange driver users wse either a sub or super tweeter, or both, to augment the extremes.Dave :^)

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by jim denton on Fri, 20 Feb 2004 15:19:03 GMT
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Martin---I'm up for the experiment!---I have copied the last post taht gave the formula for building the filter---I'm building it to install in your "Lowther" box and will install a 6" port tube as you mentioned----if it's not too much I may run the calulations I come up with by you as this is my first shot at building a filter----my idea is to install a switch so I can turn the filter on and off---and to be able to do a listening test as Akhilesh and I have been having this discussion of what the filter will or will not do---- Jim PS hope to have boxes glued up by Saturday---going to install the FE 206e in them and have a go with them "unfiltered"

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by Wayne Parham on Fri, 20 Feb 2004 16:22:06 GMT
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Let's listen to your setup at the next GPA meeting. Maybe we should arrange a time and place for another gathering.

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by Martin on Fri, 20 Feb 2004 16:32:50 GMT
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Hi Jim,I would be happy to look at whatever calculations you make w.r.t. the filter. You can post them here or e-mail me directly.If you want to easily remove the filter from the network, all you need to do it pull out the resistor and put in a short piece of speaker wire effectively by-passing the inductor. Might save you the cost off a switch. Either way would work well.Martin

Subject: Re: Cool article on TNT-audio by a single driver nut...Thanx Martin!
Posted by akhilesh on Fri, 20 Feb 2004 19:10:04 GMT
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Good idea Wayne! Yes, let's arrange a time & place!-akhilesh