Subject: mini wall mounted array
Posted by JJ Manton on Fri, 20 Oct 2006 02:18:17 GMT
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Hey guys. I have read through Jim's white paper, and although I dont fully grasp everything in it, I feel like I get most of the basics. I had the idea to build a set of very small arrays to mount on the sides of an LCD. I was thinking 9 2" tang bands per side. Below is a link to the speaker. I noticed on parts express one of the project included 64 of these. I chose 9, because after thinking really hard I guess your number of drivers must be a perfect square to equal the original driver impedance, correct? Maybe 4 would work, im not sure. Im still trying to learn about arrays and how they work, and I hope this project will give me a better grasp on the idea.Thanks,JJ
http://www.partsexpress.com/pe/showdetl.cfm?&DID=7&Partnumber=264-806

Subject: Re: mini wall mounted array
Posted by Marlboro on Fri, 20 Oct 2006 21:38:50 GMT
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Pages 7-10 of the white paper make suggestions about the size of the line height to properly keep the hearing in the near field, which is very important to have the line array experience. I'm pretty sure that an 18 inch line array would put it in the far field and that you wouldn't get any of the real benefits of a line array by something that small. There is also the issue of coupling with the ceiling and floor.Marlboro

Subject: Re: mini wall mounted array
Posted by Jim Griffin on Fri, 20 Oct 2006 23:42:50 GMT
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JJ,You have clearly found the Kuze3201 project. Please read Darren Kuzma's notes on the Kuze3201 project in the Parts Express Project Showcase on his 32 driver per side array. He needed both low and high frequency equalization to approach flat response. Observe the before and after EQ frequency response plots to see what you would be facing with the use of this driver in an array. With an array you notice how even with 'full range drivers' that the frequency response is impacted by their mutual interaction as you go beyond a wavelength spacing center to center spacing. Unless you are prepared to EQ, then a full range driver array (at least with this particular driver) isn't what I would build. I highly recommend that you consider a MTM (or perhaps a MMTMM) configuration as you will get better results for your application. If you must have a line array, then go for it, but with both woofer and tweeter lines.Jim

Subject: The Griffin Full range array?
Posted by Marlboro on Sat, 21 Oct 2006 00:11:27 GMT
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You said that ".....then a full range driver array (at least with this particular driver) isn't what I would build."If someone, not you perhaps, was interested in a full range array with maybe just a little bit of equalization, what would you recommend in the way of speaker?Marlboro

Subject: Re: The Griffin Full range array?
Posted by Jim Griffin on Sat, 21 Oct 2006 02:25:31 GMT
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Marlboro,I'm not keen on trying to achieve full frequency spectrum (20-20 kHz)range performance from small so called full range drivers. Even though several small drivers do a reasonable job of covering say 100 to 15,000 Hz, you have to EQ them to even properly cover the upper octave 10,000-20,000 Hz range. For the bass you'll need a real subwoofer to really do the job. The best small driver out there these days is likely the Jordan JXr6 HD 2" driver. Alone it will cover 100 to beyond 20,000 Hz. But when arrayed, you'll have the same kind of response as Darren had with his 2" Tang Bands in the 32 driver array. Now you can use lesser drivers but you will have to do more EQ and still they won't would right off axis and across the upper octave.Now Roger Russell (the former chief engineer at McIntosh) has published a couple of small full range driver designs in AudioXpress during the past year. In fact he is the designer of the www.ids25.com array which uses a 3.5" Vifa driver. Now for $18,900 you can get a pair of 25 driver arrays and an equalizer that claims to solve all of mankind's problems. Or at least a line array that 'covers' 20 to 20,000 Hz. Now if you are handy with wood working, you can build a real woofer/tweeter line array with world class drivers (up to say Seas Excels), ribbon tweeters (Founteks or A-C), and even throw in a DEQX digital crossover. If you do it right, you'll save yourself up to $10,000 vs. Roger's design. Plus your arrays will kick the tail of those ids25 arrays any day of the week. What would you do?Jim

Subject: Re: The Griffin Full range array?
Posted by Marlboro on Sat, 21 Oct 2006 02:53:20 GMT
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I wouldn't do the wide range. I like my 17/ch 3.5 inch sammi's and the 30 neo's/ch, with one 12 inch DVC 15mm Xmax/ch kicking in at about 165 hz. The mids are crossed at 2750 mostly. The neo's have their flanges cut to a .78 c-to-c.But sometimes I salivate at Dayton's new 3.5 incher that should come out by December. I can't see doing a wide range over a 3 way, with electronic cross, and Rane equalizer.But i did woinder what you would say about a 3 way. Thanks.marlboro

Subject: Re: The Griffin Full range array?
Posted by Jim Griffin on Sat, 21 Oct 2006 09:56:40 GMT
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Marlboro,No issue with a three way line array speaker. I like a version that has a two way line tower with dual stereo sub woofers for the bottom end. Essentially, that is what my latest line array design really is as I'm using sealed 4.5" mid-bass woofers that work down to a 70 Hz F3 point. Thus the lower octave and a half is covered by the subs. Too often a designer will try to extend the mid basses by the use of a ported cabinet but that can lead to bloated bass vs. the faster transient response of a sealed box.Regarding the Parts Express RS90 that isn't out yet: I'm not holding my breath on that driver. If you consider it as the next step down in the RS line then you have the RS125 driver as its slightly bigger brother. The RS125 has relatively low sensitivity and aluminum cone break-up modes that must be taken into account. I suspect that the RS90 would suffer those same shortcomings as the RS125 unit but likely an even lower sensivitity to go with similar cone break-up issues. The RS90 would likely be OK for a line array application--you would cross to a tweeter line lower than you would if you were using the RS90 as a midrange driver in a conventional two-way speaker. That wouldalleviate the cone breakup issue. A line array usuage would also mitigate the sensitivity issues with the RS90. No easy answers.Jim

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Subject: Full range array - my 2 cents
Posted by lcholke on Sat, 21 Oct 2006 12:07:42 GMT
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Marlboro,I made a 4 stack with the Fostex 3" driver. The price is better than the Jordan. The low extension is not there though. The sound was good , but I was listening in the "far field" area. I ended up putting in a coil to reduce the lows at 300hz. This made the sound clearer.The center spacing may not be as much of an issue for a full range driver. The highs come from the entire cone. Not just the center. I think that the highs move out from the center as a wave along the cone surface. I wonder if this would help reduce the effective center spacing. -Linc
http://www.madisound.com/cgi-bin/index.cgi?cart_id=2776617.16692&pid=336

Subject: Another Calipso array?
Posted by Marlboro on Sat, 21 Oct 2006 12:49:13 GMT
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John Krutke somehow got an advance copy on it:"Comments: This is a preliminary test sample and subject to change when it becomes publicly available. This is the lowest distortion 3" driver I've ever tested, directly a result of a faraday ring in the motor. On the other hand, it's rough top end response means it is best used with a tweeter. Specifically, a small neo tweeter is a good mate to this driver, working with a high crossover point or a shallow slope. This driver will not appeal to the "crossoverless full range" crowd, as it definitely needs some sort of filter. Excellent

build quality, with a cast frame, a good 1 piece parabolic cone, venting through the pole piece and behind the spider. Do not expect clean ouput anywhere below 100 Hz. Low efficiency - If you need a midrange from Dayton, the RS52 is a better choice."His measured fvrequency response is flat from about 100 to 1300, with a 2 db rise to a plateau until about 2600 and then another 2 db rise to another plateau to about 3600.Sensitivity is low at about 82 across the frequencies, but of course with 17 of them per channel or more, that will come up. The FR looks a bit better within the ranges that one might use them either with the cut neos flange domes or with some ribbon/planar.But again, the only reason for using them would be so one can use domes as the tweeter component, which is so that one can keep the price of the whole system in regards to the speakers below 800 bucks in total cost.If I was willing to not be affected by the speaker cost, then I might choose a suitable tweeter like the B&G neo3 PDR at $55 each and maybe the Dayton RS52, making a normal woofer at about 400 maybe using the Dayton RSS315HF-4. I'd love to try to use the RS52's in an array. Design box would consist of just a nice front hardwood baffle for the mid and tweeters---so much easier than some box. And I'd stick to my sonotube woofer cabinets. Marlboro