Subject: New Project
Posted by Tom R. on Sat, 22 Sep 2007 03:17:15 GMT
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After about 9 months of putting together a line array project, I final have a quasi array in my living room playing music. Initial impressions are the sonic benefits of a line array,good dynamic range, lots of slam/punch, very good sound stage. They have a few problems but these will be corrected in time, or at least made tolerable. I consider this a long-term project, and this is just a phase. I have started with a quasi line array due to budget constraints, and initially using what equipment I have on hand. I have read Jim Griffin's white paper several times and heard a few line arrays, but I am in no way an expert, only an enthusiast, so technically they have issues, but that's OK. Each mid bass cabinet consists of eight Focal 5-1/4" mid bass drivers, model number 5K013L per side. These drivers are no longer in production. I owned 8, and purchased 8 more used drivers on E-BAY. These are very good mid bass units as long as the crossovers point is low, as they have a nasty top end that is very fatiguing. The tweeter is a single Raven 1 ribbon tweeter per side. I know this is not a good match with the mid bass units, as the Raven 1 needs to be crossed over high. So just for now the mid woofers cross at 2400 Hz. 4th order, and the Raven 1 is crossed at 3000 Hs. 4th order.I figure if I had to have a problem with the response around the crossover I believe a "dip" is better than a "spike". Your ears can hear a rise in frequency response but a dip is more forgiving.The mid bass driver a wired in a power tapering scheme. So far I have not tried any series/Parallel arrangement. Initial listining of the quasi line array with a single tweeter and power tapering to the mid woofers gives the sonic benefits of a line array, but the sound stage is a little more focus like a point source – this is only an observation, I went a little over board with the cabinets, I have not build anything in a while, so my time was the cheapest portion of the project, and building them was a excellent break from the working world. The cabinets are MFD with section of 6" schedule 40 PVC pipe making up the interior walls of the individual driver boxes. Each box separated by a horizontal piece of ½" MFD with holes drilled outside the PVC sections. Once assembled, I left the top off the cabinet and poured a mixture of sand and granular rubber in the top of the cabinet allowing the mixture to flow down to the bottom of the cabinet and fill the cabinet from the bottom up. This created a constrained layer dampening effect between the PVC inner structure and the outside wall of the cabinet. One draw back is the cabinets are now 125 pound each! The PVC walls are non-parallel, and naturally curved, so they should help break up internal standing waves. The mid bass units are individually sealed and the volume is calculated for a dampening factor of .707 and an f-3 of 106 Hz. I also routed out the area behind each driver so they could breath. I routed the area by hand, not the best job, but it works. The cabinets were assembled with liquid nails construction adhesive using simple but joints, and lots of clamps.This project was intended to be used with a sub woofer. I have a stereo pair of very good subs but I do not have then in the system at the moment. I wanted to hear the bass from the new speakers before adding the subs. If you listen to a descent recording that has some bass content the speakers have that punch/slam factor I really like. But if the recording is poor they can sound anemic, but that is to be expected with a sealed drivers in the alignment I used. The sound stage is solid with every recording I listened to. But If a CD was well recorded / mastered, the speakers through a very wide sound stage, this I liked very much.Over all I think the initial phase is a success, technically not perfect, but a start. You just cannot beat lots of drivers moving lots of air. The summed cone area of the 8, 5-1/4"mid bass drivers per side is almost the same cone area of a single 12" speaker!I encourage anyone thinking of building a line array to jump in with both feet, the rewards are worth it. Weather you

build your own design or purchase a kit, I am a believer. I have had the chance to hear ART arrays, and for the price they sound very good, for only $350 worth of parts, plus cabinets!Some construction photos: http://s212.photobucket.com/albums/cc167/tomr3399/?mediafilter=all
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