

Hello!! have been thinking of doing a line source for a while, and looking at the massive McIntosh XRT2K triggered a new round of thinking and sketching. A unique (to my knowledge at the least) attribute of the XRT2K is the 'dual-baffle', where the mid and tweeter arrays are put in front of the woofer array. This greatly reduces the width of the speaker - very important in the place I want to use it. Now, I am not interested in cloning this beast (the thought of wiring 220 drivers alone puts me off this...) but I am looking into replicating the principle in a scaled-down speaker. My ideas so far are:-A woofer cabinet consisting of 9 x 6,5" woofers in a sealed enclosure of about 22(w) x 35(d) x 195(h) (all measures in centimeters). The Peerless SDS164 is a good candidate due to its favourable pricing here in Norway and easy mounting (yes, I am lazy...). 9 of these gives me an SD of about 1300cm² per side, equal to 2,5 12" woofers. Should be sufficient down to about 60hz with plenty of punch!-1 BG RD75 in its own chamber suspended in front of the woofer-array. This chamber would be about 15cm wide and deep (and 195cm tall), and would have a curved back (using a cut-off paper-tube - the kind used for sono-tubes etc.) to cater for the output of the woofer line as well as possible. Sufficiently damped and about 70% filled, this should work well with the RD75 down to about 300hz with these dimensions, any lower in the X and I need to increase chamber size. There is one major issue here: The X-over frequency relative to the radiation pattern and shortest wave-length of the woofer-line output. The XRT2K is crossed at 250hz, and that obviously works well. I could cross this low, but as this would stress the RD75 a bit more than I like and require a somewhat larger chamber for it, I would like to go as far up as possible without messing up the sound of the woofers (500hz would be great, but anything above 300 should be fine for the RD75). So far I have been unable to track down any info on how large an obstacle I can place in front of a woofer at a given frequency. Does anybody have any experience with this, or any sort of guideline that can be applied? I suppose I could build and measure, but this will cost a bit, and I would prefer not to fail miserably attempting an impossible task...FYI this will be an active system using a modified Behringer DCX2496 as well as a DEQ2496 for equalizing. That means that I am not that concerned about (moderate) frequency curve deviations. Power response and dispersion pattern issues are the main concern, as I cannot do anything about these electronically. I also have a couple of Peerless XLS-12 in sealed boxes that will take over below the woofer-lines. Any suggestions for improvements will be greatly appreciated!
