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Subject: Speaker Experiments <long>

Posted by [wunhuanglo](#) on Wed, 23 Jun 2004 22:49:41 GMT

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Until recently, I've been running my modified Altec set-up. I started with my original 828 cabinet built more-or-less to plan with very extensive additional bracing,. I then partitioned the mid-woofer area housing the Altec 515-G to create a sealed back chamber. Into the lower cabinet chamber I had installed JBL 2225's (vented) to extend the bass flat to 30 Hz (with a bit of EQ). A couple of weeks ago I was sitting very near to one of the speakers while my wife was listening to some vocals at a very low level. I noticed that the sound from the 515-G was very "crystalline" for lack of a better word, much more so than I was accustomed to hearing. After some reflection I concluded that it was a lack of horn coloration that must be doing it. My thinking is that since the SPL was so low, there was virtually no loading on the cone from the horn, and I was hearing much more of the driver itself. I don't have the math to investigate this, but I suspect that the mass, momentum and viscosity of the air in the horn must affect the sound of the driver when mounted to the horn in proportion to the cone excursion. That started me thinking about how devoted some Japanese are to the old Klangfilm designs so I decided to experiment along those lines. I built a pair of sealed "subs" – Altec 3182 18-inch drivers (Fs 18 Hz, 92 dB/W) in approximately 7 cu ft., with heavy fill. Calculated Qtc = 0.7, F3 at 40 Hz. On top of these I put open baffles, 30 inches wide by 46 inches high. The 515's are in the lower half of the baffles to spread out frequency cancellations. Below the 515s are 511B horns with 802D drivers. The sound is much more detailed than it was formerly, more "open"? Clearer? Articulate? Whatever the term is, I like it. XO at 200 Hz and 900 Hz. It takes very little EQ to flatten the system. I have about +3dB at 360 Hz to compensate for roll-off due to the baffle dimensions, and -6dB from 3.2K to 4.3K, and that's it. Flat to 40 Hz at the listening position with no help, and stays flat to 16K. I haven't added any boost below 40 – I don't find it's necessary for any music I listen to. It does seem a 16", 30-lb driver might be a bit of overkill for 2 octaves in a domestic listening situation, not to mention the fact that, despite the very light cone and very large magnet, it may not be the best midrange driver available. I've ordered a pair of Fostex FE208EZ drivers and a pair of ribbon tweeters. I intend to put them in open baffles on the present 18" subs. I'm thinking that the ribbon tweeters might be better than the horns with regard to the 4K peaking issue and other colorations. I'll report on how that goes, but I'm hopeful that it will be a further improvement.

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