Subject: Re: may i know your whole box dimension?
Posted by Adrian Mack on Fri, 26 Dec 2003 09:27:14 GMT
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Hi AdkinsThanks for the kind words. How you tune an enclosure depends on what sort it is. In a sealed box, the only thing you can vary is box volume, but in a vented box you get the port (helmholtz resonator) and the box volume too. Perhaps you would benefit from a site which explains the basics of typical box types like sealed, vented, bandpass etc. www.diysubwoofers.orgIn my towers, I'm using 15" JBL 2225H drivers for the bass/midbass sections. The midrange is covered by an Eminence Alpha 6 driver horn loaded in a conical horn flare (which I designed and built), and the HF is JBL 2370 horn flare loaded with P.Audio PA-D45 comp drivers. If you want to see pictures of all my parts, see this post http://www.audioroundtable.com/HighEfficiencySpeakers/messages/100.html on the high eff AudioRoundTable forum. My subwoofer uses an 18" 18LW1400 in a 300L vented cabinet which takes care of 20Hz and up in my room. Most horn/comp driver combo's do rolloff on the top end. Some horns self equalize (like radial horns do) in the top octave so compensation isn't always needed. However most do need some sort of compensation still. And, YES !!!! IT IS VERY, VERY IMPORTANT !!!! Go listen to some without a compensation network, AWFUL. You don't need a UHF tweeter like the 2404 though - just use a compensation circuit on the compression driver. Theres too many other problems introduced when crossing very high as well, I would prefer not to do it. I assume you meant 2446 2" compression driver, and not 2246 which doesn't exist. JBL makes some crossovers which include high frequency correction to restore response up to 16KHz, which is all you need. Some compression drivers will allow you to go 18KHz. Another great way though is to use the crossover network used in Pi Speakers, which augments the top octave by removing attenuation there compared to the rest of the circuit, so it also matches sensitivity to that of the woofer at the same time. The first few octaves are flat before the augmentation kicks in, so its just what you need. You didn't specify a horn flare for the 2446 - use the 2380 horn flare. Dont use the 2382, it rolls off way too early (+ it has too wide dispersion characteristics for home environment). Might I suggest though, since your using a 12" driver for the midrange and its capable of HF extension into many kilohertz that you use a 1" exit compression driver instead, like the JBL 2426. The 2" comp drivers don't reach into the top octave very well, their diaphrams are too big. They go lower in frequency though, so they are normally paired with 18" speakers which can't go very high. Since your 12" can go very high though, then use a 1" exit driver. You will gain more HF extension on the top end. In that case, use something like the JBL 2370A horn flare on the 2426 comp driver. I suggest you use the 2206 12" instead of the 2020. If you look at the response curve for the 2020 you'll notice that its got a fair bit of variation throughout the midrange, its a continually positive rising slope. The 2206 on the other hand is dead flat through the midrange and well into the treble region too until a bit past 2KHz. It also handles more power, has lower distortion, etc. The 15" 2226 is also really good. Good sub there, 2242. You'll need to use some EQ on this one though. JBL makes a unit which does the electronic equalization for the bottom octave I think, but the Behringer Ultra-Q Pro PEQ2200 fully adjustable parametric equalizer is also really good for the job, its US$99 (probably a lot cheaper than any JBL EQ). JBL reccomends 8ft^3 vented cabinet tuned at 25Hz for this. Set the EQ to give +6db boost at 25Hz with Q=0.67 (2 octave bandwidth). It gives a nice smooth curve when used with the 2242 in that box alignment, and has a small gentle rolloff on the low end, so once you factor in room gain the response curve is nice and flat to the lowest frequencies. Adrian