Subject: double bass in stage series
Posted by djstan on Wed, 03 Jul 2002 20:43:56 GMT
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Most of the speakers I build are used in my portable dj business.Seems you can never have too much bottom end. What I was thinking is building a pi 4 with the omega 15inch/2002 eminence and adding a second omega in the same cabinet. I'm thinking that the second woofer would be crossed below the midrange band for just the bottom end, otherwise there would be too much mid for the horn/mid balance. Would the cabinet size be doubled? Can I use the same crossover design with with zobel. What would you suggest as low to mid crossover frequency. Not wanting to use the Omega 18 inch because of the cabinet size. Thanks

Subject: Re: double bass in stage series
Posted by Wayne Parham on Wed, 03 Jul 2002 23:08:09 GMT
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PiAlign will calculate the box and port dimensions for you; Just enter "2" for the "qty" value. Great idea to rolloff the lower one at a couple hundred cycles, leaving just the top one to do midrange duty.

Subject: Re: double bass in stage series
Posted by Adam on Thu, 04 Jul 2002 00:39:41 GMT
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Just run a 2.5 way system.Run the second woofer with a first order crossover at a frequency around half the wavelength of the front of your cabinet.So if they are 24" wide for example:13560/24 = 565/2 = 280 Hz (roughly)So run a 6db/octave low pass at 300 Hz and this will accomplish exactly what you want. In the bands above roughly 500 Hz, you will only have the single Kilomax or the psd2002 delivering frequencies. However, if you dip below that crossover point into the midbass/bass region, you will have two woofers delivering that output at half the impedance, resulting in a 6db gain in output. This will also compensate for baffle step, which causes a loss of low frequency energy in a half space enviornment because it has to propigate in all directions, while higher frequencies are only radiating in half space. Where signal driver, unequalised designs will give you weaker midbass and bass output in a half space environment, a design like this will give you relatively flat response over the whole frequency range.One thing I should note that putting a speaker like this against a wall as well will result in an artifical enhancement of the midbass and bass, which might make the unit sound kind of bloated. So it depends on your application. The other option is, of course, to simply low pass the lower woofer at around 80 Hz or something like that, ideally bi-amping the whole thing. This will give you that

augmentation in the lowest octaves only.Adam

Subject: FWIW, jbl uses this format at times
Posted by Sam P. on Thu, 04 Jul 2002 13:44:01 GMT
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and seems to cross the lower woofer around one octave lower than the upper one. Or at least, the lower woofer inductor values are about twice what is used for the upper one. For example, the model TR225 has xovers specified of 750 and 1300 Hz. for the woofers. The lower woofer has a 1.5mH coil, the upper is fed via a 0.68mH coil. I would imagine with dual 2226H's, just use Wayne's specified 0.7mH for the upper woofer, and feed the lower woofer with 1.5mH or so. Oops, you are asking about Omega's, right? Normally a 1.0mH/10uF filter feeds the woofer in the 1.6k xover. Try a 2.0mH (or larger) coil on the second woofer, don't know if that has to be a second order filter or not, probably so. Individual zobels needed? Hey, the parts cost is adding up here:) In the JBL example, only 1st order LP filters are used, same as in Wayne's 4 Pi Pro with 2226's, a mere 0.7mH coil between the woofer v.c. and the amp. I'm pretty sure a doubling of the choke value for feeding the lower woofer with 2226's would work OK. Not sure about the level matching, but JBL claims the benefit is smoother response in the xover region...Sam

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