
Subject: Questions about box tuning F3, F10, etc.
Posted by [Bill Epstein](#) on Tue, 03 Oct 2006 11:01:44 GMT
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Been looking at WinISD, specifically a 4 cu ft box for the 2226J tuned to 40 Hz. WinISD has this box (32 3/8x20 3/4x13) down 3dB at 56 Hz, down 6dB at 40 Hz and down 10 dB at 33 Hz. Is the tuning frequency always F6? I thought it was F3? Would this larger box be less or more boomy on a suspended floor? Or would the 4Pi Pro 2.5 cu ft box be better? Finally, I know there's a post somewhere about the size of a circular rather than a rectangular port for the 4Pi but I searched and can't find it.

Subject: Re: Questions about box tuning F3, F10, etc.
Posted by [Wayne Parham](#) on Tue, 03 Oct 2006 13:43:10 GMT
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A bass-reflex cabinet uses the box as a Helmholtz resonator, which doesn't really care what shape the port is. If it is very long and/or thin in one dimension then standing wave issues can come up, but barring that, the port can be circular or rectangular to the same effect. As for response, the Helmholtz frequency doesn't set the f3, f6 or f10 points but the interaction of the Helmholtz frequency, box size and electro-mechanical parameters sets the curve. It's an interaction between two resonators that sets system response, lower cutoff and Q. Experiment a little bit with WinISD, changing box size and tuning frequency and you'll see what I mean. If the box size is fixed, say your 4.0ft³ example, then box tuning between 35Hz and 40Hz gives the 2226 a nice flat curve. Set the Helmholtz frequency lower and the curve looks more like a sealed box, having a slower rolloff but a higher f3. Set the Helmholtz frequency higher and the response becomes underdamped, having a peak near the box frequency. Also try it with smaller and larger boxes to see what that does to response. You might be interested in the post called "Response curves of closed vs. vented systems", which shows various alignments and the response curves that result.

Subject: Re: Now a question about all these ports from JBL
Posted by [Bill Epstein](#) on Tue, 03 Oct 2006 17:33:58 GMT
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Look at the 'equivalent duct tube and ID' column. Do they really mean the 2226 has to have 2 ducts that size? Look at the double 2226 enclosure. We all know the 4648 cabinet has 2 ducts, not 4. And a 2245 subwoofer needs 6 ducts? Can't figure this one out.
JBLPro enclosure guide

Subject: Re: Now a question about all these ports from JBL
Posted by [Wayne Parham](#) on Wed, 04 Oct 2006 02:35:20 GMT
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JBL lists relatively generic cabinets that have a lot of large ports. But the Helmholtz frequency is still right. Their object is to reduce port airspeed at high power levels and excursions, which is generally a good idea. Speakers with big ports aren't the best deal for homes with pets and small children though.

Subject: Excellent information in the post you linked to, Wayne.
Posted by [Duke](#) on Wed, 04 Oct 2006 04:05:55 GMT
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Thanks for pointing it out.Duke

Subject: Bigger ports=playground for Bill's cats!
Posted by [spkrman57](#) on Wed, 04 Oct 2006 15:14:56 GMT
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They need room to play!Ron

Subject: Re: Bigger ports=playground for Bill's cats!
Posted by [Wayne Parham](#) on Thu, 05 Oct 2006 18:09:34 GMT
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Subject: Re: Now a question about all these ports from JBL
Posted by [Zene Gillette](#) on Thu, 05 Oct 2006 18:14:44 GMT
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Thanks a lot Wayne! You could have said that before I changed out my woofer 3 times trying to get rid of the screeching sound. tee hee Zene

Subject: Re: Now a question about all these ports from JBL
Posted by [Wayne Parham](#) on Fri, 06 Oct 2006 14:05:38 GMT
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I'll bet a cat would jump out pretty fast after you cranked up some heavy metal!

Subject: Re: Now a question about all these ports from JBL
Posted by [Zene Gillette](#) on Fri, 06 Oct 2006 16:12:21 GMT
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Bet it would, but I only play violin music with all cat gut strings. Zene

Subject: Re: She only suffers this torture
Posted by [Bill Epstein](#) on Fri, 06 Oct 2006 23:55:01 GMT
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Ever tie a string to a ceiling fan?

Subject: Re: She only suffers this torture
Posted by [Wayne Parham](#) on Sun, 08 Oct 2006 16:29:45 GMT
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Subject: Re: Bigger ports=playground for Bill's cats!
Posted by [spkrman57](#) on Mon, 09 Oct 2006 15:08:56 GMT
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I thought you would like that one!Ron

Subject: Re: Bigger ports=playground for Bill's cats!
Posted by [Wayne Parham](#) on Mon, 09 Oct 2006 19:07:36 GMT
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The speaker with the biggest port I have has a 5" hole. That's just large enough for cats. Kittens would have no problem getting in. Fortunately, the port is in the rear so I can put it back up against the wall. Not completely to restrict airflow, but enough to keep the cat from investigating. I always wondered how long it would take to realize a cat was inside, if it jumped in without my seeing. Probably find out pretty quick after playing something.
