Subject: JBL2226j and DH1A in modified 4pi help
Posted by DH1A on Mon, 26 Aug 2013 23:44:28 GMT
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Hi: my brother has a set of JBL 2226J and EV DH1A and he wants to use them in a 4pi size cabinet. I don't have cabinet design or crossover info. He has asked me to help. I am not a crossover savvy guy so I am asking for help. I know at least one other member here had used this combo but it was about ten years ago and he has no record of the schematic. I am wondering a few things and that is if I should include notch filters at the impedance peaks of the DH1A? Also what kind of additional bass will adding volume in half cu ft steps make? I will stat here and will also first apologize for changing a working design all I can say is that these are the drivers that he has on hand and which he wants to use. Thanks for any help and direction. Best regards DH1A

Subject: Re: JBL2226j and DH1A in modified 4pi help
Posted by Wayne Parham on Tue, 27 Aug 2013 00:21:48 GMT
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You can use notch filters for impedance compensation, but I have found them to be less than satisfactory. If the impedance peaks were consistent in frequency and amplitude, then notch filters would work very well. But the problem is you cannot expect unit-to-unit consistency, and in fact, you cannot even expect the peaks to stay the same place at different power levels. So I tend to avoid tuned circuits as dampers, and use non-resonating dampers instead.

If the impedance peaks are below the crossover point, it is possible, even likely, that they can be disregarded. That depends on how large the peak is and what the stop-band impedance of the filter is. But typically, the impedance peaks of compression drivers on horns is in the range of 2x to 4x above nominal. So the stop-band impedance is high enough peaks below crossover usually don't cause a problem. That depends on how far into the stop band they are.

When the peaks are near crossover or above it, they definitely need to be damped. If they're within the crossover overlap region, then the crossover itself can be used to damp the peaks. The same resistors used to provide padding can be used as snubbers. If the peaks are above crossover, then the padding resistors may not be the best place to do the damping, since their values have to be used to provide mass-rolloff compensation and are therefore in a certain range. But in this case, you can usually just use a snubbber resistor placed directly across the compression driver. It should be sized about 2x the DC resistance of the compression driver.
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Crossover optimization for DI-matched two-way speakers, revisited
Tweeter circuits for constant directivity horns and waveguides
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Subject: Re: JBL2226j and DH1A in modified 4pi help
Posted by DH1A on Tue, 27 Aug 2013 02:42:49 GMT
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Ok that sounds like it makes make sense. Could you explain what a non resonating damper is and how to use it? Could you also give a once over on the stop band impedance of the filter? Oh boy I have some reading to do. Thanks for tall the help with this post Wayne. Best regards DH1A.

Subject: Re: JBL2226j and DH1A in modified 4pi help
Posted by Wayne Parham on Tue, 27 Aug 2013 13:28:16 GMT
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A non-resonating damper is any damper that uses only resistance and possibly one type of reactance, but not both. It can be a pure resistance, a resistor/capacitor or a resistor/inductor.

The stop-band is the "crossed-out" portion, like for a tweeter high-pass circuit crossed at 1kHz, the stop-band would be everything below 1kHz.

The impedance of the filter in the stop band is higher than it is in the pass-band. But the exact impedance depends on the slope - the "order" of the crossover and also the frequency - how "deep" it is into the stop band. So, using the 1kHz tweeter crossover example, the filter's impedance would be much higher at 200Hz than it would be at 800Hz.

Subject: Re: JBL2226j and DH1A in modified 4pi help
Posted by DH1A on Fri, 30 Aug 2013 20:13:20 GMT
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I am starting to think that what my brother should do is to build the 4pi as designed and then play with a fresh design build to accommodate the drivers he wants to use, that way he has a reference to compare to. There is a lot to read and try to learn about a design like this and that won't happen in a hurry.
Wayne can you please send me a file with the 4pi cabinet and network design? Thanks very much best regards DH1A.

Subject: Re: JBL2226j and DH1A in modified 4pi help
Posted by Wayne Parham on Fri, 30 Aug 2013 21:03:22 GMT
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