Subject: 3 and 4 way crossover
Posted by bmar on Thu, 18 Jul 2002 01:11:22 GMT
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Ok, I've read the crossover document a few times and now pretty comfortable with the aspects of a two way system. As you know I'm working on some 2245 bass units to with my system. I'm going to run some plate amps for the time being. What I would like to do is get a couple JBL slots and have a 4way. 2245/2226/2426/slot.Can you explain a little about how the crossovers overlap each other on the middle speaker(s)what are your thoughts on crossover frequencies for these drivers in an arrangment like this.I should have some finished pics of this monster soon. I was thinking of putting these cabinets on wheels, backloading the cabinet with a gas generater to power the amp. play some rap music and propel myself around town! reminds me of bar stool races.....Bill

Subject: Porter-Cable belt sander races, YEAH!
Posted by BillEpstein on Thu, 18 Jul 2002 01:45:28 GMT
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And yes, you do ride them down the bar! That's torque!

Subject: Re: and to think, the band was replaced with this!
Posted by bmar on Thu, 18 Jul 2002 01:58:15 GMT
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Ha! gotta have one eh

Subject: Re: 3 and 4 way crossover
Posted by Wayne Parham on Thu, 18 Jul 2002 02:38:14 GMT
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There are a lot of things to consider when choosing crossover points. The most obvious is the intended range of each of the devices, where they work best in terms of response and distortion. This includes the behavior of the motor, the suspension and the diaphragm. As an example, cone flex causes extended high end but excessive breakup can make it unusable. The voice coil may handle a certain amount of power, but at low frequencies, excursion may be excessive. These

are the kinds of things that the crossover designer must consider, first and foremost.Secondly, but just as importantly, in my opinion, is the directivity performance and the behaviors that arise when there are multiple sound sources. These include the collapsing directivity of direct radiators and some horns, the loss of pattern control at low frequency of horns, and the nulls that form off-axis in the same line that drivers are stacked. For example, the matched-directory two-way concept is to crossover to the tweeter horn at the frequency where the directivity of the direct radiating midwoofer collapses to the point where it matches the horizontal pattern of the horn. At the same time, the vertical spacing is set so the vertical nulls are just outside the horn's vertical pattern.Thirdly, where possible, consider the enviroinment the speakers will be used in. Speakers with controlled directivity do this to some degree by limiting early reflections. But if the speaker is placed in stands a few feet above the ground, then self-interference from the floor reflection will cause a notch in the upper bass or lower midrange. By placing the woofer lower to the ground, this can be avoided. A midrange that is placed higher, which would otherwise suffer from a floor bounce notch, can be covered by overlapping the range with the woofer. The distribution of sound sources this way will cover the notch and prevent it from occuring.

Subject: Re: 3 and 4 way crossover
Posted by bmar on Thu, 18 Jul 2002 20:22:06 GMT
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Hi Wayne,Thanks for the suggestions! Lots to think about there. I think I can experiement and dial it in with an active setup. Making it easier in the long run. In an effort to conserve an amp and being able to use a 3way crossover. (not having to get another to make a pair of 4ways) What would be any draw back from using a passive crossover between the 2426 and the 2405? If so, would 2nd order be ok? or out of place with 4th order from the active unit.Bill

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Subject: Re: 3 and 4 way crossover
Posted by Wayne Parham on Fri, 19 Jul 2002 05:28:08 GMT
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It's not immediately obvious to know what's best in most cases. There are some general things you can know, like low order filters pass more out of band energy. That might be bad for a tweeter that can't handle much low frequency content, for example. But to know what slopes and topologies will work best, you have to do the math and test it to see.

Subject: Re: 3 and 4 way crossover
Posted by bmar on Fri, 19 Jul 2002 12:30:31 GMT
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Hi Wayne,just thinking outloud. as usual there are a lot of options so I'm just tossing around a few ideas. What would work nice is one multi channel amp so I dont end up with a rack in my living room. 6 channel amps are popular, 8 channel there are a few but not as popular. Perhaps a 6 channel and continue to use the plate amps for low frequency power. This isnt a tremendous issue yet since I'm still short a pair of 2405's. tweeters outside the box!Bill