Subject: Re: 4Pi crossover issue
Posted by Wayne Parham on Tue, 15 Jun 2010 19:27:59 GMT
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Smooth bottoms is what really drove the decision against plate-through holes on the crossover boards. Even if you cut off the sharp edges when removing the leads from soldered components, you'd still have the thickness of the solder joints which would either require stand-offs to raise the board off the mounting surface or the soldering would have to be done on top (as it is now). Stand-offs for mounting weren't attractive to me, because they don't support the board well, heavy crossover parts might allow it to flex and jiggle.

I wanted the board to mount flush with a cabinet interior surface, which really meant soldering on top. If soldered on top, the plate through holes made less sense. So I just chose a simple single-layer board, no plate through holes, no silkscreen, nothing fancy. But that's really all you need for a crossover, I think. Just large traces to carry the current.

I also meant to say something else last time and forgot. One of these times, build yourself some subs. What you lost from lack of boundary reinforcement is more than made up with a couple subs, and you get room mode smoothing in the bargain. I really think the best thing gained from corner placement is directivity from the lower mids up. It does help the bass some too, but the room plays its part. So my point is, no matter where you put the mains, I think multisubs are a good idea.

Some rooms are better than others, where room modes are concerned. Rooms with framed drywall on concrete slabs are pretty friendly, usually, and modes aren't too bad. Concrete, brick, ceramic tile and stucco walls are more rigid, and that makes room modes stronger. Either way, multisubs make all the difference in the world. They provide extra extension and smooth room modes at the same time.

My home has framed drywall construction, so the modes are very well damped. For a long time, most homes I encountered had similar construction, and I could sort of ignore room mode problems. Large rooms like clubs don't have them 'cause they're large. Smaller rooms with fairly lossy panels (drywall on studs) have what amounts to built-in panel absorbers. That helps a lot. So in my home, I don't need much smoothing, but it certainly doesn't hurt that multisubs makes bass response even more smooth. They're also giving me deeper response than the mains would on their own. It doesn't take much power to drive them, they aren't there for "thump". Just a little bit of extra foundation.

Where the subs really help me notice the modal smoothing property is in the hotel rooms at LSAF. The hotel has concrete walls, floor and ceiling, so the modes are strong. Most systems sound pretty heavy and sometimes flabby. Single driver speakers and open baffles with little bass are boosted by the modes, and it sometimes seems to help them out, It's lumpy bass, but it fills in where there would be a hole. But systems that have adequate bass can sound pretty bloated in rooms like those, because of the prominent room modes.

I've noticed some manufacturers choose to rent the larger conference rooms, because they're

large enough to avoid the room mode problem. It's night and day the difference between a room that size and one of the smaller sleeper rooms. It's easy to get smooth bass in the large room, because it's almost the same as being outdoors. What's hard is getting smooth bass in the smaller rooms. So that's what shows off the effectiveness of the multisub concept to me better than anything else.