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Subject: Re: 7Pi questions and plan

Posted by [Wayne Parham](#) on Wed, 05 Jun 2024 17:01:00 GMT

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You can place sound damping materials on the walls, in and around the corner and anywhere else you want. They'll absorb sound mostly at high frequencies and upper midrange, depending on how thick the panels are. So the sound radiating from the bass bin will be almost totally unaffected.

Damping at bass frequencies requires very large panels. That's certainly an option, and a good one too. But fortunately, the multsub configuration helps in this regard, since it is a method of dealing with room modes. You can always use both - panel dampers and multisubs - but if I had to choose just one, I'd choose multisubs.

The 2226H can be used down to 40Hz, but it really isn't designed for deep bass. Its best use is as a midwoofer. One can casually observe that its large size would seem to indicate that it would be useful at subwoofer frequencies, but it really isn't. It's a prosound midwoofer that is always used in conjunction with subs.

As for padding in the crossover, one could surely use an auto-former. Any of the reactive elements can be used as a filter or attenuator, depending on source and load and intended purpose. If one of those three reactive components were clearly less capable - like back in the days when large capacitors were usually electrolytics for cost reasons - one might want to consider that. But in the case here, I don't see any advantage using an auto-former for attenuation.

An auto-former would provide impedance matching, but I'm not really concerned with that here. The biggest impedance swing in a loudspeaker usually comes from the woofer's peak at resonance, but in this case, the midhorn and bass bin impedances are in parallel and it damps that peak. So one of the side benefits of that is the constant-directivity cornerhorns have an unusually peak-free impedance curve. It varies some with frequency, but it doesn't have the big peak that one normally sees down low.

Efficiency could also be examined, in that impedance matching improves efficiency. That's what horn-loading does acoustically. And that's why the midhorn and the tweeter need a little attenuation - their acoustic impedance matching is a little better than the bass bin. Both the tweeter and midrange horns provide more acoustic load than the bass bin does. But the design is really focused more on directivity than acoustic loading. It doesn't completely ignore the benefits of acoustic loading, of course - it is a high-efficiency design, after all. But it doesn't prioritize acoustic loading above all other things as some horn loaded loudspeaker designs do. That's why its efficiency is just north of 100dB/2.83v/M. Not 105dB, but still, pretty high.

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