Subject: Re: 4 Pi Design Questions
Posted by Wayne Parham on Sat, 02 Jun 2012 02:35:54 GMT
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Yes, now you're getting good measurements. You still see room modes down low, like the one around 120Hz. This is a vertical mode, and is part of what flanking subs fix. Below that, the response is dominated by room modes - both speakers look the same in the modal region - proving that what you measure down low is not the speaker, but the room. But the response up high shows up pretty clearly. This is a useful setup when you just want to see the crossover region, for example.

I don't use any smoothing at all. The difference is mostly due to my measurement being outdoors. Inside, on its back, my measurements look very close to what you have. I have an eight foot ceiling, and I'm guessing you do too.

You can kind of see the similarity in my indoor measurements and yours in the "Vertical Nulls" video in the "Crossover Optimization" thread. See the wiggles down in the ~100Hz region? Those are room modes.

I think the Omnimic measurements made by BigmouthinDC do have some smoothing applied. I'd say probably 1/12 octave. It actually looks less like smoothing and more like the sampling resolution is a little bit lower than my LMS system.

As an aside, there is a difference between reduced resolution and smoothing, but the end result is similar: Detail is lost.

The biggest difference is smoothing will actually reduce the amplitude of peaks and increase the amplitude of troughs. Reduced resolution simply misses some data points, so a sharp spike may be missed. But where a point is recorded, its amplitude is left intact, and the system just connects the dots to make the SPL chart.

Smoothing really takes the edge off a graph and can make a peaky response curve look pretty smooth. Huge spikes just get knocked off. Then again, it isn't necessarily a bad thing, since most published curves are smoothed, sometimes as much as 1/3 octave. That was pretty common in the 1970s and 1980s - if you could find a chart at all, it was likely smoothed to 1/3 octave resolution.