Subject: Re: Interesting New Line Array Design
Posted by Wayne Parham on Mon, 12 Oct 2009 19:39:04 GMT
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Yeah, I noticed that too. Measurements taken at different locations and averaged together will tend to smoothe the curve.

This is sort of how the multisub approach works to smoothe the modal region. Where there would be dip from destructive interference between a single sound source and a reflection, adding another sound source placed appropriately fills in the dip. With enough sound sources, the overall sound field through the room is made smoother.

The thing is, when a single speaker is placed in the room, you don't get that effect. Measurements taken at various locations and averaged together tell you what the sound field would look like if there were multiple loudspeakers in the room. But if multiple loudspeakers aren't used, I'm not sure it is valid to average the measurements as if there were. It provides smoothing from dense interference that that wouldn't actually be there.

Not only does this approach smoothe the effects of room modes (which would then make it closer to an anechoic measurement) but it also smoothes the effects of destructive interference between drivers in the loudspeaker, itself. I think it sort of makes sense to try and remove the effects of the room, but by averaging the charts from multiple locations together, you don't see nulls that may form even when the loudspeaker is in a true anechoic environment. I think it is probably better to measure anechoically to begin with, as a sort of baseline. Indoors measurements might be useful too, but for a different purpose.

Then again, I think the indoors/averaged method is interesting, sort of like what Keith Larson was talking about in the thread called "Comb Filtering Misconceptions". Keith was talking about averaging over time, but averaging using measurements taken at several locations also shows the average power response, sort of an average distribution of energy in the room. It won't show where the lobes and nulls lie, of course, but it will give an idea of the general spectral balance.