Subject: Re: Alternatives to Martin King's spreadsheets
Posted by Wayne Parham on Fri, 18 Jul 2014 18:27:43 GMT
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One thing you can do - and that makes the most sense to me - is to use one of the standard T/S modeling programs to get an idea what various alignments will do. Basically, just check the response at different box sizes. You'll see the larger the box, the deeper the response, up to a point. And you'll see how the port tuning can make it overdamped, underdamped or critically damped. I personally like to shoot for a little overdamped, because most every shift causes the alignment to reduce damping and head towards peaking. Thermal shifts do this, for example.

Once you get an idea of the size box you want, then it's just a matter of putting the driver, port and insulation in positions that mitigate internal standing waves. You can always do it by trial and error, cutting out a cabinet using inexpensive MDF and measuring it. As long as you don't see midrange ripple - it's good. If you do see ripple, move the driver and/or port. Watch closely in the 100-300Hz range. Above that range, the internal insulation will damp the sound very well and prevent ripple. Below that, the box is resonant, and that primary resonance is desirable. But in the 100-300Hz range, we want to make sure internal standing waves don't mess things up.