Subject: Re: Cabinet design, port placement and internal standing waves
Posted by Wayne Parham on Wed, 27 Feb 2013 23:25:09 GMT
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He used to supply a spreadsheet for ported cabinets tuned primarily using Helmholtz resonance. While his main focus was transmission lines, he also had a spreadsheet that covered bass-reflex boxes at one time. I'm sure he still does, or perhaps he morphed its functionality into one of the other spreadsheets. It would make sense, because in order to accurately predict response, you have to calculate both pipe mode resonance and cavity resonance.

You know, there is never really any sort of cabinet that is tuned solely by pipe modes or by cavety resonance. Both things are always present. That's kind of the point - It's important to realize that fact when designing cabinets. Most DIYers focus only on the mechanism they are trying to use, and that's fine as long as the other one is shifted out of the pasband. So for example, if the box is small, the pipe modes are high enough they are all attenuated by insulation. You can disregard them. Or if making a transmission line, if the port is sized where the Helmholtz frequency is really high or really low, then the cavity mode can be disregarded. But in the cases where both mechanisms might come into play - like most medium to large boxes and/or tower enclosures - it is important to model both mechanisms when simulating response. Otherwise you don't get the whole picture. Martin's spreadsheets do take these things into account, and that's what makes them so accurate.

So just tell him what you're trying to do when you send him your licensing fee. He'll suggest the spreadsheet that will work best for you.