Subject: Re: Martin King Horn Theory
Posted by Martin on Thu, 14 Oct 2004 00:15:01 GMT
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Hi Wayne,"One of the things I was most impressed with was your study of horns with circular mouths and of rectangular mouths having various aspect ratios, in particular of their acoustic impedance. I am anxious to focus on your derivations when I have more time."I have not explicitly put this capability inot the MathCad worksheets yet. Since it is a numerical integrations it starts to run for quite a whiel when the mouth gets big. But I have started to get better approximations of the impedance for non-circular mouths and this will be used in my study of room boundarys and the appropriate down sizing of back loaded horns. Most of the math and worksheets are done and this will be my first follow-up article."You also describe the radiation pattern, both at high frequency where the horn has good control of directionality and at low frequency where it doesn't. I didn't see any mention of the transition range in between, which is of particular interest. Single slot diffraction is often cited as a reason for dispersion behavior in the transition region, which makes a great deal of sense. But I did see that you mentioned length differences at different angles, and perhaps alluded to dispersion behavior in the transition region. So I may have missed it in my first pass."This is really my first pass through the theory and I wanted to lay a foundation for future work. I have not done moch more with mouth directivity but I have worksheets to start fomr when I focus more closely on this property. Right now almost everythiing I have on this topic is presented in that section. This is a huge area of study that I will be revisiting.Again, thank you very much for the positive feedback. What I have posted is only the tip of the iceberg and I can see many more additional studies and documents to be added to this page. I find that I learn as much trying to wriet it up in a clear manner as I do creating the worksheets. If you can explain it simply than I think you understand the topic, that is my goal which I sometimes can meet.Next up is floor reflections and back loaded horns followed by conbined front and back loaded horns. I have many more ideas to chase down after these to topics. At some point I also need to design, build, and test a back loaded horn.Too many interesting things to work on and too little time,martin