Subject: Waveguide Theory, of course
Posted by Earl Geddes on Tue, 20 Dec 2005 15:12:56 GMT
View Forum Message <> Reply to Message

In 1991, I gave an AES paper on a new approach to "horn theory" that was dramtically different - hence the new name "Waveguide Theory". The main aim of waveguide theory was to predict directional response and not loading - loading being the only factor of a horn that Websters approach can predict. Loading is important to some who are limited to very low power amplifiers, but I think that my views on that aspect of the problem are well known.Waveguides are for directional control - they do provide loading, of course, but waveguide theory is the only way to design devices for directional control. If you want to see the kind of difference that this can amke then read the next chapter of my book when its posted in about a week or so, or I will be posting some new measurements of my Summas which show the clear advantage of Waveguides.Waveguide theory is far more accurate than Horn theory, but the price that we must pay is difficulty. Waveguide theory is far more mathematically intense than Horn theory, which is pretty simple. However, experience has shown that waveguides outperform horns in ever way - except simplicity of design.SPEAK is the only program that I know of that even approachs the complexity of waveguide theory, and even it is simplified. I am rewritting SPEAK now to improve on the waveguide calculations among other things, but this is not a high priority since I make no money on SPEAK.The best discussion is in my book Audio Transducers - Chapter 6, but I now realize that even this chapter is simplified. After three years I've gotten enough feedback to realize how I overlooked a lot of things.Thus, there are only a handful of people who have succesfully designed and built waveguides to my theory. The best designer that I know of is, not surprisingly, myself. I actually know a lot of proprietary things about practical designs that I have not disclosed.Sorry that I can't make things simply for you, but brain surgery is not that easy to do and I don't recommend you try it on your kids.