Subject: Re: I can think of one
Posted by Wayne Parham on Wed, 21 Dec 2005 21:34:26 GMT
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I understand your position but I do not agree with it fully. Let me explain.The strength of a loudspeaker designed to match DI at the crossover point is that the polar response is pretty uniform, not just the axial response. On this, you and I agree.But in a system with a direct radiating midwoofer, you cannot control vertical directivity at all until the HF horn takes over, and even then, only at a fairly high frequency. I would rather limit vertical dispersion as much as possible, because that is a source of early reflections just as much as side wall bounce. I prefer to have the system match horizontal directivity or average DI while limiting vertical directivity.As I see it, the DI matched two-way loudspeaker is a good solution, but like all good solutions, it has its compromises. It has no control of low frequency and midrange directivity. The system starts to become directional near the crossover point, which is pretty high in the midrange band. The whole vocal range and below has hemispherical radiation or greater.The ideal would be to have controlled relatively narrow directivity throughout the audio spectrum. My personal preference would be that the pattern have an aspect ratio wider than it is tall, because this better utilizes the acoustic energy to cover the listening area. In an indoor environment, it also serves to reduce reflections from the ceiling and floor.There are systems that can accomplish this, but they are larger than the typical DI matched two-way loudspeaker. The DI matched idea is a good one for making speakers of moderate size, since it helps make the transition between subsystems less abrupt and creates a more uniform reverberent field. But I don't think that widening the vertical pattern of the tweeter to match is productive.