Subject: Re: Horn Mouth Diffraction
Posted by M on Fri, 07 Oct 2005 01:40:30 GMT
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Dear Martin,you wrote:"As far as rounded edges on baffles, I do not believe that exact modelling of this is needed. There are two effects from the baffle, the baffle step as the sound radiated transitions from 4 pi to 2 pi and the sound "scattering" at the edge itself. The second effect produces small wiggles in the SPL plot. I do not believe that these small wiggles are as significant as room effects or the baffle step response. Maybe this is because I use full range drivers that are starting to beam at these same frequencies so the impact of the edge sharpness/radius is minimal."This is my understanding, and please correct me, if I am wrong. There are (at least) two consequences associated with the transition from the boundary formed by a horn or a cone driver.A transition from the boundary constrained space to a 2 pi (if mounted on a baffle) or 4 pi (if radiating to free space), which is characterized by impedance mismatch, reflections, and resulting standing waves (ripples).The second is diffraction on the edge of the boundary. Invoking Huygens'principle, the wave emanating from the boundary restricted space will interfere with the wave emanating from the edge of the boundary.I have an idea how to deal with the first one. Whether I am correct is to be seen. However, I am at loss how to deal with the other one, if I esclude various rules of a thumb. I understand that I am making a heuristic argument here, but it appears to me, that by a "proper" shape of the edge of the boundary, the interference could be minimized. You wrote:"Thanks for the offer of help with the horn worksheets."ROTFLMAO. You are very polite, you know, where my motivation was comming from. You wrote:". . . and have decided to hold onto the worksheets and the test results until I decide what I want to make available."No problem at all, see my previous post. I would like to nominate myself as a beta tester, though. M