Subject: Re: Pipe modes
Posted by 16 on Fri, 24 Jun 2005 00:42:27 GMT
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All reasonable horns that might be considered for a compression driver such as the TD4001 and others of its type exibit frequency-dependent resonances depending on the size and geometry of the horn. There is a fundamantal resonance frequency, and also harmonics of the fundamental higher up in frequency. These can be detected by doing impedance vs frequency measurements of compression drivers with various horn assemblies, and they will show up as pronounced peaks in the impedance curve. The 4001 has a 3" long conical throat that can't be avoided due to its large alnico magnet structure...that is just the way it is made. Other drivers in the TAD range do not have such a long throat section due to their very much smaller Nd magnet structures. In fact the 4002 pretty much has almost no throat to speak of.The 3" throat inherent to the 4001 will have some resonances, albeit at fairly high frequencies. However, the point to remind oneself of is that if you listen to a comp. driver without a horn and you like the way it sounds, then your brain has already computed that any resonances it may have are either musically insignificant, or at least musically acceptable. In respect to our Model 16 design, the hornless approach had many subjective virtues associated with it that made it a compelling and appealing trade-off. For most of the development time during the Model 16 project we were sure that the final design would include a horn, and as mentioned some fairly serious trials were undertaken in this area. But at the same time we had also put in many hours of low-level listening running the 4001 sans any kind of horn, and we had become accustomed to the way it was speaking to us. It was ultimately felt that there was something very direct and special about the hornless approach, and so we though "f__k it, let's just develop it along these lines and try and get it to work..."There are actually many little tweaks built in to the Model 16 system that aren't obvious on paper or to the eye...the hornless thing just happens to be one of its very obvious deviations from standard practice.