Subject: Re: Horn Depth & Mouth Diffraction
Posted by DMoore on Wed, 14 Mar 2007 18:09:28 GMT
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The issues of comb-filtering which I have experienced with folded bass horns occurs when the frequencies (bass and midrange) involved overlap too much, that is, the bass horn is putting out too much SPL at upper bass frequencies which overlap the midrange output. This is dependent on the design of the bass horn, the chosen crossover point, and the particular upper frequency corner of the driver in it.This can be avoided by using a steeper slope on the crossover network or employing a woofer with a lower mass roll-off, etc.Usually, a folded horn will tend to knock-off the upper frequency range because of the folds cancelling out the smaller wavelengths first, but not always, especially if the folds are designed to maintain phase integrity. A reasonably straight (or one employing few folds or less-drastic folds, for instance) long bass horn will usually be more likely to create comb-filtering problems generally due to its inherent ability to pass frequencies with wavelengths that physically fit inside or across its channels and mouth. The longer the pathway, the more phase-delay will occur between the midrange horn and the bass horn, same relative frequency. The difference in phase and/or time associated with the disparate sound paths from the two (or more) horn mouths will result in comb-filtering along the way to the listening position.Those smaller wavelengths also will tend to "beam" as they fit inside of the mouth size/flare and no longer follow the flare rate seen at the mouth as they get smaller (per Olson).But let me tell you from experiencing it firsthand, you will definitely hear comb-filtering as recognisable distortion if it is there at all! It's pretty horrible sounding - right up there with a bad diaphragm!DM