Subject: Re: Hornresp models
Posted by Wayne Parham on Sat, 18 Nov 2006 16:18:28 GMT
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differences between Hornresp models and measured response, the biggest difference is caused by cone breakup modes. Folded basshorns have close agreement with measurements because their folds and large front chambers attenuate output from breakup modes. Smaller midbass and midrange horns don't have these features, so output from breakup modes passes through them. In most cases, a crossover is used to prevent frequencies that would excite a speaker's breakup modes. In other cases, a speaker is chosen with damped and well behaved breakup modes to extend response.Hornresp models assume rigid piston motion from the driver. When the cone enters breakup, regions of the cone vibrate independently of the rest of the cone. Ripples develop along its surface and each part acts like a smaller, lighter membrane with a stiff suspension between it and an adjacent node. So it sort of acts like an array of lightweight cones driving the horn. This creates extended response, but since the nodes are formed like ripples on a pond, their position moves with respect to frequency. Standing wave patterns develop along the cone, with some frequencies much louder than others. The net effect is that breakup mode output is usually pretty ragged and peaky. Sometimes it's usable, sometimes not.Midrange horn - Hornresp model and actual measurement