Subject: Mid-Horn Dimensions
Posted by Spinjack on Thu, 06 Oct 2005 13:49:08 GMT
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How would the sound dispersion be affected by changes in the width/height relationship of the mid-horn? I was thinking about going more square while keeping the area constant from throat to flair. I've seen klipsche use square horns, but most seem to be rectangular. Obviously the system was designed to have a rectangular horn for a reason, but I'd like to know how changes in the aspect ratio wil affect the sound. I'm thinking about building them that way to fit the overall design I have in mind.

Subject: Re: Mid-Horn Dimensions
Posted by Wayne Parham on Thu, 06 Oct 2005 21:44:01 GMT
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The flare angle of a conical horn basically sets the pattern. At low frequencies, the horn becomes too small to control the pattern, but above that, it's set by the wall angle.

Subject: Re: Mid-Horn Dimensions
Posted by Spinjack on Fri, 07 Oct 2005 13:47:18 GMT
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????Wall angle?So, if I maintain the flare angle, the aspect ratio is irrelevent?

Subject: Re: Mid-Horn Dimensions
Posted by Wayne Parham on Fri, 07 Oct 2005 22:11:40 GMT
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The mouth area sets the lowest frequency where pattern control is maintained. A horn that is larger in one dimension than the other loses pattern control on the smaller axis sooner than the larger one. If the mouth area is large enough, pattern control can be maintained throughout the passband of the device. But that takes a very large mouth, and is usually one of the tradeoffs in horn design.

Subject: Re: Mid-Horn Dimensions
Posted by Spinjack on Sat, 08 Oct 2005 00:42:56 GMT
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Ok, so keeping the flare angle and final area teh same as the original design (this is for the mid-horn on the pi-7, btw) is important, but I may loose some pattern control with the narrower horizontal dimension. Is that correct? Hmmm...its all about compromises, isn't it? There is no free ride.So if I've got this right, I would probably loose some stereo imaging with a square horn rather than a rectangular horn.

Subject: Re: Mid-Horn Dimensions
Posted by Wayne Parham on Sat, 08 Oct 2005 07:16:19 GMT
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A square horn loses pattern control in both axis at the same frequency. That's fine, but if you want a 90º horizontal pattern, then a square horn would have 90º vertical pattern too. I don't want that much energy in the vertical plane because it is a waste of energy, directed at the floor and ceiling. Reducing the pattern in the vertical plane reduces floor and ceiling reflections too.