Subject: Re: pi seven top horns?
Posted by Wayne Parham on Mon, 03 Jan 2011 19:54:46 GMT
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the midrange and tweeter have changed over the years. I've used direct radiating mids and horn-loaded mids, and for a few years even experimented with making the system as a two-way speaker.

The midrange is different than lower and higher frequencies because of acoustic scale. At low frequencies, the woofer is close enough to the walls that the room's corner acts like a large waveguide, at least down to the Schroeder frequency where room modes set the pattern. At high frequencies, the tweeter horn sets the pattern. But the midrange frequencies are sort of in a transition region in terms of acoustic scale. The midrange driver isn't usually close enough to be

self-interference issues.

In 2003, I designed a midrange horn specifically to address this situation. I wanted it to do a couple things, first, to provide constant directivity in the same pattern as the woofer and tweeter and second, to be able to be run low enough to blend with the woofer to smooth floor bounce, much like vertical arrays do. Of course, these requirements make a physically large horn, even when designed for 1/8th space loading (at least at the bottom end where it needs it). So instead of putting the midrange driver in the bass bin, I moved it on top and cradled the tweeter on top of that. Works out great with respect to height too, putting the midhorn and tweeter roughly at ear level.