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Subject: Re: 7 Pi without mid-horn?

Posted by [Wayne Parham](#) on Tue, 21 Dec 2010 19:44:46 GMT

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direct radiating midrange drivers and even built them as two-way setups. The main goal of this approach is to use the room's corner as a directional device, forcing the radiation pattern to be constant at 90°.

The wavelengths coming from the tweeter are small, making it acoustically distant from the corner and not particularly useful, so the tweeter horn has to set the pattern at HF. The woofer is what is most affected by the corner loading. The corner sets the LF pattern from the Schroeder frequency up to the crossover point. The midrange is sort of a transition region for this configuration, because there comes a point where the corner no longer acts like a waveguide and becomes a reflector instead. This is determined by the distance from the midrange driver to the walls.

That's why I tend to like the midhorn approach best. It sets the pattern up high, confining the radiation pattern to the desired 90° angle, limiting lateral reflections of higher frequencies that are acoustically distant from the walls in terms of wavelength. As frequency drops, where the midhorn is acoustically near the walls, they begin to guide the pattern acting as a sort of a flare extension.