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Subject: DI Matching and Cornerhorns

Posted by [Wayne Parham](#) on Sun, 30 Jan 2005 04:50:29 GMT

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The larger the radiator, the lower it starts to narrow its pattern and you can use this property to match directivity with a horn. I've always liked that approach. Of course, as you've mentioned, it requires that your midwoofer have good response up high and that cone flex is well damped. Breakup modes sometime add nasty peaks and, obviously, you don't want that. So,

cornerhorn concept does not use collapsing DI to match directivity. Instead, it uses the confines of the room's wall angle to limit LF to 90°, and then matches with HF horns that also employ a 90° pattern. It was initially conceived as a three-way design, with the woofer crossed over to a midrange horn at a fairly low frequency. The idea was to crossover at or below the frequency where the distance to the apex was 1/4 wavelength. There is fairly wide overlap between midrange and woofer in the current model, to smooth floor bounce notch and higher room

an acoustic filter that tended to equalize the rising response of a driver used in them. This is partly due to the confined directionality of the room's apex and the transition from launch boundary to reflector. This tends to boost lower frequencies more than higher frequencies. And it is partially due to standing waves that form at higher frequencies too. But the net result was that the cabinet acoustically equalized the driver used in it at relatively high frequencies. So I ran them

intended to be a no-compromise solution, truly a statement product. So I decided to go back to the original design concept, and to improve upon it. The earlier three-way cornerhorn models all used midranges that were physically small, typically 5" units, and the midrange now used is a larger 10" unit. This allows wide overlap between woofer and midrange to ensure smooth response and provide rich full vocals and midrange. I think it's a great approach, and the current model really sounds nice.