Subject: P.audio driver.
Posted by Castlesteve on Wed, 19 May 2004 22:13:27 GMT
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I`m still pursuing my high efficiency speaker goal and have just picked up a pair of P.audio drivers and horns to mate up with my 12 inch woofers.http://www.paudio-europe.com/products/db_product_2_5_pa-d34.htm http://www.paudiosystem.com/products/db_product_6_14_ph-240.htm . Will i be able to cross these over at around 1k to the woofer and then run them out to 20k or so or should i cross them lower and use a supertweeter. I`m just learning crossovers so i`m trying to keep it simple so far. The Richard Allan woofers are old but respected units but difficult to get T/S specs. I found a post with these specs:http://www.diyaudio.com/forums/showthread.php?s=af0104fbd661f87cdc26a6946fa784b5&threadid=33249&highlight= it`s the CG12 woofer. Thanks, Steve.

Subject: Re: P.audio driver.
Posted by Wayne Parham on Wed, 19 May 2004 23:44:54 GMT
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I've never used those drivers, but from the published data, it looks like a fine canidate for a two-way loudspeaker.

Subject: Re: P.audio driver.
Posted by Castlesteve on Thu, 20 May 2004 00:30:23 GMT
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Thanks Wayne. What do you think would be the lowest frequency at which i could cross over from the woofer and what crossover would you recommend? Sorry for all the questions but i`m somewhat of a beginner. Steve.

Subject: Re: P.audio driver.
Posted by Wayne Parham on Thu, 20 May 2004 05:23:21 GMT
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Generally, I don't like crossing over HF horns with 1" exit compression drivers below 1kHz. This is largely because the horns and drivers I've chosen are not intended for use below 800Hz. Yours might be fine at 600Hz or 800Hz, but my experience has been that modern 1" compression

drivers and horns are designed for best performance above 1kHz.I've been using crossovers between 1kHz and 1.6kHz for quite some time with 1" exit compression drivers. I like second-order and third-order slopes and using passive compensation for the top octave. I use a fairly simple circuit that provides specific damping, level matching and top-octave augmentation. It works best with second and third-order crossovers. This kind of crossover also limits low frequency energies presented to the compression driver, which greatly increases their power handling and therefore their dynamic range. If you're making a two-way system with a relatively large 12" or 15" midwoofer, this crossover frequency range coincides with the range where midwoofer directivity narrows to about 90o. That roughly matches the horizontal dispersion of a 90o x 40o horn, which is what I tend to prefer for systems like this. It's a design approach that just seems to "fit" nicely.The advantages of a two-way system like this are that it is simple and has few crossover points. Crossover is relatively high, just above the vocal fundamentals, leaving the majority of the voice range covered by the midwoofer. Dynamic range is generally pretty good provided all of the drivers are quality parts. The compression driver is presented a signal that is unlikely to overdrive it.The disadvantages are that both subsystems must cover a fairly high bandwidth. The compression driver is required to cover the top octave, and it is unlikely that it will reach past 16kHz. The midwoofer is required to cover the deepest bass and also the midrange band, so it is vulnerable to midrange intermodulation at high bass excursion levels.But all in all, this is one of the most popular kinds of high-efficiency speakers for good reason. It performs very well, and doesn't require an exceptionally large cabinet. Most of its cost is in the two drivers, so a good speaker of this type will make the most of both of them. The main thing is that you have a midwoofer that reaches up to and over 1kHz smoothly, and that your compression horn be capable of taking over from there.For more information, see the post called, "Baffle spacing, phase angles and time alignment, revisited."