Subject: Question for Wayne or others...re: hi freq. wood horns.
Posted by Garland on Tue, 15 Oct 2002 18:39:28 GMT
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Guys,I'm getting ready to try building my first pair of wooden horns to use with my Theater 4's replacing the Eminence H290. I'm probably going to use one of Yuichi's designs but I was wondering what the best size would be with the Eminence PSD 2002? I assume the H290 has a fc of 290hz. Is this optimal for the Theater 4's. Yuichi has a 290hz, 300hz and 480hz designs. I assume I could probably also modify these to come up with still more responses. So, what should I build? and don't say a salad bowl, 'cause I can't turn for beans!Thanks!Garland

Subject: Wood horns
Posted by Wayne Parham on Tue, 15 Oct 2002 19:04:47 GMT
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Hi Garland!I think Bill might offer some suggestions, but I'd suggest that you copy the CH-3 or H290. Those are 800Hz and 1kHz horns, respectively. You don't need response down to 500Hz, so you'd probably be better off with a smaller horn for this application.Take care!Wayne

Subject: Re: Question for Wayne or others...re: hi freq. wood horns.
Posted by bmar on Tue, 15 Oct 2002 23:21:12 GMT
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Hi GarlandThe H290 is probably named as such because it is 290mm wide, 11.4"The H290 has an Fc of 1000hz and is considerably smaller in dimension to Yuichi's design of his 290. Yuichi's designs are very nice looking but very labor intensive. According to his published response data they perform very well. I would imagine that they sound very nice also. Its my belief that a picture is not worth a 1000 words when it comes to audio. Thats is to say, the measured performance of something does not always reveal how it sounds to the ears. Anyway, They are nice designs but I chose not to make a similar product because I dont feel the market will bear the cost of manufacture. For a one shot exercise for your own system. Go for it! Those horns have vanes in the throat to aid in dispersion. I'm sure there are other factors that would prevail from such an arrangement but I'll leave further discussion of this for the engineers. I use a conical throat piece

that serves a few purposes. I like the conical flare in the beginning of the horn which transitions to an exponential flare. 12 degrees of taper works well in the horn modeling programs. Testing later this year may prove advantageous for a different angle, but the horn performs well by sound and observed with an RTA. Another reason for the conical throat is a means of mounting the driver to the horn. It was my preference not to have counterbores in the wooden horn flare for bolts and hardware for driver mounting. This approach did not appeal to me aesthetically speaking, and I wanted to maintain the appearance of hand crafted tradition with the wood, yet a more modern revision with the aluminum throat.If your going to pursue a Yuichi horn. I would chose his smaller version. There are some good drawing on "joe list" for both. The larger 290 horn is for a 2" format driver and would be quite large for a 4pi. this would be a dramatic change from your present system. I make 2 horns one has an Fc of 800hz and the other 1000hz. These number are actual numbers that can be used for filtering. I dont cross any high frequency horn over this low and I've tried a lot of them. Your present horn should be crossed at 1.6khz and although rated much lower, it would sound more honky and less coherent. not to get into crossover designs, I like the approach Wayne has taken. If you build the horn into the cabinet you should find it quite pleasing. If you intend to put the horn atop the cabinet as I prefer. You will want to have the woofer mounted higher in the cabinet. The horn should maintain its present relationship in position to the woofer that you now have with your 4pi design. This is important. With some cabinets it is possible to simply turn the cabinet upside down and make the bottom the new top, bringing the woofer closer to the top of the box where the wood horn will be sitting. There are some pictures on my web site under the DIY section for building a wood horn. feel free to email me questions if you decide to go that rout. Have fun! The wood sounds better. It's not plastic, it's not aluminum and will sound different from them. Bill