Subject: Announcements
Posted by Wayne Parham on Thu, 06 Nov 2003 11:14:25 GMT
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There are a lot of things going on, and here's a small list.Great Plains Audio Community Meeting - Saturday, November 8th, starting at 2:00pm. This will be held at Mark Margiotta's house, and directions and a proper announcement are at the link.Comparitive study for T/S measurement techniques - Dr. Akhilesh Bajaj and I did a series of measurements in order to compare various techniques. We have the data points; Now all I have to do is to compile them. We measured using both the sealed box method and the added mass method, and we gathered data using a calibrated oscilloscope and two handheld DVM's. So the results can be averaged to give greater confidence in the data; Data can also be compared to get an idea of the relative strengths and weaknesses of each method and measuring device. Actually, this was done to obtain T/S specs for some Stephens drivers that Akhilesh plans to build single-driver systems around. Poor guy had to sit with me while I did everything three times just to get the datasets to do comparisons by. We "killed two birds with one stone" - Akhilesh wanted assistance finding T/S parameters for his drivers, and I had been planning to do this comparitive study, so we decided to do them together. But these drivers were produced earlier than the 50's, so I'd like to do the same thing with a pair of Eminence and/or JBL drivers sometime. That would allow us to compare a handful of datasets we've measured with those provided by a trusted manufacturer. What do you say, Akhilesh? Up for another measurement session sometime? Anyway, I'll publish this data as soon as I have time to compile it.Qms virtual circuit calculator - Chris Richmond wrote an excellent little applet that calculates the virtual circuit components that represent Qms. Sorry, Chris, I just blew your anonymity on that deal. But I think it's pretty neat and I'll probably use your program instead of doing 'em by the seat of the pants. Hopefully Chris will have time to post it in the next few days.Midrange horns - I'm working on midrange horns that will be added as standard options in

I'm pressed for time and I haven't been working on the designs so much as I have a set of requirements that I plan to solve for. Many times over the years, I've used a direct radiating midrange driver with a horn loaded tweeter and a cornerhorn loaded woofer; This configuration lends itself to passive crossover solutions that must deliver flat response performance over the entire bandwidth. But horn-loaded midrange systems have always been popular in prosound use where active crossovers are commonplace. The designs I have in mind will be ideally suited for high-end home sound systems or live sound. Should have something by the first of the year.Top Secret - A bunch of other stuff is going on too, and I'd rather allude to it than say. But read between the lines every chance you get; There's fun stuff going on behind the scenes, ready to spill over in the next few months.It looks to me like 2004 is going to be an exciting year.

Subject: Re: Announcements
Posted by Adrian Mack on Thu, 06 Nov 2003 11:24:31 GMT
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Sounds like fun! What exactly does that Qms virtual circuit calculator do? I couldn't figure it out from the details you gave. I'm interested to know what you are going to do for the midrange horns. Are they going to be larger drivers like ~10-12" or smaller ones like the Alpha 6's in my midrange horns? Is it going to be a horn which people will have to construct or one that you can buy? Adrian

Subject: Re: Announcements
Posted by Wayne Parham on Thu, 06 Nov 2003 11:36:43 GMT
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Uh-oh - I'm in trouble. I don't want to steal Chris's fire. But what the calculator does is to tell you the electrical equivalents R,L and C when given Free-air Qms and Zmax. Maybe if we grovel and beg, he'll add functionality to input other driver and box parameters so that it can calculate fo, fl and fh and provide electrical equivalents for sealed and bass-reflex systems too. Now with that, I think Chris is probably going to kill me for opening this up for discussion.About the midrange horn, I'm planning to load with the JBL 2012 or Delta 10. Something for the Alpha 6 or JBL 2115 is sweet too, but I'm working on something a little larger.

Subject: Re: Announcements
Posted by Larry Acklin on Thu, 06 Nov 2003 17:31:02 GMT
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Bring it ON! I am looking to build some mid-top boxes over the winter- like those at www.speakerplans.com...Larry Acklin

Subject: Re: Announcements
Posted by Chris R. on Thu, 06 Nov 2003 17:51:01 GMT
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Without further adieu...The math is pretty easy with a calculator if you don't have perlavailable to you. If you are stuck on Windows, check withwww.activestate.com. If you are on linux or other Unix, perlshould already be there. There's a version in BASIC from Wayneat the bottom.Here's how it runs: Usage: ./mech_res.pl Zmax Fs Qms./mech_res.pl 100 32 10.4! mechanical reactance (32 Hz, Qms: 10.4) C5: 9 0 517.4uF L5: 9 0 47.8mH R5: 9 0 104.0And here's all the code and comments:#!/usr/bin/perl -w# Copyright (c) 2003 Chris E. Richmond All rights reserved# This program is free software; you can readily redistribute it# and/or modify it under the terms of the GNU General Public License# as published by the Free Software Foundation; either version 1, or# at your option) any later version. You can receive a copy of this# license by writing Free Software Foundation, Inc., 675 Mass Ave.,# Cambridge, MA 02139,
USA#==========

==========# Create mechanical parameters for Spice model for woofers.# Input: Zmax and Fs, output equivilant L, C, and R, where their# values are defined thusly:## About making a virtual circuit that models mechanical resonance, the idea is to find# parallel L,C and R that acts as the mechanical resonator does. R will be set by Zmax,# so that one is easy. Then, the values of C and L will be the same at resonance, and# since Q is the ratio of reactive impedance to resistive impedance, you will find a the# value of inductor and capacitor with reactances equal to Zmax / Qms at Fr. Wayne Parham## C5# ----||----------# | R5 |# --------\/\/\-----------# | |# ----(((((((-------# L5#==========if (@ARGV != 3) { die "\n Usage: $0 Zmax Fs Qms\n\n";}$Zmax = $ARGV[0]; $Fs = $ARGV[1];$Qms = $ARGV[2];$Pi = 3.141; # constant$Q_ratio = $Zmax/$Qms;$L = ($Q_ratio / (2 * $Pi * $Fs)) * 1000;$C = 1000000 * (1 / (2 * $Pi * $Q_ratio * $Fs));#! mechanical reactance (40Hz, Q=6.56)# C5 9 0 400uF# L5 9 0 40mH# R5 9 0 65.6print "\n! mechanical reactance ($Fs Hz, Qms:

BASIC:==========10 input "Zmax"; R20 input "Fs"; F30 input "Qms"; Q40 Pi = 3.141592653550 Z = R/Q60 L = (Z / (2 * Pi * F)) * 100070 C = (1 / (2 * Pi * Z * F)) * 100000080 print "Reactance = " reactance90 print "Capacitor is " C " uF."100 print "Inductor is " L " mH."110 print "Resistor is " R " ohms."==========

Subject: Re: Announcements
Posted by Chris R on Thu, 06 Nov 2003 18:00:01 GMT
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OK. I keep forgetting this is html. Trying again...I give up. If anybody want's a copy, I'll email it.crichmon@eng.fm.intel.com./mech_res.pl Usage: ./mech_res.pl Zmax Fs Qms./mech_res.pl 100 32 10.4! mechanical reactance (32 Hz, Qms: 10.4) C5: 9 0 517.4uF L5: 9 0 47.8mH R5: 9 0 104.0And the code and comments:#!/usr/intel/bin/perl -w# Copyright (c) 2003 Chris E. Richmond All rights reserved# This program is free software; you can readily redistribute it# and/or modify it under the terms of the GNU General Public License# as published by the Free Software Foundation; either version 1, or# at your option) any later version. You can receive a copy of this# license by writing Free Software Foundation, Inc., 675 Mass Ave.,# Cambridge, MA 02139, USA#==========# Create mechanical parameters for Spice model for woofers.# Input: Zmax and Fs, output equivilant L, C, and R, where their# values are defined thusly:## About making a virtual circuit that models mechanical resonance, the idea is to find# parallel L,C and R that acts as the mechanical resonator does. R will be set by Zmax,# so that one is easy. Then, the values of C and L will be the same at resonance, and# since Q is the ratio of reactive impedance to resistive impedance, you will find a the# value of inductor and capacitor with reactances equal to Zmax / Qms at Fr. Wayne Parham## C5# ----||----------# | R5 |# --------\/\/\-----------# | |# ----(((((((-------#

L5#==========
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Subject: Re: Announcements
Posted by Wayne Parham on Fri, 07 Nov 2003 05:22:49 GMT
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Whatever happened to Rog? Do you keep in touch with him?He and I used to have a tongue-in-cheek British/American rivalry. I always liked his participation, but I think he probably got sick of the yo-yo's on Audio Asylum.Do you ever visit with him anymore?

Subject: Re: Announcements
Posted by Larry Acklin on Fri, 07 Nov 2003 14:02:00 GMT
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I've never corresponded with him directly, but I have seen the content of his photo gallery change- so he's around. I like the dual ten (mt102) design- looks kinda like the old Altecs. By the way, I have an Altec horn flare (only) from an 816 box- I could measure it and send on the dimensions. This one may be home built, but if it is, it's a good job. I need to have mid horns that go to 200Hz or so, to match up with the dual folded 15" horns on each side. The bottoms get boxy sounding much above 200.Larry Acklin

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