AES Audio Engineering Society - Pacific Northwest Section

Around the Puget Sound, Seattle, Washington, U.S.A.

NOTE: anyone can attend this meeting regardless of their status as an AES member.
AES MEMBERSHIP IS NOT REQUIRED.

The Evolution of a Home Loudspeaker Design
Presented by
Dana Olson and René Jaeger
PNW Committee Members
and
The Pacific Northwest Section of the AES
Wednesday, October 12th, 2016, 7:30pm
Shoreline Community College, Music Building, Rm 818

A home loudspeaker project can take many forms and approaches. Since the design of a loudspeaker system doesn't require a lot of math, it is a more a woodworking project than it is an engineering project. Or is it?

You could buy a kit from Madisound.com or PartsExpress.com and go through the assembly process. Your individualization might be some crossover tweaks and the cabinet finish.

You could buy the individual drivers from any number of vendors, apply the Thiele-Small formulas to the TS parameters to arrive at an enclosure design and LF profile, then optimize the crossover network to get the other drivers to marry with the woofer in a pleasing way.

The project shown at the meeting is the result of a design competition from a local audiophile group. René will take us through a the rudiments of the competition and then Dana will present a design review of his winning project, highlighting the free and nearly free software tools used. The contest imposed one design requirement: the system needed to use a passive crossover. Beyond that, it was open season.

We'll take a look at

- the design process,
- trying to meet the design requirements,
- driver testing and selection,
- software modeling of box volumes,
- baffle diffraction,
- panel resonance,

- the crossover.
- a few pictures of the assembly process.

Of course, we'll have a chance to listen to the finished system.

About the Presenters

Dana Olson

Dana was raised in Shoreline, currently resides in Kirkland WA. He crashed his first RC plane behind Shoreline Community college when he was 18. He is currently semi-retired with occasional fits of work on loudspeaker design (spending money) and consulting at Parade Technologies on new touch screen technology (making money to spend).

- Received both BS and MS degrees in Aeronautical Engineering from U of W.
- Flight control engineer at Boeing working on design software, windshear detection, and fly by wire on airplane 777.
- Architect and electrical engineering supervisor at Physio Control (Medtronic) in firmware, digital signal processing, ECG measurement signal processing filter, and product development.
- Sr. application engineering manager for capacitance touch screen sensing, and architect for large touch screen and noise rejection systems.

René Jaeger

René Jaeger studied Physics (briefly) at Boston College in Massachusetts. Then, after embarking on a several year sabbatical of self-discovery, he began his audio career in the 60s at Karg Laboratories, famous for its vacuum tube, crystal controlled FM tuner.

The attempted development of a high performance PLL synthesized tuner brought him to a job at Adams-Russell, where he learned much about the techniques of low noise, broadband RF devices catering to the Military's cold war activities. A chance meeting with David Blackmer began a nine year romp at dbx, designing audio compressors and noise reduction systems. Among the fun projects were low noise bipolar and fet preamp designs for moving coil pickups, which led to the design of a fet preamp for Charles Fischer (Cambridge Records), which was used in one of his ribbon microphones. He then moved on to Lexicon doing a-d and d-a converter development as well as the legendary PCM-60 digital reverb, culminating in the even more legendary 480L reverb. A brief stay at New England Digtal (they went banko) ended with a move to California to the Grass Valley Group. Further corporate turmoil led to moving to the PNW, where he worked for Mackie Designs/Loud Technologies designing mixers and a class D power amplifier.

After retiring last September, René is devoting himself to the perfection of audio reproduction at home and other household activities.

Let Us Hear Your Music!

We've decided that although we talk a lot at our meetings about how to better record and play back music, we never play any when we are together. We invite you to bring your own music to share with the group at each meeting.

There are two listening opportunities: 30 minutes before the meeting, and 15-20 minutes at the intermission/break.

The music can be something that you recorded, or played on, or someone else's material that you enjoy. We (Rick & Dan) reserve the right to adjust the volume and EQ of all music while it's being played. Ideally you would create a special version of the material that fades or ends at the requisite time. We will provide a stereo playback system (no subs) and a CD player, but any other format needs to have its own hardware and terminate in a pair of 1/4" tip-sleeve phone plugs.

At the conclusion, you have about a minute to describe what we just heard.

Interested? Contact Rick Chinn to let him know you want the slot, and tell him which one. The 2nd person to reply gets the remaining slot, whichever one it is. 3rd and 4th should bring their music to the meeting incase of a no-show. There are other details. They and other terms and conditions can be found here.

Dan Mortensen
AES PNW 2016-2017 Section Chair

n.b. *The material presented at our meetings is the opinion of the presenter and not necessarily that of the Society. You are encouraged to conduct your own research and to form your own opinions before adopting the presented material as Truth.*

Our meetings are open to anyone interested in Audio. AES membership is NOT required for you to attend our meetings.

2015-2016 Officers

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