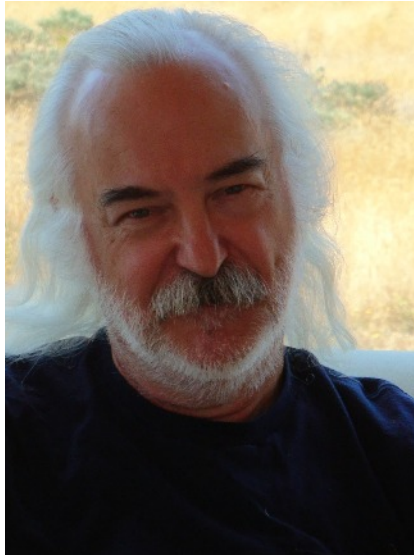


# INTERVIEW

## NELSON PASS OF PASS LABS AND FIRST WATT

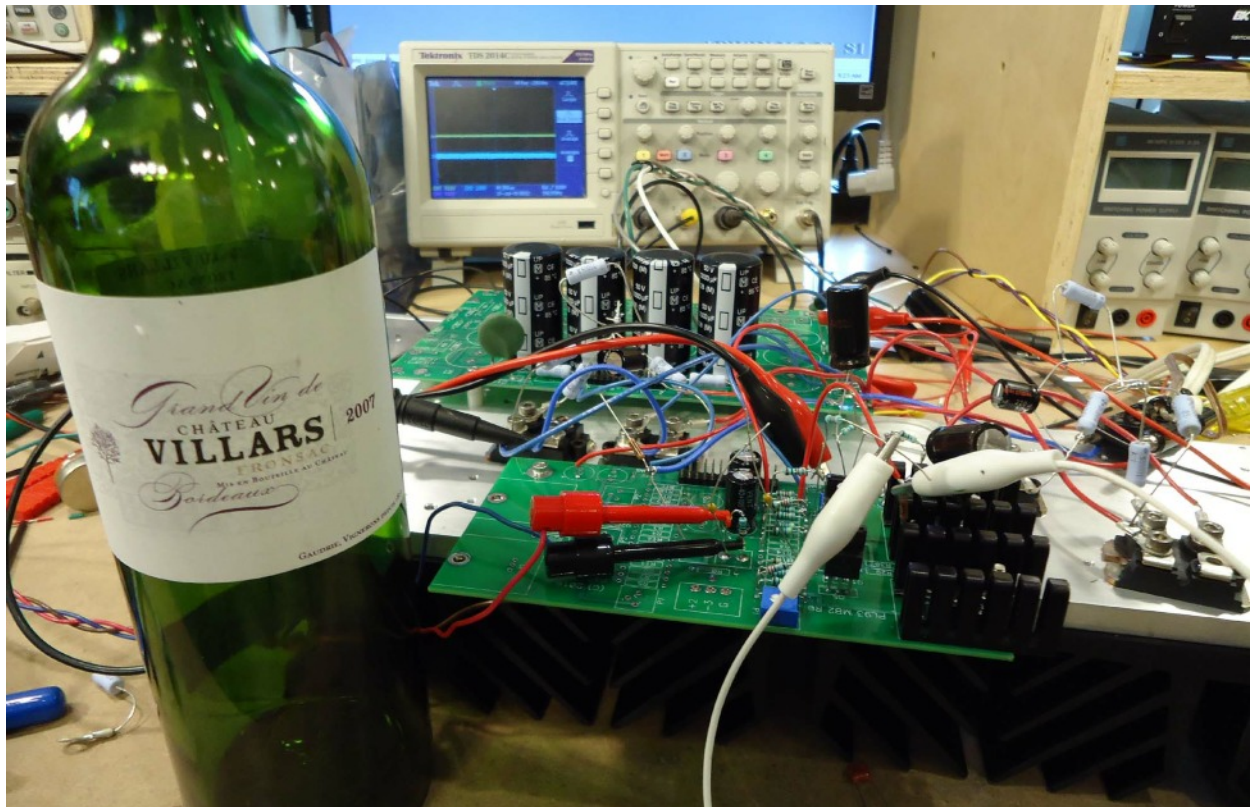


**Nelson Pass is of course a very well-known and respected amplifier designer and has been for decades. He's also a major supporter of the DIY crowd, with the affectionate nickname of "Papa". But for those who really know Nelson, he is also a particularly "well-rounded" fellow, acknowledged for having his feet planted firmly on the ground.**

**Amongst his many accomplishments is having achieved a particularly gratifying life, where he leaves the running of the business side of his two companies: Pass Labs and First Watt, to long-term trusted associates (and shareholders), allowing him to spend all of his time "tinkering" in his beloved lab, surrounded by shelf after shelf of rare "bits & pieces" that he has adroitly stockpiled.**

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# NELSON PASS OF PASS LABS AND FIRST WATT



**HP: Do you think that measurements alone are sufficient when building a great sounding amplifier, and if not why not?**

I don't think that the measurements presented are adequate to describe whether an amplifier will sound great or not. And what do we mean by "great sounding amplifier" anyway? Sometimes amplifiers sound great, or not, depending on the rest of the system, which also includes the listener.

Considering the intended use for the amplifier, it is very appropriate that listening tests are part of the design. I like to use all the tools I have.

I am not mystical about this stuff. Things that we hear reliably are reflected in some objective measurement approach. The failure is one of interpretation, and that is to be expected since we are dealing with humans and their complicated neural networks and such.

**HP: The "measurements are everything" brigade would possibly disagree with you and say that "if it measures well then it will sound good", what would you say to them to counter this argument?**

If it measures well in thorough testing, then I will say that it is accurate. Whether it sounds "good" is a subjective judgment. I have no argument with anyone who wants to listen to accurate product. I spent the first 20 years of my career working to make amplifiers accurate, and that is still my goal.

Engineering being the science of compromise, we often trade one characteristic off for another. If I have the choice to make an amplifier with 0.01% distortion consisting of higher order harmonics or one with 0.1% of 2<sup>nd</sup> order, I will listen to them both and make a decision. Sometimes the result is that I offer both types.

**HP: You are of course most famous for your amplifier designs, but you hold patents for loudspeakers too. Can you tell Hifi Pig readers about these designs?**

I authored one acoustic patent #4899387, which for the "Shadow" active acoustic absorber. It was inspired by a story written by Arthur C. Clarke called "Silence Please" <[https://en.wikipedia.org/wiki/Silence\\_Please](https://en.wikipedia.org/wiki/Silence_Please)>, found in the collection "Tales From the White Hart". The other patents were all for ways to make distortion lower in power amplifiers.

**HP: Your first commercial amplifier was the Stasis (Threshold Electronics) can you tell readers about the design and history of this amplifier?**

My first commercial amplifier was launched in 1975 and introduced the concept of dynamic bias applied to Class A amplifiers. By tracking the output bias against load current, the 800A stereo amplifier delivered 200 watts/ch into 8 ohms and idled at 200 watts per channel, which was half the idle consumption expected of a push-pull class A amplifier. It was also my first patent, #3995228.

The Stasis designs came several years later, and used a different design concept which reduced the distortion of transistors by lowering both the voltage and current variation in their load lines. It was patent #4107619.

The later Aleph design (Patent #5710522) was the first product from Pass Labs, and in 1995 it was followed by the SuperSymmetry design patent #5376899

(I mention these patents because you ask, but I stopped applying for patents 23 years ago)

# NELSON PASS OF PASS LABS AND FIRST WATT



**HP: When did you launch Pass Labs and what is the philosophy behind the brand and its designs?**

I started Pass Labs in 1991 with the intent of going in a new direction which reflected my desire to create simpler, minimalist circuits that perform well without the need for lots of feedback or complicated mechanisms. I also stopped using Bipolar transistors as gain devices in favour of Field Effect Transistors. These two elements are seen in all the amplifiers of Pass Lab and First Watt.

**HP: You have introduced a loudspeaker and have explored full-range speaker design. What do you feel are the benefits of full-range (wide-band) designs and what do they bring to the table that more complex loudspeakers cannot?**

I find full range speakers charming, and it is fun to work with them to get the best possible sound. I like to explore minimalist approaches and they are an interesting challenge. I guess you could call speakers a hobby....

**HP: You also run First Watt, how do the designs of First Watt differ from Pass Labs designs and why?**

First Watt is an opportunity to explore interesting ideas and just play around with design. Many design approaches are not appropriate to the conservative commercial needs of Pass Labs, and this gives me an outlet for this activity without causing trouble.

It is structured to have many different designs, all with limited production, and all with low power, usually 10 to 25 watts. Occasionally bits of design from First Watt find their way into Pass Labs product, and that works out fine.

**HP: Tell readers about your SIT designs and how you feel they resemble valve/tube amps.**

Static Induction Transistors, a type of Jfet invented in Japan in the 50's, has a characteristic which resembles a Triode, which makes it particularly interesting for audio amplification. Your ordinary Fet has curves that look like Pentode tubes, but SIT characteristics show the Triode-like dependency of current both on input voltage and Plate/Cathode voltage. They have an advantage over tubes in that they don't require heaters and also operate at the kind of voltage and current appropriate to loudspeakers, not requiring output transformers.

**HP: What are your thoughts on Class D technology?**

I think that it's a miracle that anything works at all, especially Class D. To have it able to make a decent amplifier is just the cherry on top. I have worked with it in the past, but it's not what I want to do.

**HP: You are of course very well known on the DIY scene and share many designs quite freely. How important do you feel the DIY community is to audio and why?**

Very important. DIYers are the happiest audiophiles I know, and I think they are happy because they have greater involvement in audio than is experienced by consumers. Their enthusiasm is important to high end audio, and it encourages other audiophiles to explore and participate.

**HP: You are involved in the annual Burning Amp festival; can you tell readers what this festival is about and how you came to be involved?**

It started back in 2007 when Mark Cronander, Vladimir Simovich and Stewart Yaniger (as I recall) put it together and rented space at Ft. Mason in San Francisco. It is for "Do-It-Yourself" audio enthusiasts, and they arrived with numerous project displays and demonstrations.

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I showed up with a truck load of parts, and when it came time to distribute them, they gave me a Santa Claus hat.

I have found ways to support the festival every year since. It's not a very big gathering, but the people who go to it are great to meet and talk to, and their projects are very interesting and well done. People come from around the world — even one fellow from Siberia!

**HP: What do you do when you are not designing amps and speakers – for relaxation?**

I answer emails, tend my little flock at diyaudio.com, listen to music, watch movies, read books, walk my dog Jack on the sea shore, dine out at good restaurants. What more could I want?

**HP: What are your top five pieces of music/albums?**

I don't know if I can really answer that. I have about 4000 CD's and maybe 1000 vinyl records, and I wander around that collection, still discovering things.

I particularly like Jazz and the "Lounge" music from the late 50's to present day Electronica. Any particularly good recording goes into rotation for evaluating equipment.