

Pass Labs XP-30 Stereo Preamplifier

JOHN E. JOHNSON, JR. | DECEMBER 1, 2011 | PREAMPLIFIERS



Introduction to the Pass Labs XP-30 Preamplifier

Recently, we reviewed the Pass Labs XP-20 stereo preamplifier, and it was marvelous. Hot on its heels is the new XP-30, which has the analog gain stages for each channel in a separate chassis, making a total of three chassis instead of two. The power supply is more substantial, and there are other changes as well, all resulting in lower noise and better dynamic range. I was surprised at how different the sound was from the XP-20, and the bench test spectra will show you why.

Specifications

- Design: Fully Balanced Stereo Preamplifier
- Maximum Voltage Output: 35 Volts into 100 kOhms
- MFR: 2 Hz – 100 kHz, – 1.5 dB
- Inputs: XLR and RCA
- Outputs: XLR and RCA
- Input Impedance: 96 kOhms XLR, 48 kOhms RCA

- Output Impedance: 100 Ohms XLR, 50 Ohms RCA
- Dimensions: 4" H x 17" W x 12" D (Each Chassis)
- Weight: 50 Pounds (All Three Chassis Together)
- MSRP: \$16,000 USD
- [Pass Labs](#)
- SECRETS Tags: Preamplifiers, Class A

The Design of the Pass Labs XP-30 Preamplifier

Compared to the XP-20, which is also a fully balanced line-stage preamplifier, the XP-30 has a larger power supply followed by electronic capacitance multipliers, has better noise suppression, a different circuit board layout, the capability to daisy-chain other XP-30 preamps if you wanted to use all XP-30's in a multi-channel sound system (SACD, DVD-A, etc.), and the ability to *blend* the stereo channels into a mono output through the use of a balanced cable connection on the rear panel. This is said to give improved resolution over simply connecting the outputs together through a mixer.

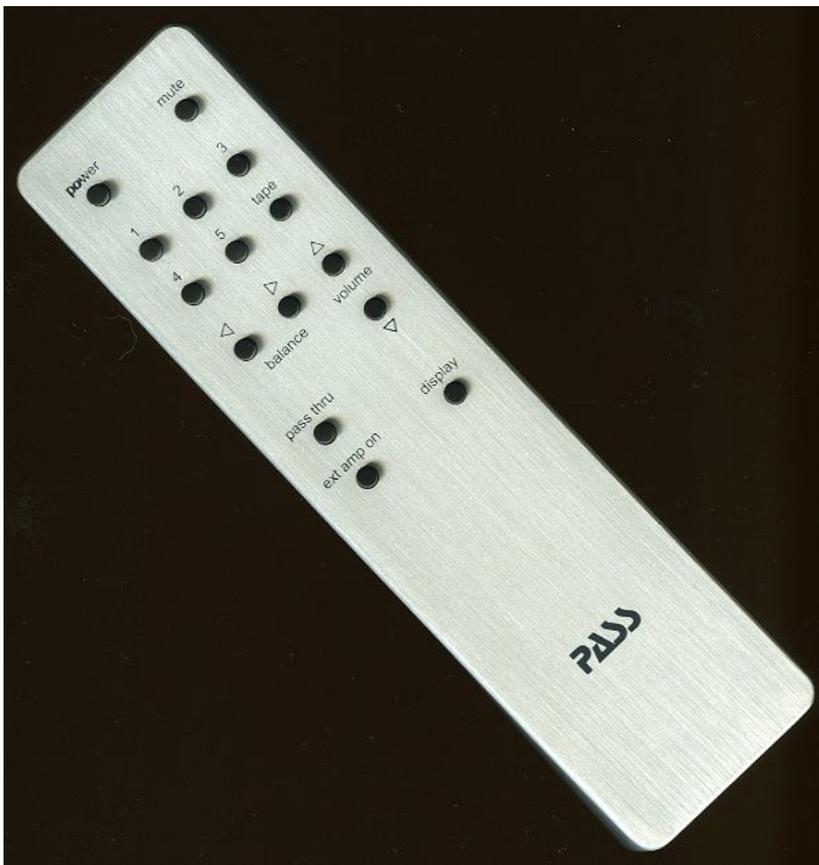
The power supply chassis also contains the digital circuits, while the other two chassis have the analog gain stages (two gain stages for each channel). On the front panel, besides the input selection buttons and main volume control, there are small trim dials in the right top corner. These are used to balance the sound of the blend when using the preamplifier to produce a mono output.

Below is a photo of the rear panel. You can see that having the two analog stages of each channel in a separate chassis allows for more connections. Each of the output chassis has a 25 pin jack which connects to the power supply (the bottom chassis) and a second 25 pin jack for daisy-chaining. On the right are five sets of RCA unbalanced and XLR balanced input jacks, a Pass Through RCA/XLR set for passing the signal through when using a separate pre-pro for surround sound, a tape loop RCA/XLR set, and a Mono RCA/XLR set.

The power supply has a trigger, which looks like a pair of speaker binding posts, and which is set to receive a 12 volt signal to turn the preamplifier on or off, a grounded AC jack, and the two 25 pin power output jacks to feed the pair of analog gain stage chassis.



The remote control is the same one as used with the XP-20. It is made from routing the center of an aluminum block. The rear cover is aluminum with a small screw to attach it.



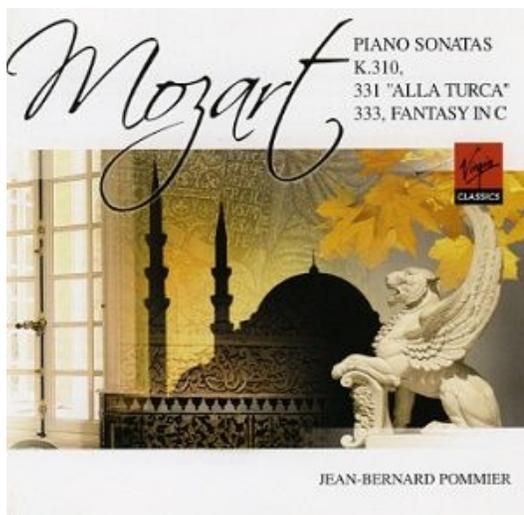
The Pass Labs XP-30 Preamplifier In Use

Because the power supply is housed in a separate chassis, it is very important to connect all three chassis together before you plug the power supply chassis into a wall socket.

I allowed the XP-30 to burn-in (playing music at low volume) for several days, then began my critical listening tests. Associated equipment included an OPPO BDP-95 universal player, Pass Labs X1000.5 monoblock power amplifiers, Balanced Audio VK-75SE tube power amplifier, and Magnepan MG 1.7 quasi-ribbon speakers. Cables were

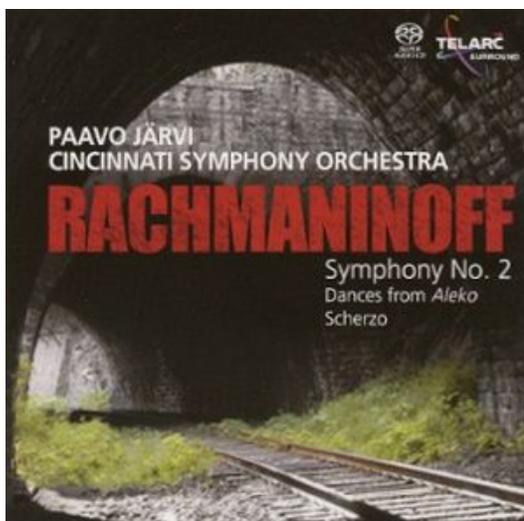
Marc Audio, Wireworld, and Emotiva. The XLR inputs of the XP-30 were used for the listening tests.

Here is a sampling of the music I used with the XP-30.



First, some piano sonatas by Mozart. His talent allowed him to compose music that you could fall asleep by, and orchestral as well as operatic pieces that would certainly wake you up. But, what I was listening here for was (1) the leading edge transients of the hammers when they hit the strings; (2) the dynamics; and (3) whether or not the single notes were clean, clear, and natural without audible harmonics that would change the tonality.

I really was quite surprised at how different the XP-30 sounded, compared to the XP-20. The XP-30's sound was slightly warmer than the XP-20, almost tube-like. I say, "almost," because the amount of harmonics that tube amplifiers produce is much higher than the XP-30, but the spread of the harmonics was very similar. The leading transients were crisply delineated, and the dynamics were terrific. I really prefer chamber music, such as string quartets, but also piano sonatas, because they are peaceful and not a complex hodge podge of so many instruments that sometimes can cause my brain to race when I want to calm down. My listening time is usually towards the end of the day, in my window seat, with a hot drink and a book (nowadays, my books are all Kindle downloads that I read on my iPad).



Rachmaninov (sometimes spelled Rachmaninoff, e.g., below), on the other hand, is not famous for composing music that is played at heartbeat pace. The hairs on the back of my neck usually stand on end with whatever opus of his that I play, and I have a very big collection of his works. In the movie, *Doctor Zhivago*, there is a scene in a drawing room where several people are sitting, listening to a musician playing the piano. A young man says something to the woman sitting next to him, and she says, "Be quiet and listen. This is genius". The pianist is Rachmaninov, and it is the days of the Bolshevik Revolution.

Anyway, the dynamics that Rachmaninov put into his music were zestfully reproduced by the XP-30. In this particular album, it is a symphony, and the low IMD of the XP-30 allowed all instruments to be heard with great clarity. Obviously, when I am listening to his

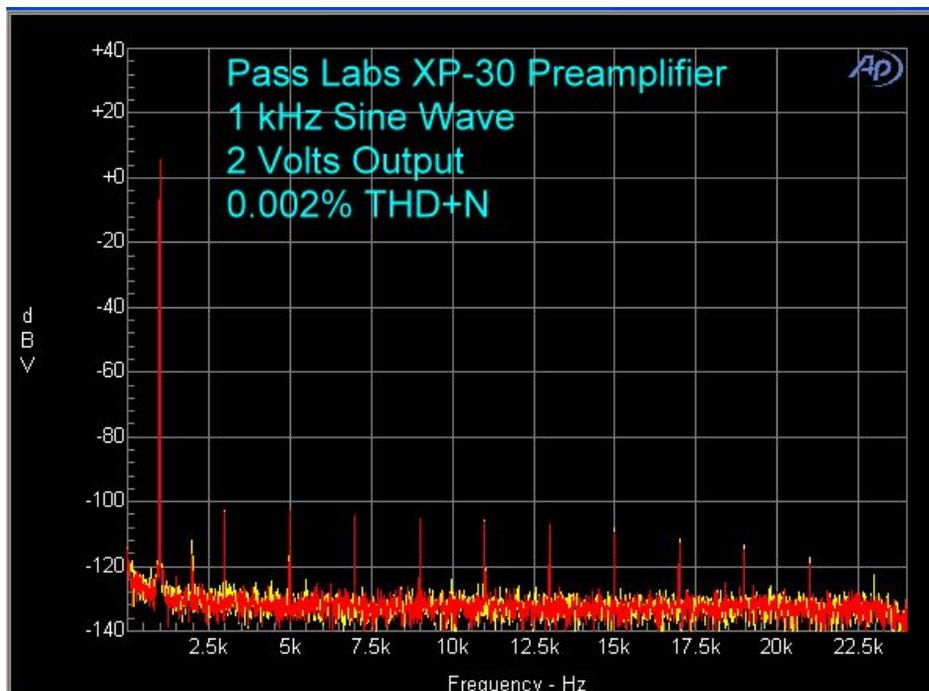
works, I am in the mood to rev up, not calm myself. It works, and the XP-30 provided a perfect road to this end during the review period.

I could go on and on with the albums that I enjoyed with the XP-30, but it isn't necessary. In sum, this preamplifier is superbly dynamic, clean, and with a quiet background.

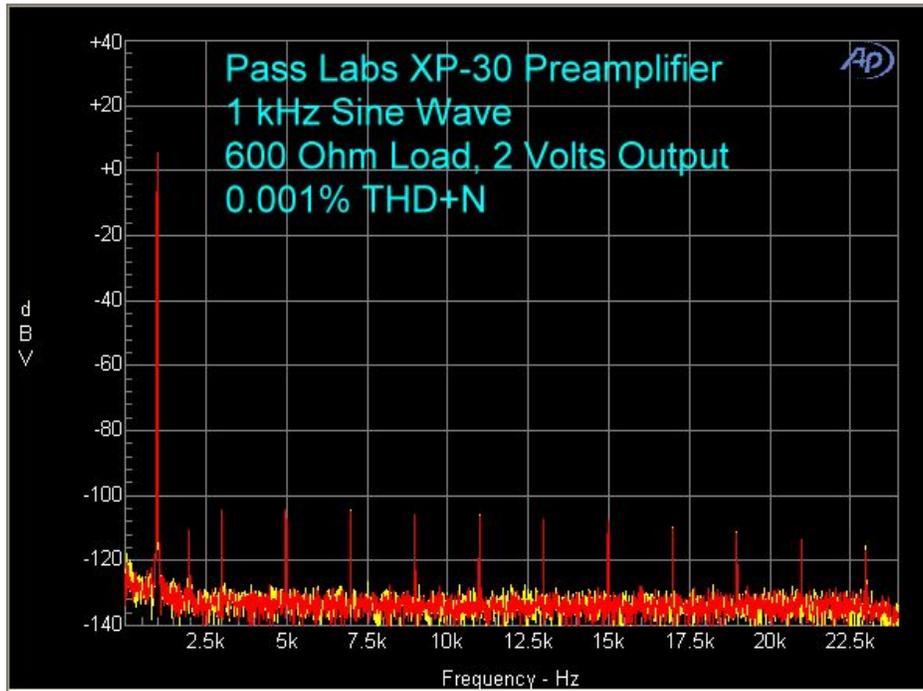
The Pass Labs XP-30 Preamplifier On the Bench

All distortion measurements were made within an 80 kHz bandwidth. I used the XLR inputs and XLR outputs for all tests. The load was 100 kOhms, unless otherwise specified. Both channels were driven on all the tests.

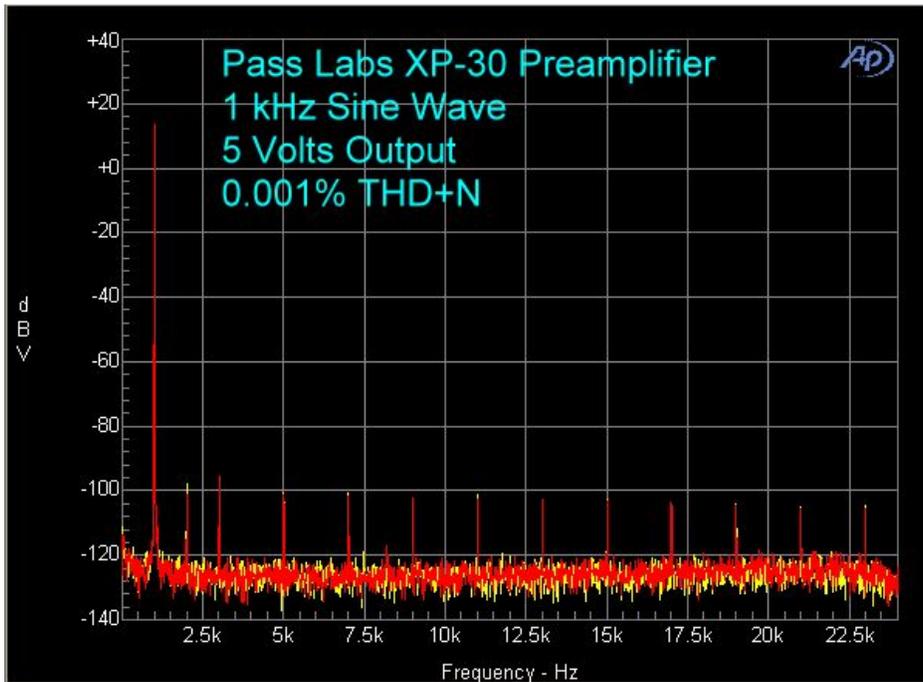
At 1 kHz and 2 volts output, distortion was a miniscule 0.002% (it was actually less than that, but I rounded it up). Notice that the height of all the harmonics is very similar. This is the spectral pattern that resulted from listening to the amplifier with various changes to the circuitry, and choosing the variation that sounded best to everyone at Pass Labs. If you compare this with the [XP-20](#), you will see that it has only two harmonics, a second and third, with the third being slightly higher than the second.



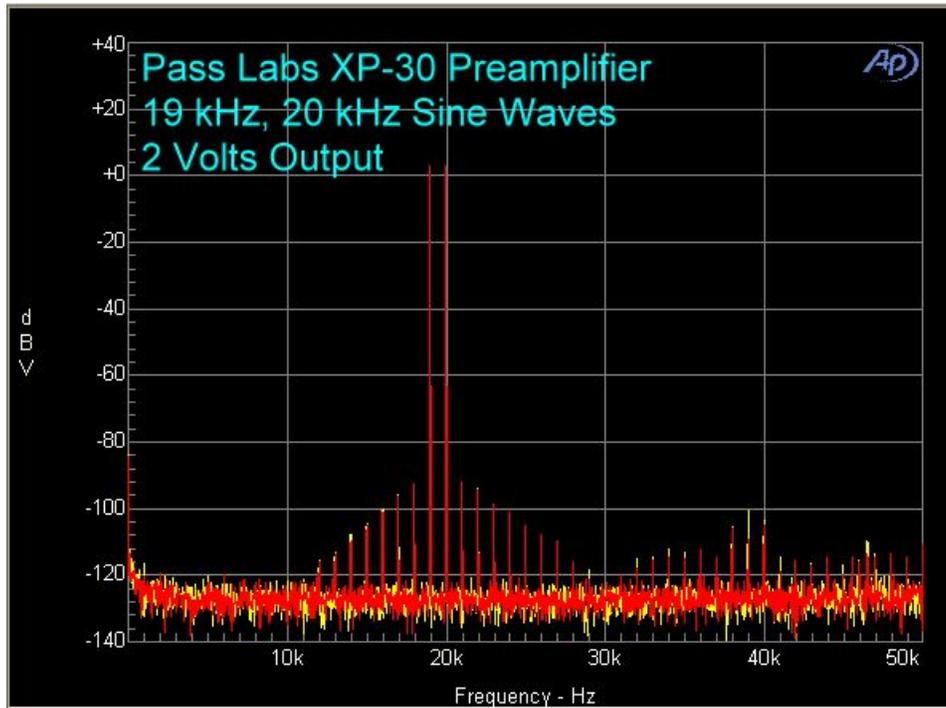
I also tried a 600 Ohm load, which one would never encounter in the real world, and still, the distortion was vanishingly low.



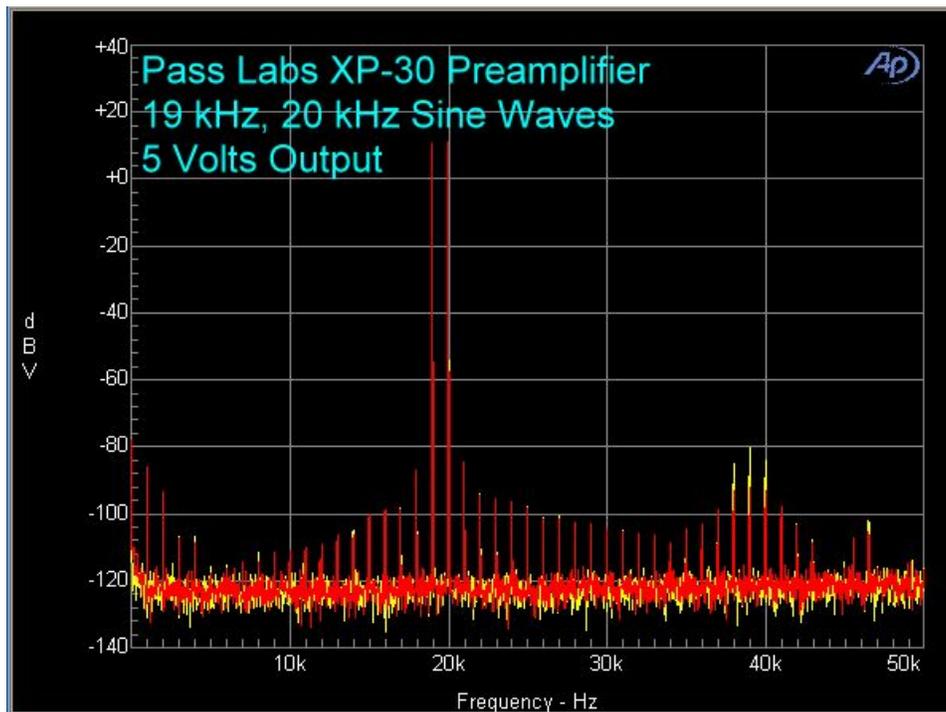
At 5 volts output (into 100 kOhms), the results were pretty much the same as with 1 volt.



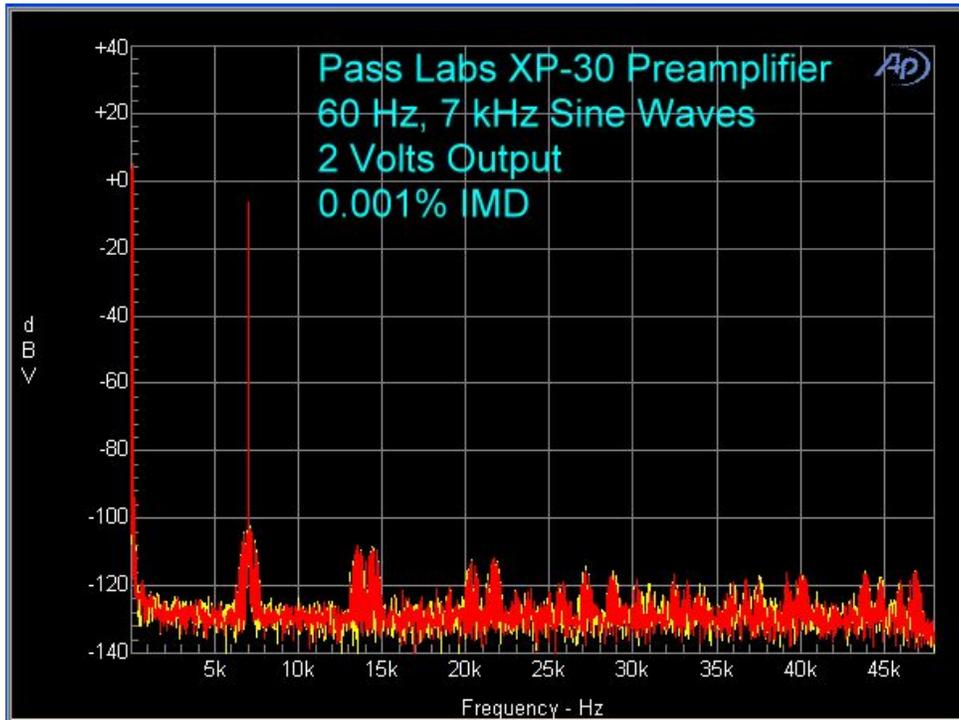
Using 19 kHz and 20 kHz test signals, the B-A peak at 1 kHz was 120 dB below the fundamentals. This is truly fine performance.



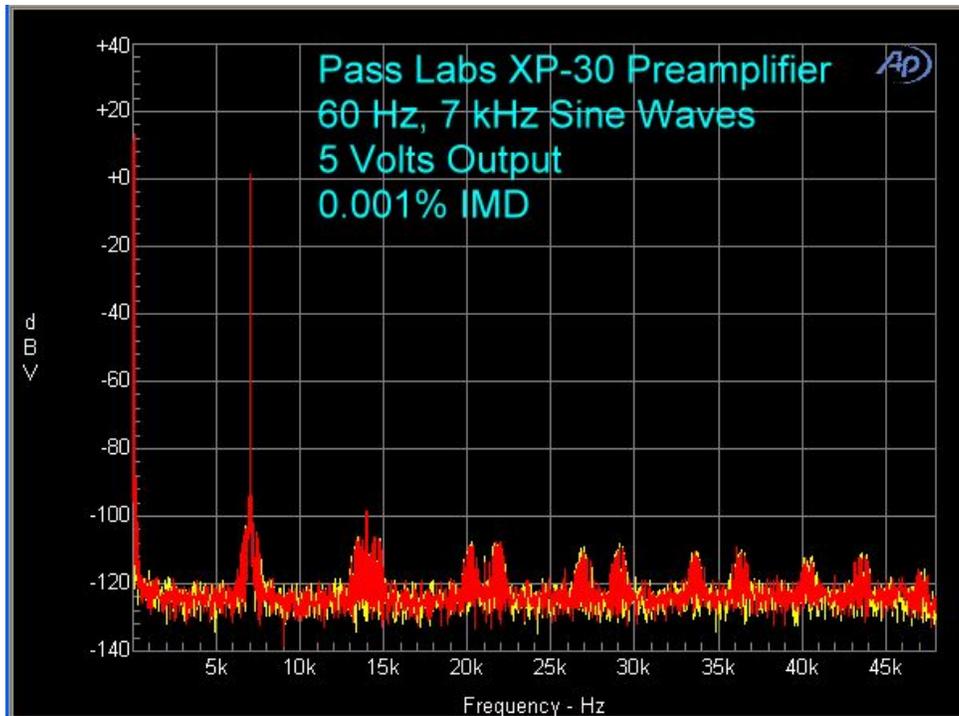
At 5 volts, the B-A peak was 95 dB below the fundamentals.



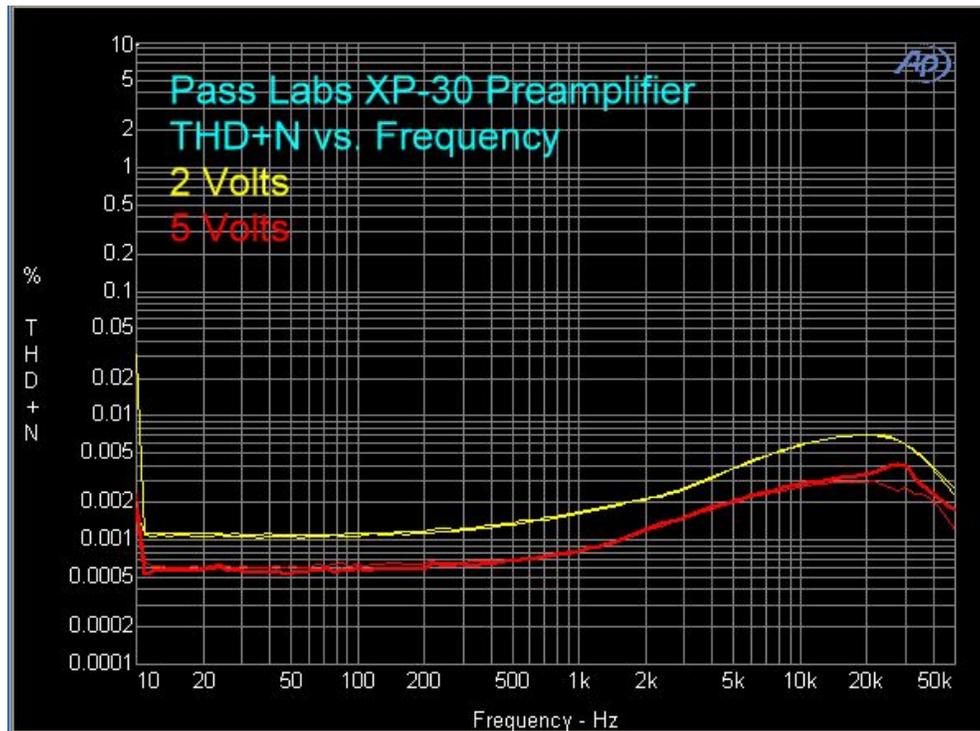
IMD was a low 0.001% at 1 kHz and 2 volts output.



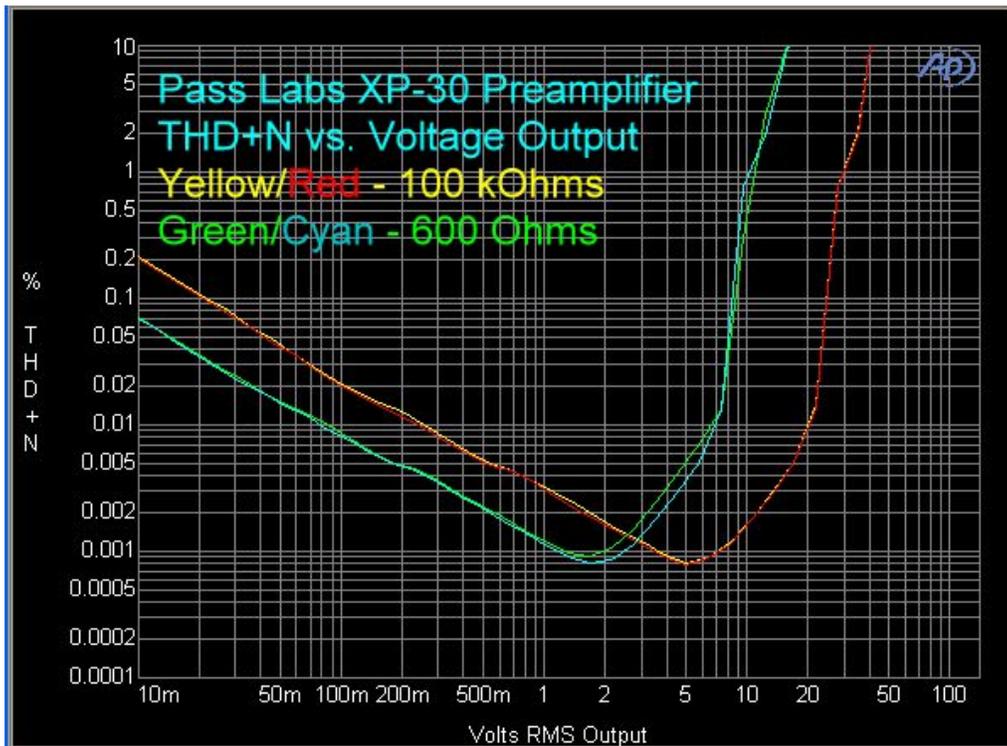
At 5 volts, the measurement was still 0.001% IMD, although you can see that the peaks are a bit broader beyond 7 kHz (IMD measures the amount of peaks within a band 250 Hz on either side of the 7 kHz fundamental).



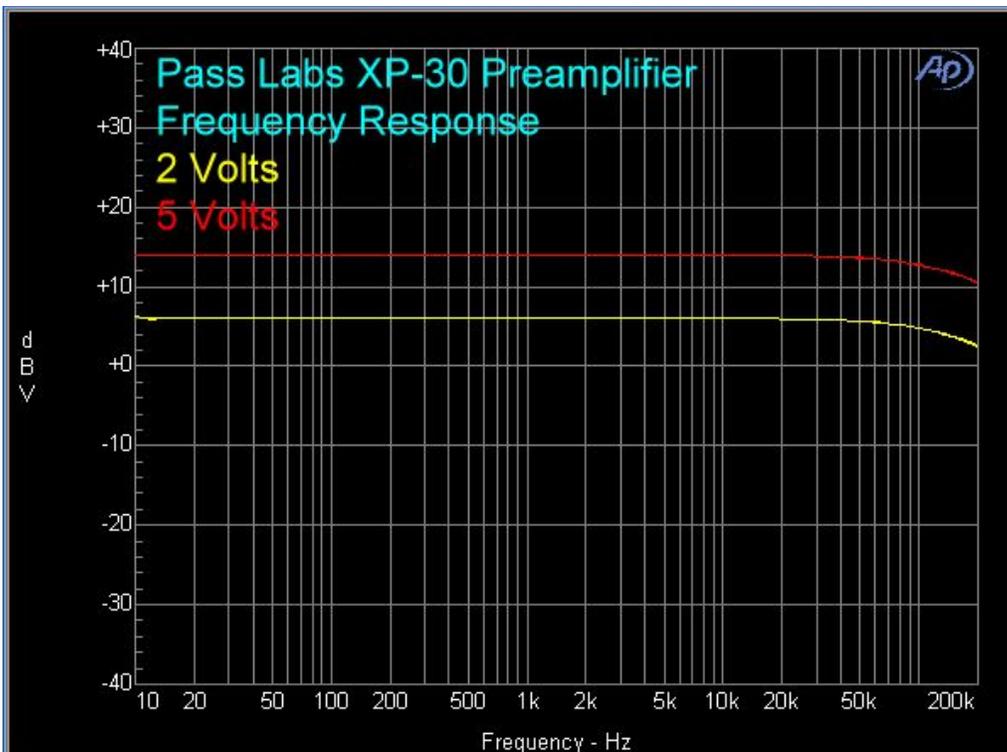
THD+N vs. Frequency showed low distortion throughout the audible spectrum, rising to 0.007% at 20 kHz and 2 volts output, and 0.004% at 20 kHz and 5 volts output.



THD+N vs. Voltage Output with 100 kOhm loads as well as 600 Ohm loads is shown below. With a 100 kOhm load, the sharp knee was at 5 volts, with clipping (1% THD+N) at 30 volts, and with a 600 Ohm load, the sharp knee was at 1.7 volts, and clipping at 12 volts. This preamp has plenty of power to drive any power amplifier. If you compare this graph with the one I got for the Pass XP-20, you will see that the XP-30 has a much greater ability to drive a low impedance load.



The frequency response was flat out to 20 kHz, and was down 1.5 dB at 100 kHz.



Conclusions About the Pass Labs XP-30 Preamplifier

As with the Pass Labs XP-20, the new XP-30 is an extraordinary preamplifier. It is not what I would call "better" than the XP-20 (in terms of sound quality, not the additional features), but rather, "different". I think any audiophile would be delighted with having either one of them, but from my own point of view, I would pair the XP-20 with a tube power amplifier, and the XP-30 with a solid state power amplifier (like the Pass Labs X1000.5 monoblocks which I had on hand for review). A combination of solid state with tubes is what I prefer to have in all my testing labs, and if you have the chance to listen to such combinations at a dealer showroom, I think you might agree with me. In any case, the XP-30 is a killer product, and certainly approaches the theoretical zenith of high fidelity sound reproduction.