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Lamm Industries Model L2 Reference Preamplifier Taking the proverbial "Road less traveled."

Review By Dick Olsher

In my audio lexicon, the 'Reference' appellation is reserved for components that represent the state-of-the art (SOTA), or at least a cost-no-object attempt to metaphorically scale the SOTA mountain in a particular category. Such components hold up a mirror to the music, reflecting the heart and soul of the program material onto the listener.

Reference class gear should represent the closet approach to live music — a serious attempt to bridge the gap between reproduced and live music. Lamm Audio's chief designer, Vladimir Lamm, a man with an impressive portfolio of high-end creations, apparently rates the L2 Reference as one of his best. Thus, as you can imagine, my expectations of the L2 Reference (L2R) were quite high. Had the L2R arrived on my doorstep in a 15-pound cardboard package, I would have immediately been suspicious of its legitimacy to reference status. You see, as I will explain shortly, heft is important in amplification. In fact, the L2R arrived in two wood crates, each weighing nearly 40 pounds. Great, we were off to a good start!



This is a two-chassis affair, with a separate power supply. Features include three RCA inputs, one tape loop, an output signal phase switch, and both balanced and single-ended outputs. The signal circuitry layout is dual monaural to minimize channel crosstalk, which explains the duplication of controls for the left and right channels, including dual TKD stepped-attenuator volume controls. There is no balance control per se; channel balance is adjustable, however, via the relative

settings of the left and right volume controls. One of the inputs is designated DIRECT. Signal connected here bypasses the MONITOR and SELECTOR switches on the front panel and is routed directly to the volume controls. Cosmetically, the L2R was designed in the tradition of pro sound gear. Its demeanor is strictly business like and it is unlikely to win any beauty contests. The L2R simply goes about its business without attracting any attention, or distracting you the listener from its main reason for being; namely, to enjoy the music.

The Technology

How many preamplifiers do you know of that sport a 19-pound power supply? I know of power amplifiers that weigh less than just the L2R's power supply. If a decent sized power transformer and a choke based filter are desired, than weight is an indicator of quality. Iron cores mean weight, and this is one place where extra weight is a good thing. I purposely led off the technical discussion with the power supply (PS), since very few audiophiles realize its importance in defining an amplifier's overall sound quality. Attention is typically focused on the signal path to the exclusion of the PS, and that results in a clear inversion of design priorities. To coin an automotive analogy, it is equivalent to focusing on the interior of a sports car while ignoring the engine. The PS is literally the engine that drives the rest of the circuitry. It should be "quiet" and not contaminate the signal with high-frequency switching noise typical of conventional solid-state rectifier circuits. Current delivery should be instantaneous over the entire signal bandwidth and

without sagging voltage. It should be capable of coping with the real-world issues of the AC mains: dirty voltage, voltage drifts (high and low) that shift the operating point outside of its sweet spot, and EMI/RFI noise interference. In my opinion, there is already an abundance of exceptional gain circuit topologies on the books, but the obstacle to great sound in most cases is the lack of an exceptional power supply.

And this is the area that Lamm Audio invested heavily in. The L2R's PS uses a custom-designed low-noise toroidal power transformer. RFI is filtered by an AC line filter. Both vacuum tube rectification and voltage regulation are used; expensive and elegant solutions to the problems of rectifier RF noise and AC mains voltage drift. I know of even expensive and well-regarded power amplifiers that resort to cheap diode bridge rectifiers. Let me just say that I would not sleep well at night with the knowledge that my audio investment is powered by a junk power supply. The voltage regulator circuit uses a three-tube complement: one 12AX7/ECC83, one Russian 6C197, and one 5651A voltage reference tube. DC voltages are locked to the voltage of the reference tube to ensure a stable operating point. A pair of 12AX3 Compactron style single-diodes is used for rectification. Kudos to Vladimir Lamm for having the vision to do this right - to execute a PS worthy of the Reference moniker.



Moving along to the signal path circuitry, gain stages use selected super-linear high-voltage MOSFET transistors operated in 'Class A' without any global feedback. All stages, including the high-current output buffers, are single-ended. A low output impedance is maintained over the bandwidth of the preamplifier, allowing it to drive long capacitive interconnects without audible sonic degradation. Passive part choices include low-noise Dale metal film resistors, Electrocube and Roederstein film capacitors, and high-frequency switching grade Cornell Dubilier electrolytic capacitors.

As with other Lamm Audio products, the L2R was designed within the conceptual framework of absolute system linearity. This framework, as described by Vladimir Lamm, encompasses several performance variables, the essence of which can be understood in terms of total harmonic distortion (THD) as a function of both frequency and power. Other parameters are used as well, but in order to keep things fairly simple only THD is used for the sake of explanation. Ideal system response within this paradigm can be stated in terms of several objectives. First, THD should be uniform as a function of frequency over the audible bandwidth. Second, THD should increase smoothly with increasing output levels and its spectral content should not vary with level. And finally, the THD residue should be dominated by the second harmonic. In other words, the model predicts that if measured performance closely matches these objectives, the sonic character of the amplifier will be constant over its entire dynamic range. And, of course, a minimal sonic signature would be imparted to the amplified signal.

One feature deserves special mention, and that is the polarity reversal switch that allows signal polarity reversal on the fly. It is no small thing to implant such a feature without audible consequences. And it is such a pleasure to be able to quickly check for best polarity position for each album or even for any particular track/cut. It has been some 17 years since the publication of Clark Johnsen's little red book, titled "The Wood Effect," a discourse on the audibility of absolute polarity — meaning a signal polarity in sync with that of the original acoustic event. It did much to popularize the concept within the audiophile community. Though it left the lingering impression that it is easy enough to lock in on absolute polarity by simply listening to both 0- and 180-degree connections; surely one will sound much better, and ergo, you have found it.

Unfortunately, reality is much more ambiguous than that. Studio recordings are a far cry from a live acoustic event. Rarely is popular music recorded with less than 24 tracks and tracks are usually sequenced and mixed over many weeks with added instruments, voice-overs, and various

fixes. There are a minimum of 24 microphones in the signal path, 24 mic preamplifiers, as many mixing console inputs, to say nothing of compressors, limiters and other special effect units. Consider that a typical drum kit mic'ing setup involves eight mics. The probability that some but not all of the tracks being mixed are in reverse polarity is quite high. That means that a multi-track recording may be a mixed bag, with some instruments in absolute polarity and some in reversed polarity. Thus, there may not always be a clear-cut choice between the available two polarity settings. Still, the polarity switch is a very welcome feature.

The Sound

I have never met a solid-state preamplifier that made my day. It is not a question of lack of smoothness or detail. The Krell and Harmon Corporation's Mark Levinson brand offerings are as smooth as a baby's face and dish out enough detail to satisfy anyone anal retentive about such things. Rather it was a distinct lack of passion and soul, a reticent disposition, silicon sterility if you will, that soured the deal. My main goal in listening to audio is to enjoy the music. And the catalyst for that, at least for me, is the resurrection of the program material's emotional message. The music's drama and verve had better come alive. The sound has to engage me, push my buttons to make the experience reminiscent of the real thing. What is it about the solid-state experience that censors the passion? Much like safe sex, it has always felt like a case of "safe audio" — as if the soundstage was wrapped in a giant condom. For my money, I've always turned to tube magic to get the job done.

With the above preamble out of the way, I can state for the record that the L2R is very much in touch with the music's heart and soul. Have I changed my mind about solid-state amplification? Not really; keep in mind that the L2R is not a conventional solid-state device. It qualifies as a hybrid, combining a vacuum tube based power supply with a solid-state signal path. And that makes all the difference in the world. In fact, the dynamic range exhibited by the L2R was stupendous. Transients were launched with a sure hand and a remarkable sense of ease. Microdynamics bubbled to the surface with startling vitality. And then it shifted gears, second to third, and kicked ass all the way into top gear like a well-honed sports car. Its ability to soar from loud to very loud without any strain, complaints or audible change in character clearly vindicates Vladimir Lamm's design paradigm. This was new territory for me. Never had I experienced such a linear dynamic range in a line preamplifier. It seemed to squeeze more energy from every recording I threw at it. It was surprising to revisit familiar orchestral recordings to re-calibrate my expectation of what was possible. Massed voices were given free reign to expand from a mere whisper to full voice. The patina of human voice rippled with tension and orchestral crescendos soared without restraint. Bravo!

The other really big surprise had to do with the character of harmonic textures: sweet, pure, and lucid. The sonic distillation of the musical tapestry was slightly flavored with a consonant second order harmonic. I am not suggesting that textures were tubey or sugar coated with an abundance of even-ordered - just a slight hint of honey. But never a hint of textural grain, electronic harshness or brightness, the music simply flowed with natural conviction. This is a big priority for me, as I like to kick back and be enveloped in an edgeless organic presentation. The L2R dares you to put it under the microscope. Under higher magnification, peering deeply into the musical tapestry — the harmonic, rhythmic, and melodic structure of the music was as lucid and pure as it was from a distance. This is a rare quality for an audio device. In contrast, most preamplifiers come across as electronic devices with obvious distortions that make it difficult to accept their version of the truth. The L2R transcends the norm. Its rainbow of harmonic colors always felt organic and as easy to slip into as an old shoe.

Performance at the frequency extremes was also exemplary. A tuneful, pitch-perfect bass range laid the foundation for exceptional transient speed and precise decay. Mind you, there was no etching or emphasis of treble transients - a cheap trick that impresses the novice at least in the short term before listening fatigue sets in. Detail unfolded in an organic fashion that did not call attention to a particular frequency range. The bane of high-end audio, and what has sadly come

to pass for high fidelity these days is an analytic presentation that peppers the listener with exaggerated detail. Many mainstream reviewers have been raising a red flag about sound quality that is overly analytic — implying that an analytic sound in and of itself is acceptable. Folks, live music is not analytic. Detail happens. It is tucked away into the fabric of live music. Our auditory system can focus on particular threads in the incoming sonic stream, but that should not be the first thing we latch onto during the musical experience. Music should first and foremost be experienced in toto, as an organic whole. And this is exactly the sort of impression facilitated by the L2R.

I have commented previously about the tonal balance of Lamm Audio's vacuum tube based LL2 preamplifier from the perspective of trying to make out the surface features on a highly polished sphere. Its smooth topology makes it impossible to identify distinguishing marks. It will merely mirror whatever is in front of it. So it was with the L2R. Whether it was the excellent Artemis Labs PH-1 phono preamplifier or a specific digital front end, the inherent character of those components flowed downstream unimpeded by the L2R. There was no romantic midrange haze or lush romantic lower mids to pretty up the soundstage. The big-tone presentation (a.k.a. lower mids on steroids) of my favorite 6SN7 preamplifier was nowhere in sight. Thus, tonal neutrality may be seen as a double-edged sword. For example, a bright digital front end has nowhere to hide. Careful choices are required in matching front-end components, bringing to mind the old adage about good sound being a function of careful system building. With my reference 300B SET power amplifier in the chain, there was no difficulty in generating a spacious soundstage possessing an enormous depth perspective. Image outlines were fleshed out with 3-D palpability, typically the domain of tube preamplification. Having access to several excellent tube line preamplifiers (e.g. the deHavilland Mercury 2), I was able to confirm to my satisfaction that the L2R in no way compromised imaging excellence. That is not to say that the soundstage projected by the competition was almost identical in all respects. There were slight differences in sound stage width and in-room extension, but the essential spatial impression was fairly constant.

Conclusion

It is clear that the Lamm Audio L2 Reference has fully lived up to its reference moniker. Its persuasive musical presentation blends explosive dynamics with a flowing, almost lyrical reading of musical lines. It is undoubtedly a towering achievement that takes the road less traveled by combining a massive tube regulated and tube rectified power supply with a MOSFET signal path. This is the one, my nominee for line preamplifier of the new millennium!

Specifications

Type: vacuum tube stereo preamplifier
Rated Output Voltage & Gain (20Hz to 20 kHz): 0.75 Volts RMS, 14.9dB gain
Frequency Response: 20 Hz - 20 KHz (-0.2dB); 5 Hz to 120kHz (-3dB)
Input Sensitivity & Impedance: 0.135 Volts RMS \pm 2% at 51 kOhm
Corrected Output Impedance: typically 130 Ohms
Signal-to-noise ratio: >82dB
Tube complement: 12AX7/ECC83 for voltage regulator, 6C19P for voltage regulator, 5651A for voltage reference tube, two 12AX3 for rectifier
Dimensions: 4.5 ix 19 x 13.875 (HxWxD in inches) + 1.375 inches for front handles
Unit weight: preamplifier: 15.42 Lbs., power supply: 19 Lbs.
Warranty: Five years parts and labor (except tubes)
Pricing: \$14,790

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