The L2.1 is said to have evolved from the L2, for many years a mainstay in Lamm Audio’s product lineup. Evolution is generally regarded as inevitable but when starting with the nearly flawless circuitry of the L2 how do you progress to L2.1? Well, attention has been focused on better active and passive devices in key circuit locations, including new PC boards and replacement of electrolytic capacitors in the power supply’s tube voltage regulation section with newly developed high-density polypropylene capacitors of comparable size and value. A measurable result of these updates is an improved signal-to-noise ratio.

This is a two-chassis affair, with a separate power supply. I should make it clear upfront that the L2.1 is a hybrid design but not in the usual sense. The power supply is all tube while the audio circuit is solid-state. Isolating the power supply from the audio circuitry is not a new idea but a 19-pound preamp power supply is most unusual. There are power amps out there that weigh less. Let’s take a moment to deconstruct the performance aspects of an ideal power supply. It should be “quiet” and avoid contaminating 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 AC mains voltage drifts and EMI/RFI noise interference.

The L2.1’s power supply addresses these aspects and is exceptional in execution: a custom-designed low-noise toroidal power transformer, RFI filtering, vacuum-tube rectification and voltage regulation, and a choke-based filter. A pair of 12AX3 Compactron style diodes is used as a full wave rectifier. The voltage regulator circuit uses a three-tube complement: one 12AX7/ECC83, one Russian 6C19П, and one 5651A voltage reference tube. DC voltages are locked to the voltage of the reference tube to ensure a stable operating point. It was Audio Research in the mid-1970s that first introduced power supply complexity as a means of coaxing better sound from an
audio circuit. This is a correct approach in my view and any preamp with pretensions to reference status had better pay serious attention to the power supply.

No possibility of tube rolling here. MOSFETs are used in Class A, no-feedback circuitry for gain and buffer stages. It has been said that tube amps measure poorly but sound good. In the context of solid-state devices good specs are no guarantee of good sound. It's often the case in the context of high-end audio that measurements conflict with perception. Electronic engineers sometimes confuse the two, insisting that if it measures well it must sound good. Aside from the issues of what to measure and what measurements correlate with good sound, it must be understood that the perceptual and physical domains are distinct. The processing of physical stimuli in our brains is complex and still the subject of ongoing research. Imagine an engineer designing a violin on the basis of measurements and insisting that since its spectral output is identical to that of a Stradivarius that the two must therefore be sonically identical. That just isn't going to fly past any violinist.

The L2.1 is one of those exceptional products that measures well and manages to sound terrific at the same time. As with other Lamm products, it was designed within the conceptual framework that Vladimir Lamm refers to as "absolute system linearity" and that he feels is predictive of good sound. This framework 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 it is easiest to explain in terms of THD. 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 an amplifier will be constant over its entire dynamic range. And, of course, a minimal sonic signature would be imparted to the amplified signal.

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-potentiometer 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. The L2.1 is a bit stingy when it comes to number of line-level inputs. There are three sets of single-ended RCA inputs, although the circuit topology is fully balanced. Output is offered on both RCA and XLR jacks.

One input is designated as Direct. It bypasses the Monitor and Selector switches on the front panel and is routed directly to the volume controls. Other features include one tape/home theater processor loop and an output-signal-polarity switch. I find the latter quite useful, though there’s a popular misconception that either the 0-degree or 180-degree phase setting will sound much better. Rarely is popular music recorded in the studio with fewer than 24 tracks, and tracks are usually sequenced and mixed over many weeks with added instruments, voiceovers, and various fixes. In that type of setting there would be a minimum of 24 microphones in the signal path, 24 mike preamplifiers, as many mixing console inputs—to say nothing of compressors, limiters, and other special effects units. 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.

An electronic protection circuit mutes the outputs until the preamp has stabilized after being powered, and in case the AC line voltage drops or is interrupted. A design goal was low output impedance. The official spec is 130 ohms over a wide frequency bandwidth, which means that the L2.1 is able to drive long capacitive interconnects with no sonic degradation. This is a significant benefit in my system which uses long runs to the power amplifier.

It’s no secret that with the exception of the Pass Labs XP30 my high-end journey has
been accompanied by a panoply of tube preamps. I had become accustomed to the sound of
triodes operated in Class A without any overall loop feedback. These are circuits with
residual second-order distortion that is consonant with the music and tends to enrich musical
textures. Of course, taken to the extreme, the end result is a fat and harmonically lush
presentation reminiscent of some vintage preamps. Such a sonic signature may be fun to listen to
in some contexts but it isn’t reference caliber. In contrast, the L2.1 always sounded musically
natural while being tonally neutral. It seemed to extract the musical message without imposing a
particular personality over the presentation. In this respect, it allowed the program material and
front-end components to sing without editorializing. Its inherent sound was texturally pure, neither
adding nor subtracting from the musical tapestry. OK, so after extended listening I could detect
just a suggestion of honey, perhaps a residue of second-order harmonics, but never even a hint of
textural grain, electronic harshness or brightness. The best overall description that comes to
mind is an edgeless organic wholeness—a rare quality for an electronic device. In contrast, most
preamplifiers come across as what they are: electronic devices with obvious distortions that make
it difficult to accept their version of the truth.

Tonal colors were right on, and program material allowing, the midrange sounded
naturally sweet. The downside, if you will, of total neutrality is that front-end imperfections have
nowhere to hide. The L2.1’s presentation was akin to the surface of a highly polished sphere on
which any mark becomes readily visible. There are no euphonic band-aids to cover up any flaws.
But that is exactly what a reference preamp is supposed to do, so there’s no need to shoot or
criticize the messenger when it reveals the truth. Without a lush romantic midrange, a bright digital
front end would be exposed. To confess, I did miss the big-tone presentation (aka lower mids on
steroids) of my favorite 6SN7-based preamp and had to compensate via choice of speaker and
matching power amplifier. The old adage about good sound being a function of careful system
building very much applies here.

That is exactly what a reference preamp is supposed to
do, so there’s no need to shoot or criticize the
messenger when it reveals the truth.

The frequency extremes were extended and capable of resolving delicate treble nuances and
unfolding bass lines with precision and rhythmic conviction. No surprise here. I expected as much
from a high-end solid-state preamp. However, what I didn’t expect was the facility to get in touch
with the music’s heart and soul. Most solid-state preamps have the mechanics of music
reproduction down pat; they own the requisite bandwidth and low-level detail retrieval. But that is
typically coupled with a distinct lack of passion, what I like to refer to as “silicon sterility.”

The L2.1 is different. It had no trouble extracting the music’s full complement of drama. It seemed
to squeeze more energy from every recording I threw at it. Massed voices expanded from a mere
whisper to full voice. Much of this had to do with its exemplary transient speed and
superlative dynamic range. Subtle volume and pitch variation, the microdynamics of the
music, bubbled to the surface effortlessly. I’m fascinated by the vibrato of various
singers that sometimes extends embarrassingly lower than the ideal of about 7Hz. This preamp
allowed me to literally count those vibrato modulations with ease. Neither was the macrodynamic
range ever in doubt. Similarly, the range from loud to very loud was reproduced without any
strain, complaints, or audible change in character—a performance level that appears to
vindicate Vladimir Lamm’s design paradigm.

What I found surprising was the remarkably low noise floor, which at times felt as if I were peering
into the blackness of a bottomless well. Track fadeouts and reverberant decay were readily
resolved. In general, the spatial impression was quite convincing with excellent image focus and
depth perspective, though the extent of soundstage layering was dependent on the associated
power amp.
The Lamm L2.1 is clearly deserving of the ‘Reference’ appellation, holding up as it does a mirror to the music. It cuts through previous limitations of solid-state preamplification allowing the music to flow with precision and emotional conviction. It garners my unqualified recommendation. It’s no secret that the L2.1 is currently my first choice in line preamplification.

**SPECS & PRICES**

- **Inputs**: Three unbalanced on RCA jacks
- **Outputs**: One pair of unbalanced RCA jacks, one pair balanced XLR jacks
- **Frequency response**: 5Hz–120kHz (–3dB) Total harmonic distortion: <0.03% at 2VRMS output (20Hz–20kHz)
- **Signal-to-noise ratio**: 97dB (below 2 VRMS output, A-weighted)
- **Voltage gain**: 14.9dB
- **Input impedance**: 50 kohms
- **Output impedance**: 130 ohms
- **Dimensions**: 19” x 4.5” x 13.875” per chassis
- **Unit weight**: 15.5 lbs preamplifier; 19 lbs power supply
- **Price**: $22,790

**ASSOCIATED EQUIPMENT**

- **Speakers**: German Physiks HRS-130, OB3 (DIY)
- **Power amplifier**: VTL Manley Reference 200/100 monoblocks, Linear Tube Audio ZOTL40 Mk. II, NYAL Moscode 600 (modified)
- **Analog source**: Kuzma Reference turntable and Stogi Reference 313 VTA tonearm, Clearaudio da Vinci V2 mc cartridge
- **Digital sources**: MacBook Pro laptop running Amarra V3.04 software, April Music Eximus DP1 DAC, ModWright-modified Sony XA-5400ES SACD player
- **Cables**: FMS Nexus-2, WireWorld, and Kimber KCAG interconnects, Acoustic Zen Hologram II speaker cable
- **A/C Power**: Monarchy Audio AC-Regenerator, Sound Application power line conditioners

**LAMM INDUSTRIES INC.**

2513 East 21 Street
Brooklyn, NY 11235
U.S.A.

Phone: +1.718.368.0181
Fax: +1.718.368.0140

Email:  lamm.industries@verizon.net
elinalamm@hotmail.com
web: www.lammindustries.com
PREAMPLIFIER OF THE YEAR

Lamm Industries L2.1 Reference $22,790

The L2.1 Reference linestage preamplifier is one of those exceptional products that measures well and manages to sound terrific at the same time. As with other Lamm products, it was designed within the conceptual framework that Vladimir Lamm refers to as “absolute system linearity,” a framework he feels is predictive of good sound. The L2.1 Reference is a hybrid design but not in the usual sense. The power supply is all tube while the audio circuit is solid-state. MOSFETs are used in Class A no-feedback circuitry for the gain and buffer stages. Sonically, the L2.1 is clearly deserving of the “Reference” appellation, holding up, as it does, a mirror to the music. It cuts through previous limitations of solid-state preamplification allowing the music to flow with precision and emotional conviction. “It’s no secret,” said reviewer Dick Olsher, “that the L2.1 is currently my first choice in line preamplification.” And now it’s no secret that the Lamm Industries L2.1 Reference is TAS’ choice for 2017 Preamplifier of the Year. (278)