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Lamm Industries M1.2 Reference monoblock power amplifier

Paul Bolin

The "Reference" designation is thrown around a lot in the world of perfectionist audio. It's most often used to elevate the top of the line to a higher perceived status. Occasionally, as in the case of the [VTL TL-7.5](#) line stage that I reviewed in October 2003, it genuinely denominates a component that is clearly superior to its competition in most aspects of performance.



While Lamm Industries has labeled preamplifiers and phono preamplifiers "Reference," it immediately struck me that the M1.2 is the first power amp to which Vladimir Lamm has applied the term. Despite the existence of the more expensive [ML1.1](#) and [ML2.1](#) tube amplifiers, this told me one thing: the M1.2 Reference is the best amplifier Lamm knows how to build. Lamm's press release describes it as "a pinnacle of its designer's professional career—a result of years of intensive research directed at attaining the most accurate reproduction of recorded music." Given that my past experience with Lamm amplifiers has taught me that they are consistently among the very best that can be had, this seemed to be a claim both audacious and plausible.

The main thing

The M1.1 was in production for more than 10 years with no changes, updates, or revisions. If that's not a record for a high-end amplifier, I don't know what is. Vladimir Lamm changes his products only when he feels he can offer a meaningful improvement in performance, not when it seems expedient to introduce a new model or variant. According to Lamm, the only reasons the M1.1 has been updated are that better parts are now available, and that 10 years of collecting performance data justified a redesign.

Lamm's website states that the M1.2 features "totally redesigned high and low voltage power supplies for the front end" as well as replacement of "some critical parts . . . with higher quality ones which have appeared on the market recently." The output stage has been revised, and the quality of the main printed-circuit board has been substantially improved. The M1.2 is rated at 110W of pure class-A power into 8 or 4 ohms, up 10% from the M1.1. Lastly, a 230V tap has been installed on the power transformer.

What hasn't changed much about the M1.2 is its external appearance—it's still as straightforward, businesslike, and sensible¹ as ever. As usual, all of the external hardware and switchgear is of impeccable quality. Unfortunately, it's not

possible to update an M1.1 to M1.2 Reference status, as this "would require replacement of all key elements, with the exception of the left and right metal sides, heatsinks, and top and bottom covers."

The M1.2 is hefty at nearly 70 lbs, but it's not a pumped-up, immovable monster—it's built as heavily and stoutly as it needs to be. Nor is it styled or packaged to appeal to those who select components with their eyes rather than their ears. Look inside—everything is neatly organized and exquisitely built, bespeaking careful attention to every detail. The physical experience of a Lamm product is a manifestation of the Einsteinian dictum: Make everything as simple as possible, but no simpler.

The M1.2s proved themselves bulletproof in everyday use. Even pounding the stuffing out of them driving the Innersound Kayas' electrostatic panels (a wildly difficult load—see John Atkinson's [measurements in the December 2004 issue](#)) at very loud volumes with techno-pop and electronica caused them no difficulties².

Flesh and blood

It would be an exercise in futility to try to describe the sound of the Lamm M1.2 Reference by running through a checklist of sonic characteristics—its effect on me couldn't be categorized or quantified that way. I shall do my best to explain what the pair of them did in my listening room.

The M1.2's defining character trait was unflinching honesty in conveying the true nature of the music that passed through it. It did not strip away veils so much as it seemed to eliminate most of the intermediate steps that lay between the original performance and its reproduction. Try as I might, I could not hear the M1.2 adding anything. And while I can't be certain that it subtracted anything, it let as much—if not more—through to the speakers as I have heard from any other amplifier.

Dynamic and transient responsiveness were ideal and seamless. Many a well-engineered amplifier can show with a clear sense of contrast the differences between *piano* and *mezzo-piano*, between *forte* and *mezzo-forte*. But if dynamics could be measured on a 1–100 scale, the Lamm was just as good at making clear the difference between 35 and 36 or 81 and 82 as it was at contrasting 40 and 60. The wallop factor was plainly demonstrated with "Kung Fu World Champion," from the dazzling young pianist Hiromi's *Brain* (SACD, Telarc SACD-63600). The deep, commanding synth bass and drum thunderbolts had whiplash-inducing force and clarity, an immediacy and liveness that fully engaged not only the ears but the mind and heart. A few tracks later, on "Green Tea Farm," Hiromi paints a lovely, Bill Evans–like picture of the part of Japan where she grew up. Everything about it is delicacy and nuance, but even as the Lamm corralled every intricacy, it perfectly articulated Hiromi's remarkable pianistic technique.

In terms of timbre, the Lamm was something of a walking contradiction—or, perhaps, more of a perfect Hegelian synthesis of seemingly contradictory characteristics. It was bogglingly transparent and had state-of-the-art resolving capabilities, but that was only half the story. That resolution and transparency were combined with a harmonic completeness, timbral richness, and glow reminiscent of Conrad-Johnson electronics from the mid- to late 1980s, only without the slowness and caramel coloration.

Anyone who has ever heard Marshall guitar amplifiers up close knows that they have a sound that cannot be duplicated or faked. A guitarist friend of mine was shopping for an amp not long ago. I tagged along as he played through a number of amps, including hybrid and tubed Marshalls, and we both swiftly came to one conclusion. A tubed Marshall has the ability to pop the overtones of a plucked string into space with singular definition and presence, especially when overdriven and distorted. It is a highly complex event that occurs as one highly complex event. Rock recordings from the 1960s and '70s necessarily blunt this effect, as do most audio amplifiers.

The Lamm M1.2 offered a different view. Mountain's Leslie West was a master of what was called, back in the day, the "woman tone"—a wailing, soulful, yearning sound that came only from a Gibson guitar played through an overdriven Marshall tube amplifier. It was not harsh or aggressive but plaintive and rounded, and generated a surfeit of compound overtones as the guitar amp was overloaded. Even on the abysmally recorded "Flowers of Evil," from the album of the same name (LP, Windfall 5501), West's guitar had something very near the completeness I heard in the music store when my friend was auditioning amplifiers with his Gibson. What struck me was the way West's chording was captured; through the M1.2, it was no longer the muddy mass of distortion I have been hearing for so long. Now it was a richly textured carpet of interrelated harmonics. Vocals were a special delight. Vikki Clayton³, Frank Sinatra, Sandy Denny, the Sugar girls—all sounded more present, more real, so easily believable with the Lamms driving any of the speakers I had on hand. Their midrange was not *lifelike*—it was alive.

¹ Why, oh why, do so few manufacturers of heavy, solid-state amplifiers not follow Lamm and Plinius in putting handles on the front and rear panels?

² Occasionally, a couple of hours of similar music through the [McIntosh MC501](#)s and the s caused the Macs to go into thermal shutdown.

³ On Fairport Convention's *The Cropredy Box* (UK CD, Castle Music CMETD815).



The Lamms were uncannily accurate at expressing the way each instrument or voice projected into space. A voice, an acoustic guitar, a horn—all have extremely different and distinctive patterns of projecting sound. The M1.2s' ability to particularize each instrument in its natural way was always captivating, contributing so much to the sheer believability of its sound. Imaging was, therefore, extremely convincing. There were times I was struck by the thought that if the images of singers at the front of my room were any more real, I could poke them with a pin and they would bleed.

Bass performance was utterly unremarkable in the best possible way. With the [EgglestonWorks Andra II](#) and Legacy Whisper loudspeakers, the Lamm did exactly what each LP or CD asked for however low it was required to go. There was no exaggeration of low frequencies, and the transition between upper bass and lower midrange was determined solely by the speaker. There was, however, exactly the right amount of midbass authority—the rule of the day was speed and pitch definition devoid of artificial bloat.

One sonic characteristic set the M1.2 apart from other Lamm amps I have auditioned. The earlier generation of amps had a slight, residual darkness in the top octave. For whatever reason, that has been mitigated to a great degree in the ML1.2 (see my [Follow-Up](#) on the ML1.1 in the January 2004 issue), and seemingly banished entirely from the M1.2. There was a bit more sparkle and extension in the M1.2 than in the other Lamm amps I've heard, adding the final touch of realism to what was already exemplary performance.

Soundstaging performance was simple to describe: What was called for by the recording appeared in the room. Given an enormous artificial environment, such as that on Siouxsie and the Banshees' *Wheel's On Fire* (UK 12" single, Wonderland SHEK 11), the Lamms responded by flinging a gargantuan space into my room, within which every instrument and voice was precisely placed. I could have sat and drawn maps of the shapes and layouts of the orchestras revealed by the Skrowaczewski/Minnesota Orchestra recording of Ravel's *La Valse* (SACD, Mobile Fidelity UDSACD 4002) and the Reiner/Chicago of Strauss's *Also sprach Zarathustra* (CD, RCA Living Stereo 61494-2), which perfectly reflected the very different shapes of the halls' stages.

What the M1.2 did that made it so endlessly fascinating was the way it presented the entirety of the musical picture as one unified, continuous, utterly coherent experience. Not sometimes and in some ways, but at *all* times in *all* ways, music was soulful, holistic, and organic through the Lamm. It was the *rightest* amp I have yet heard. Rather than acting as a mere "just the facts" reporter, the M1.2 probed much more deeply, to become a superlative teller of music's stories. Nor was it snobbish in the least. Its rightness and storytelling abilities were there just as much on such irresistibly charming piffle as Sugar's "Heart and Soul" (Japanese CD single, Toys Factory TFCC-89110) as on far more profound music, such as Ravel's *Daphnis et Chloé* (LP, Munch/Boston Symphony, RCA/Classic LSC-1893). In fact, the Lamm's superb resolution allowed the complicated, overcompressed mix of "Heart and Soul" to show far more of its inner workings, and revealed that the girls can sing some very stylish harmonies.

The Lamm did not knock me off my feet when I first heard it because it wasn't designed to do so. Like a Mercedes-Benz, it is made to impress over and for the long run with sustained and systemic excellence. In a strange way, this is an amp that will select only those who respond to it on the deepest levels of understanding.

More than this

I sometimes wonder if it is a coincidence that a large percentage of the components I find most compelling are the results not of market research or strategic planning, but are instead the product of one bold thinker's imagination and creativity. The Lamm M1.2 Reference is a prime example.

Getting only chump change back from \$20,000 for a pair of 100W amplifiers does not sound like much of a bargain, and in real-world economic terms, it isn't. The point of buying components such as the M1.2 is not maximizing economic efficiency but getting a piece of an artisan's vision. The M1.2 is the latest embodiment of Vladimir Lamm's concept of what an amplifier should be and do. A "bargain"? No. The M1.2 is something more and better than that; for anyone who knows and loves the sound of live music, it is something beyond such parsimonious concepts—when doing what it was created to do, it is worth every last penny of its price.

Anyone who can recognize a piano knows that a Kawai or Baldwin grand has the same structural elements as a Steinway or a Bösendorfer. Anyone who knows and loves pianos will, if humanly possible, opt for the handmade instruments, even given their towering prices. Those instruments embody not just the basics of what makes a grand piano, they incarnate a unique musical and artistic vision—the bases of which are intangibles that cannot be quantified but are well worth paying for, or at least aspiring to.

Avalon

Utterly continuous and coherent in all respects from top to bottom, the Lamm M1.2 References always spoke with one voice, whatever the variables I confronted them with in terms of music, speakers, source components, or cables. There is nothing else quite like them—anyone who hears and falls for them will find no ready substitute. It may be the most universally recommendable of my three favorite amplifiers. Both the [Halcro dm58](#) and the Atma-Sphere MA-2 Mk.III require some thought in system matching⁴. The Lamms simply did what they do regardless of their surroundings; if they speak to you as deeply and as truthfully as they spoke to me, your search is at an end.

Words are an audio reviewer's stock in trade, but each Lamm amplifier that I have reviewed has challenged my ability to describe its essence. At last, I admit defeat. Trying to explain the ultimate experience of listening to the M1.2 Reference and why it is so special is like trying to explain why you've fallen in love with someone; matters of the heart cannot be reduced to words on paper. There was a sense of *liveness* and *thereness* with the Lamms—a feeling of complete connectedness with the music that can be conveyed only unsatisfactorily and by analogy. Hearing music through nearly any other amps after hearing the M1.2s was the difference between seeing a very good lithograph of a masterpiece after seeing the original, from two feet away, in a museum.

From their massive shipping crates to the standard-setting owner's manual, from their clean, uncluttered styling to their incredibly compelling, truthful, nuanced sound, the M1.2s speak to the value of getting *all* of the little things right. When every detail has been taken care of, greatness follows naturally. You can find different, but you cannot find better. For once, "Reference" is not only the most accurate, but the only appropriate descriptor. Quite something other than else.

Sidebar 1: Specifications

Description: Hybrid monoblock power amplifier with solid-state input stage, tubed driver stage, and MOSFET output stage, comprehensive short-circuit protection, and High Impedance/Low Impedance bias settings. Tube Complement: 6922. Inputs: balanced on XLR with pin 2 wired as hot; two single-ended on RCA connectors in parallel with pins 2 and 3 of XLR; 12V trigger. Outputs: Two sets of brass, gold plated binding posts. Rated output power, high impedance setting (minimum continuous sinewave power, 20Hz–20kHz): 110W into 8 ohms (20.4dBW) at 0.3% THD, 220W into 4 ohms (20.4dBW) at <0.5% THD, 400W into 2 ohms (20dBW) at <1% THD, 600W into 1 ohm (18.75dBW). Rated output power, low impedance setting (minimum continuous sinewave power, 20Hz–20kHz): 110W into 4 ohms (17.4dBW) at <0.5% THD, 220W into 2 ohms (17.4dBW) at <1% THD, 400W into 1 ohm (17dBW). Frequency Response: 4Hz–155kHz, +0/–3dB (high impedance setting at 110W into 8 ohms at rated line voltage: 4Hz–155kHz, +0/–3dB (low impedance setting at 110W into 4 ohms at rated line voltage). Voltage Gain: 39 ±2% or 31.8dB ±0.2dB. Signal/Noise Ratio (ref. 29.7V RMS into 8 ohms (110 W) 22Hz–22kHz): typically 89dB, A weighted typically 96dB. Input Sensitivity: 761mV RMS ±2% for 110W into 8 ohms (High impedance setting); 538mV RMS ±2% for 220W into 2 ohms (Low impedance setting). Input Impedance: 41k ohms shunted by 470pF. Output Impedance (20Hz–20kHz): typically 0.082 ohms +0.007/–0.002 ohm. Power consumption: Typically 330W at rated output at 8(4) ohms (class-A operation) and at idle.

Dimensions: 17" (432mm) W by 8.25" (210mm) H by 19.5" (495mm) D. Add 2.8" (714mm) of depth for front and rear handles. Weight: 68.5 lbs (31kg) net, 94 lbs (42.7kg) shipping.

Serial numbers of units reviewed: A10291, A10292, (listening); A10301 (measuring).

Price: \$19,590/pair. Approximate number of dealers: 12.

Manufacturer: Lamm Industries, Inc., 2621 East 24th Street, Brooklyn, NY 11235. Tel: (718) 368-0181. Fax: (718) 368-0140. Web: www.lamindustries.com.

⁴ The Halcro, for all its excellence, would not be my first choice to pair with lean-sounding speakers; the output-transformerless Atma-Sphere would not be an appropriate match with a speaker with extended impedance dips below 3 ohms in the bass.

Sidebar 2: Associated Equipment

Analog source: [SOTA Cosmos Series III](#) turntable, [Graham 2.2](#) tonearm, Dynavector XV-1S cartridge.

Digital source: [Classé Omega](#) SACD/CD player.

Preamplification: [Manley Labs Steelhead](#) phono stage; [VTL TL-7.5 Reference](#), [BAT VK-51SE](#), Aesthetix Calypso line stages; [McIntosh C200](#) preamplifier (as line stage).

Power amplifiers: [McIntosh MC501](#) and Atma-Sphere MA-2 Mk.III monoblocks.

Loudspeakers: [Innersound Kaya Reference](#), Legacy Audio Whisper, [EgglestonWorks Andra II](#).

Cables: Phono: Hovland Music Groove 2. Interconnect: Cardas Golden Reference, [Acoustic Zen Silver Reference](#).

Speaker: Cardas Golden Reference, Innersound. AC: [Shunyata Anaconda Alpha & Anaconda vX](#), Siltech Ruby Hill, Wireworld Silver Electra 3+.

Accessories: [Shunyata Hydra 8](#) (front-end), Hydra 2 (amps) power distribution & conditioning; [Grand Prix Audio Monaco](#) stands, Ultra Resolution Technologies Bedrock stand; Ganymede isolation footers; Caig Labs Pro Gold contact enhancer; Walker Audio SST silver contact enhancer; Ayre/Cardas IBE system-enhancement CD, *Cardas Frequency Sweep/Burn-in LP*; Argent Room Lenses; Disc Doctor, LAST Labs record-care products.—**Paul Bolin**

Sidebar 3: Measurements

Before I perform any tests on an amplifier, I run it at one-third power into 8 ohms for an hour. For an amplifier with a class-B output stage, which the vast majority are, this power level thermally stresses the amplifier to the maximum extent. At the end of that time, even with its heavy class-A bias both the vertical heatsinks and the chassis of the Lamm M1.2 were almost too hot to touch, implying a temperature of around 55°C. However, the measured distortion level had dropped slightly, from 0.065% when cold to 0.058% when fully warm.

The Lamm was noninverting when driven via its balanced XLR input, which appears to be wired with pin 2 hot, and via the red unbalanced RCA jack (with the other, white jack shorted to ground with the supplied plug). The input impedance was to specification at 41k ohms (unbalanced or each phase of the balanced input) across the audioband. The balanced voltage gain at 1kHz into 8 ohms was high, at 31.7dB in both the High Impedance (Hi-Z) and Low Impedance (Lo-Z) bias conditions. The unbalanced gain, with the other input shorted, was the same, instead of 6dB lower, as expected.

The output impedance was consistent across the audioband, at 0.26 ohm, regardless of impedance setting. As a result, the modification of the amplifier's frequency response by the loudspeaker's impedance will be relatively small. With our [simulated speaker load](#) (fig.1, top trace at 2kHz), the response variation remained between ± 0.25 dB limits. This plot also reveals the M1.2 as having a wide, small-signal bandwidth, the top-end response being down 3dB at a very high 164kHz. At the other end of the spectrum, the amplifier was flat down to below 20Hz.

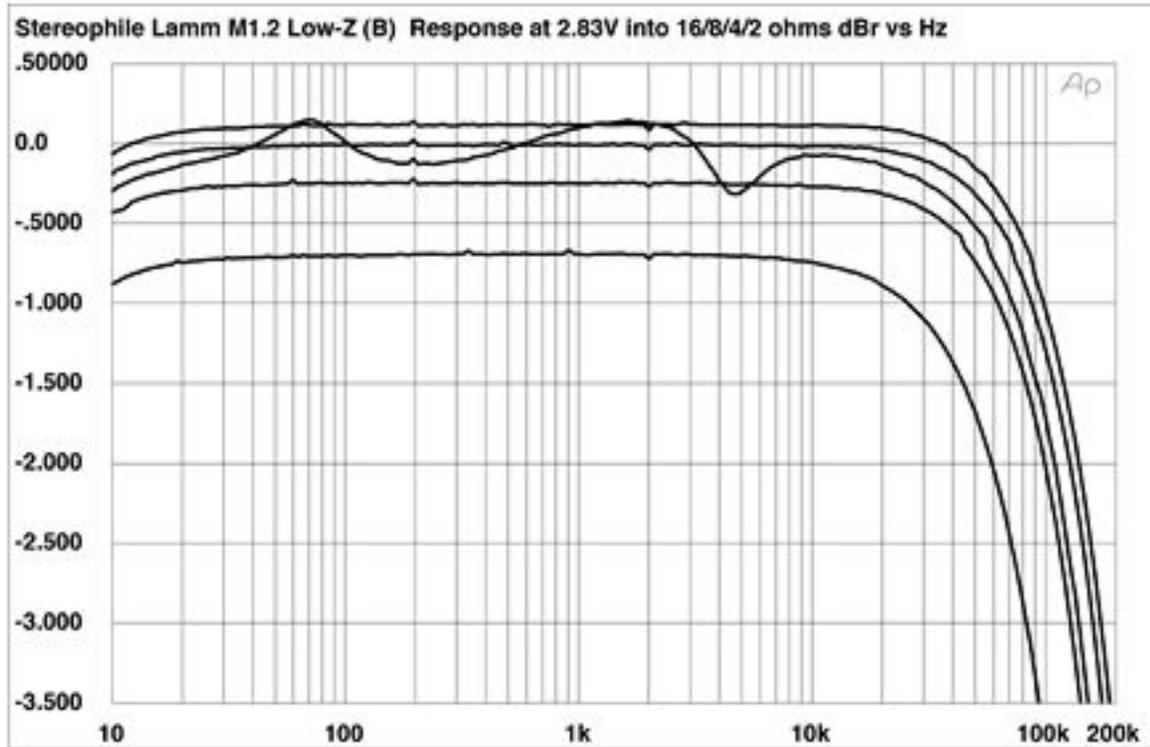


Fig.1 Lamm M1.2, Low Impedance setting, balanced frequency response at 2.83V into (from top to bottom at 2kHz): simulated loudspeaker load, 16 ohms, 8 ohms, 4 ohms, 2 ohms (0.5dB/vertical div.).

This wide bandwidth is reflected by the sharp corners and short risetimes in the shape of a 10kHz squarewave (fig.2). Both of these graphs were taken with balanced drive and were identical for both impedance settings. When I repeated the tests with unbalanced drive signal, I got a very similar result. Fig.3 shows the M1.2's small-signal frequency response into 8 ohms with an unbalanced input (shorting the unused signal phase to ground with the supplied shorting plug). It is the same as fig.1.

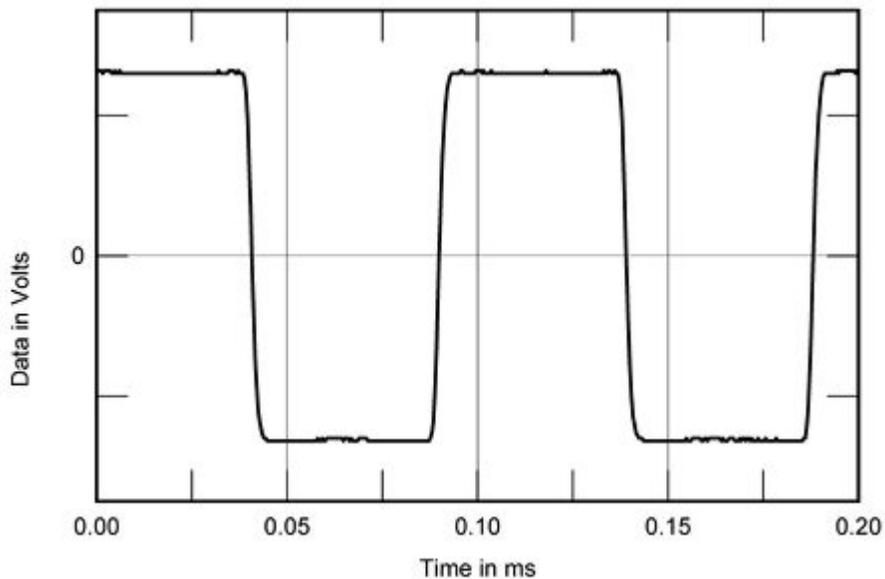


Fig.2 Lamm M1.2, balanced small-signal 10kHz squarewave into 8 ohms.

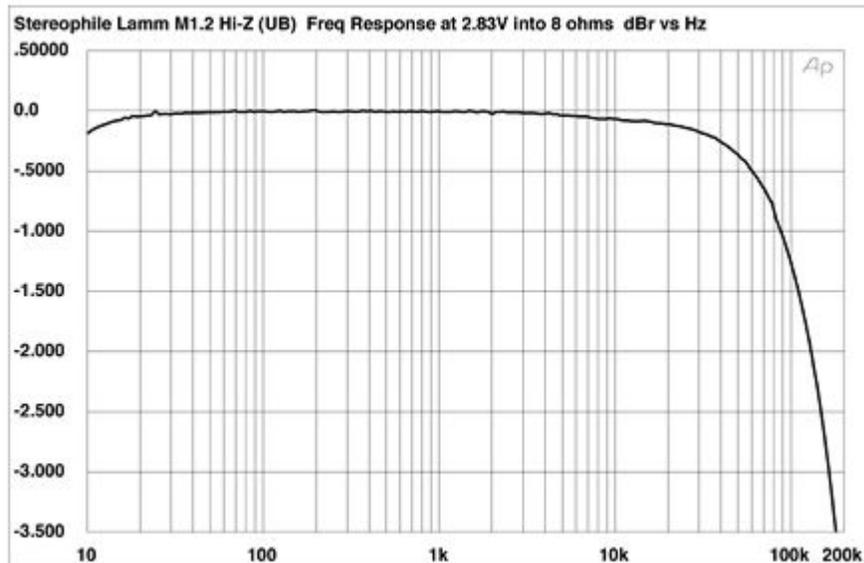


Fig.3 Lamm M1.2, High Impedance setting, unbalanced frequency response at 2.83V into 8 ohms (0.5dB/vertical div.).

Perhaps due to the higher-than-normal gain, the Lamm's signal/noise ratios were good rather than great, at 72.2dB ref. 1W into 8 ohms (unweighted, wideband). Switching in an A-weighting filter increased this figure to 79dB. Fig.4 shows how the THD+noise percentage present in the M1.2's output varies with output power with the Hi-Z bias setting into loads varying from 2 to 16 ohms. The amplifier comfortably exceeds its rated output power, giving out 180W into 8 ohms (22.6dBW), 305W into 4 ohms (21.8dBW), and 490W into 2 ohms (20.9dBW), all at 1% THD. For comparison, fig.5 shows what happens with Lo-Z output-stage biasing: the maximum output power is almost halved, but the signal benefits from significantly lower distortion into low impedances.

I looked at the measured THD+N percentage at an output power where figs.4 and 5 suggest the distortion spuria are starting to rise out of the noise floor. Fig.6 shows that with the Hi-Z setting, the amplifier's good linearity is not significantly affected by either frequency or output current with loads of 4 ohms or above. In the Lo-Z conditions (fig.7), the THD+N trace into 2 ohms is as low as those into higher impedances.

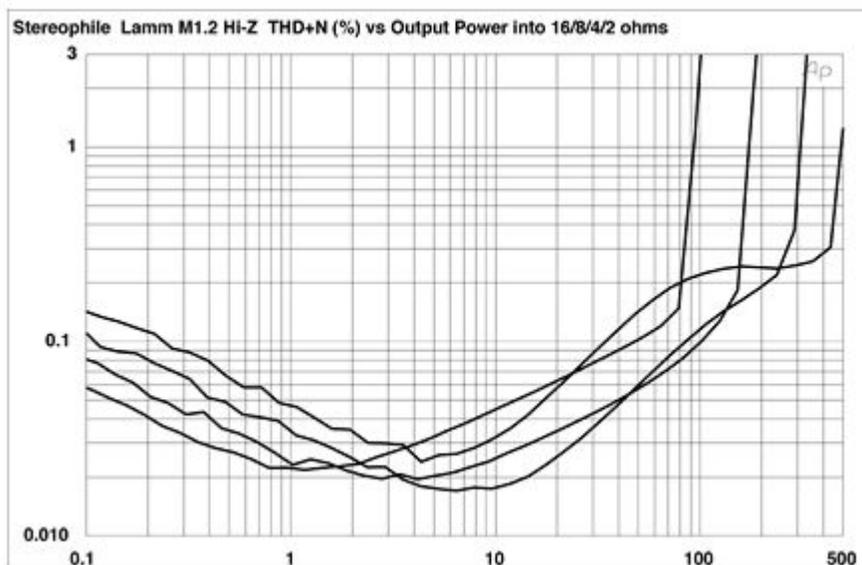


Fig.4 Lamm M1.2, High Impedance setting, distortion (%) vs 1kHz continuous output power into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

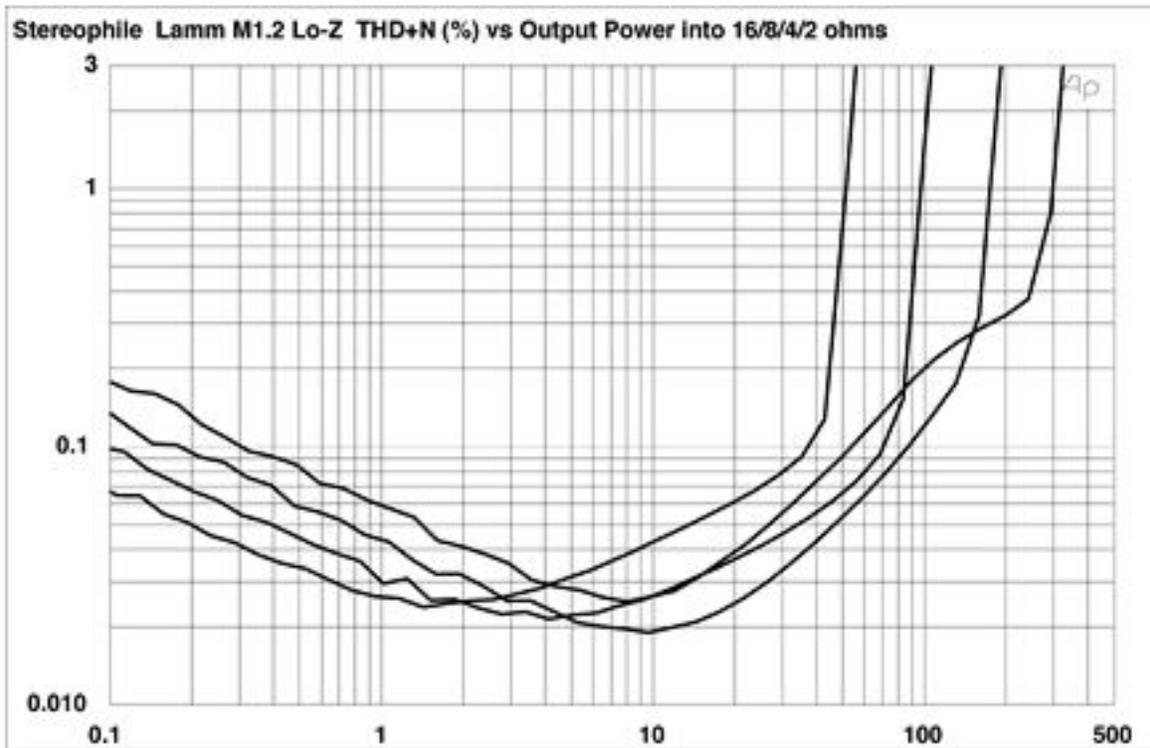


Fig.5 Lamm M1.2, Low Impedance setting, distortion (%) vs 1kHz continuous output power into (from bottom to top at 1W): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

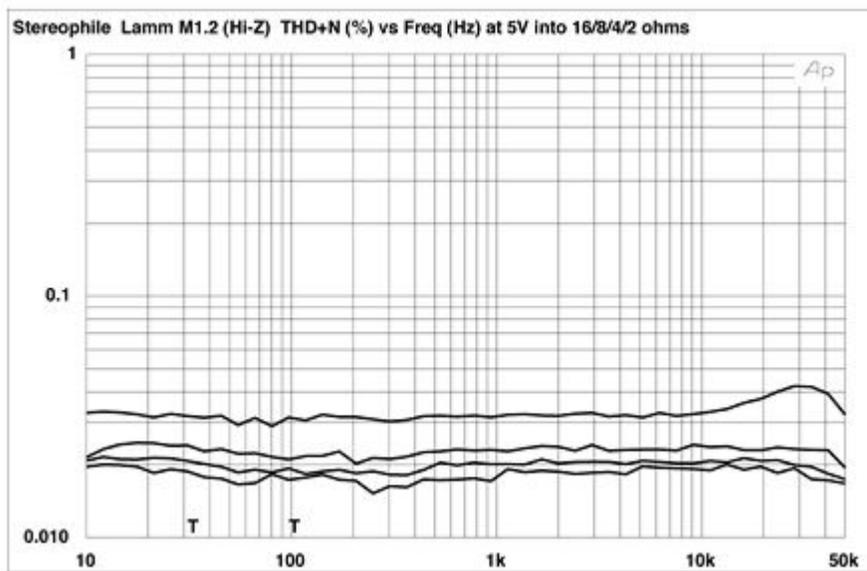


Fig.6 Lamm M1.2, High Impedance setting, THD+N (%) vs frequency at 5V into (from bottom to top): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

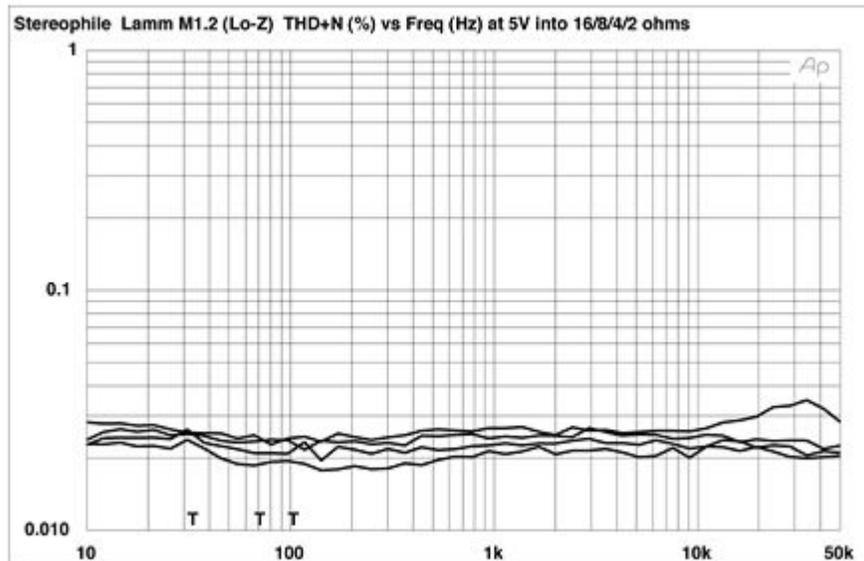


Fig.7 Lamm M1.2, Low Impedance setting, THD+N (%) vs frequency at 5V into (from bottom to top): 16 ohms, 8 ohms, 4 ohms, 2 ohms.

Of more important subjective importance, the distortion at low levels or into higher impedances is low-order, mainly second-harmonic (fig.8). Dropping the load impedance or increasing the power introduces some third-harmonic content (fig.9), but the THD is commendably free from higher-order harmonics. This is graphically shown in fig.10, the spectrum of a low-frequency tone taken at a very high level into 8 ohms (Hi-Z biasing). The third harmonic is a little higher than the second, but both are below -60dB (0.1%), while the fourth and fifth harmonics are at or below -80dB (0.01%). You can also see the 120Hz power-supply component in this graph, though it lies at -100dB , which won't worry listeners. Fig.11 shows a similar spectrum taken with the amplifier driving a 50Hz tone at 195W into 4 ohms. Intermodulation distortion was also relatively low, even close to clipping into 4 ohms with the Hi-Z bias setting (fig.12).

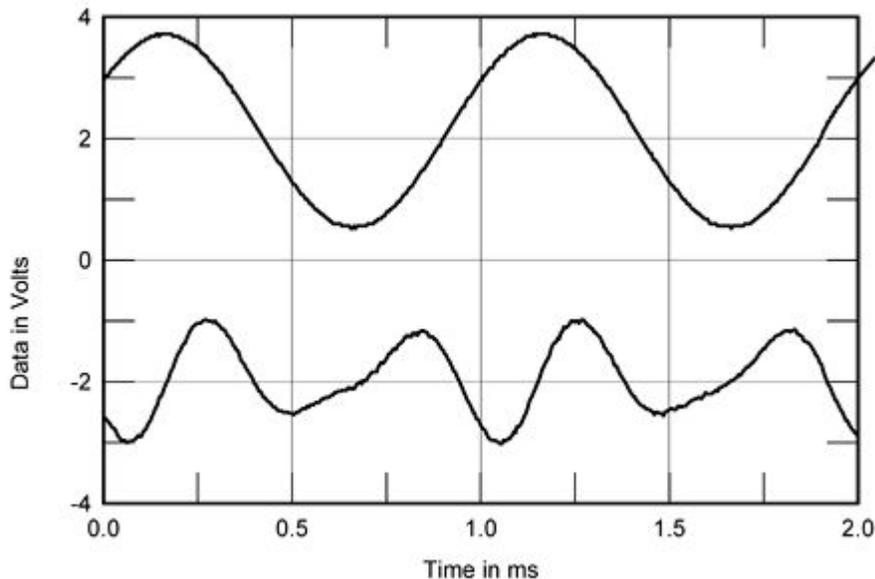


Fig.8 Lamm M1.2, High Impedance setting, 1kHz waveform at 16.7W into 8 ohms (top), 0.033% THD+N; distortion and noise waveform with fundamental notched out (bottom, not to scale).

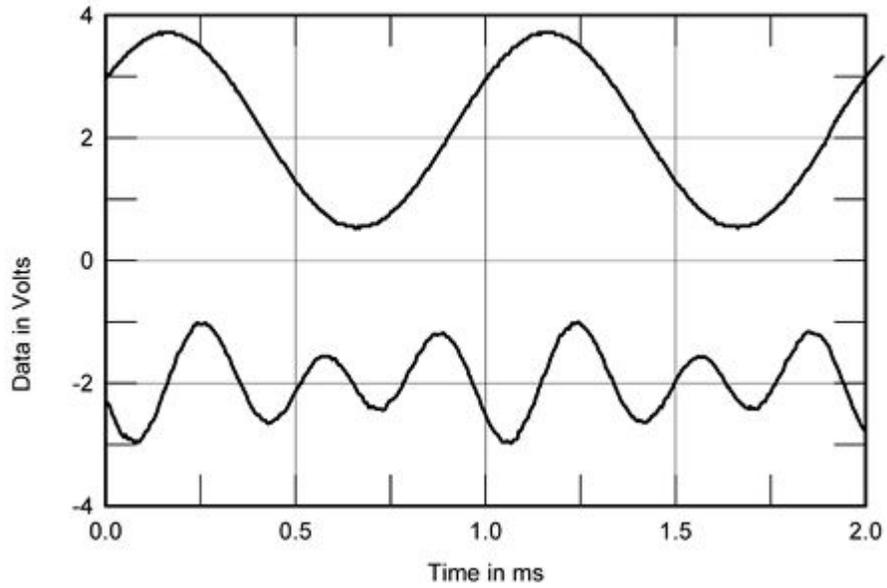


Fig.9 Lamm M1.2, High Impedance setting, 1kHz waveform at 31.6W into 4 ohms (top), 0.032% THD+N; distortion and noise waveform with fundamental notched out (bottom, not to scale).

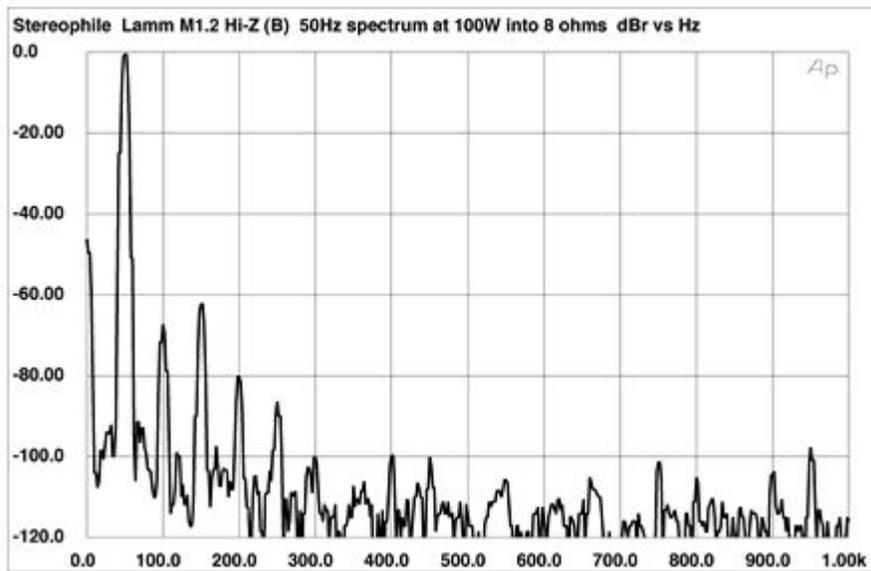


Fig.10 Lamm M1.2, spectrum of 50Hz sine wave, DC–1kHz, at 100W into 8 ohms (linear frequency scale).

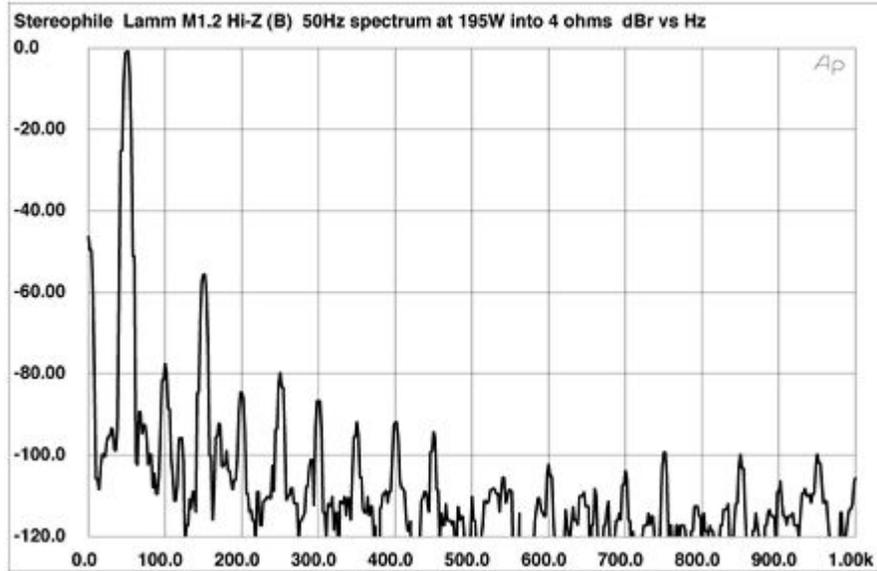


Fig.11 Lamm M1.2, spectrum of 50Hz sine wave, DC–1kHz, at 100W into 8 ohms (linear frequency scale).

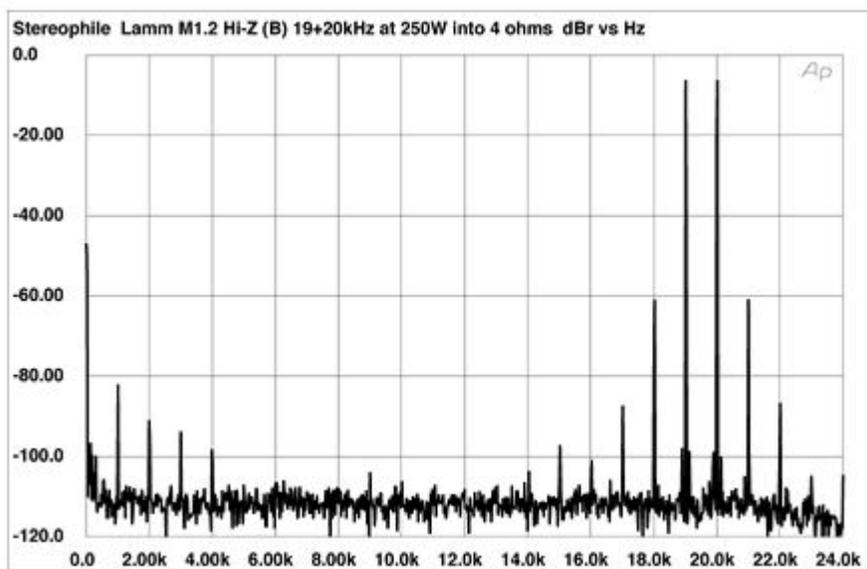


Fig.12 Lamm M1.2, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 250W peak into 4 ohms (linear frequency scale).

As I have found with other amplifiers designed by Vladimir Lamm, the M1.2 offers fundamentally good measured performance.—**John Atkinson**