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Display until November 26, 2002



Unpacking and installing a new component is always cause for excitement, even if one does it with almost mechanical regularity, and the anticipation is greater when the component is from a manufacturer of almost mythic reputation. So when John Atkinson asked if I'd like to audition Nagra's new PL-L preamplifier, I feigned calm as I accepted the assignment, even while remembering those years in college radio when I had to

schlepp big Ampexes and Maggies. The sexy, portable Nagras were the stuff of dreams. Finally, I thought, I'd get my hands and ears on one.

But this line-level preamp without phono stage made me think about what, in this age of digital sources and standalone phono stages, is a preamp's fundamental role. Well, as one can see from the popularity of so-called "passive" preamps, that true function is the attenuation and adjustment of the signal level and, usually, the selection of signal source. Yet today's preamp market encompasses everything from the bone-simple EVS attenuators to the open-ended complexity of the modular preamps from Meridian, Boulder, and Viola Audio Laboratories.

The compact Nagra PL-L is sort of in the middle, and far from the elaborate end of the spectrum. While it's nominally a consumer product, the PL-L reeks of Nagra's professional heritage: It's a very tidy box with inputs on one side of its front panel, outputs on the other, and three basic controls: volume, balance, and input selector. Even including its separate power-supply brick, it's smaller than any preamp I'd ever used, and downright minuscule in comparison to my reference Sonic Frontiers Line-3.

However, you'd be wrong to assume that the PL-L is functionally compromised in comparison to most larger preamps. First, it has four inputs, three outputs, an extremely informative level meter, and a full-function remote control that will, I'm told, be able to operate many other Nagra components in the near future. Second, the PL-L is built in the Nagra tradition, which successfully bridges hand- and eye-pleasing design with no-nonsense professional solidity. For example, the aging of the three tubes is monitored by a usage timer on the circuit board. Third, it sounds...well, I'm getting to that.

The input jacks are on the left side of the chassis rather than the rear. While inputs B, C, and D are single-ended RCAs, A is a pair of single-ended XLRs in which pin 2 is hot and pins 1 and 3 are grounded. Connection of a balanced



source (or an unbalanced one with pin 2 hot) will work fine, but, depending on whether the balanced source uses the American/IEC or the Japanese convention for XLR wiring, you'll get one polarity or the other. The PL-L doesn't include a polarity switch, and, since absolute polarity of program sources is unpredictable, you can count on getting absolute polarity right only about 50% of the time. On the other hand, that's no better or worse than with *any* device of fixed polarity. There's also a sturdy ground post on this side panel.

The selectable output jacks are on the right side panel of the chassis. Output 1 consists of two stereo pairs of

**Description:** Tube line-level preamplifier. Tube complement: two 12AX7/ECC83, one 12AT7/ECC81. Inputs: 3 line-level (RCA), 1 single-ended (XLR). Outputs: 2 single-ended RCA, 1 single-ended XLR (transformer-coupled balanced XLR optional). Input voltage for 1V output: 250mV–25V, adjustable. Input impedance: >110k ohms. Output impedance: 60 ohms. S/N Ratio ref. 1V: >88dB A-weighted. Dynamic range: 100dB. Bandwidth: 20Hz–100kHz, +0/–1dB. Distortion: <0.02% (1V out, no load 1kHz), <0.10% (2V out, 600 ohm load). Power consumption: 12V, 900mA.

**Dimensions:** 12.2" W by 3" H by 10" D. Net weight: 7 lbs.

**Serial numbers of units reviewed:** 5540331, 5440346.

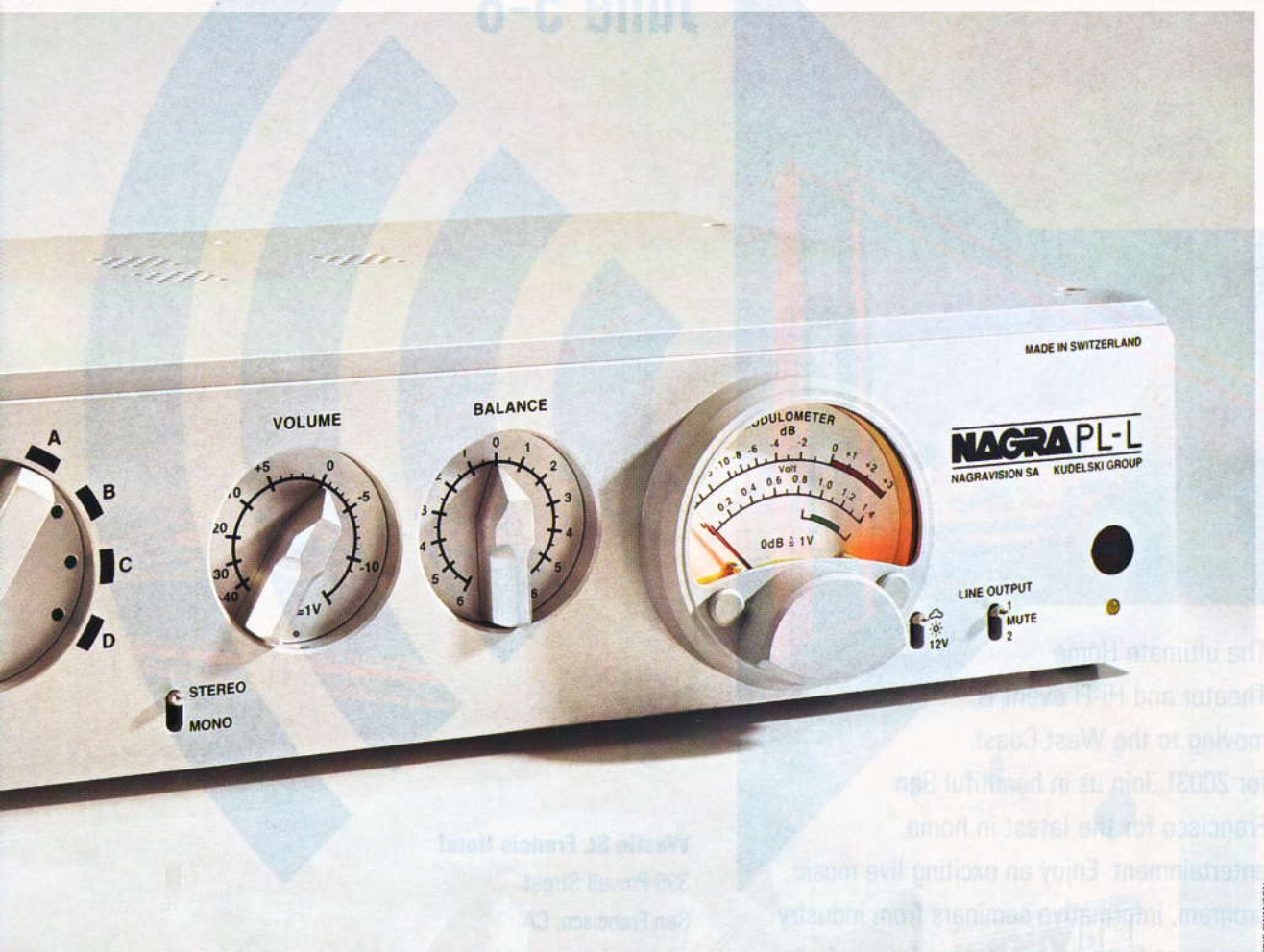
**Price:** \$6000. Remote control, add \$800; balanced outputs, add \$400. Approximate number of dealers: 18.

**Manufacturer:** Nagravision SA/ Kudelski Group, Route de Genieve 22, CH-1033 Cheseaux, Switzerland. Tel: (41) (0)21-732-0101. Fax: (41) (0)21-732-0100. Web: [www.nagra.com/nagraaudio](http://www.nagra.com/nagraaudio). US distributor: Audiophile Systems, Ltd., 8709 Castle Park Drive, Indianapolis, IN 46256. Tel: (888) 272-2658, (317) 841-4100. Fax: (317) 841-4107. Web: [www.audiophilesystems.com](http://www.audiophilesystems.com).





# Nagra PL-L tube preamplifier



ERIC SWANSON

RCA jacks, available simultaneously. Output 2 is a pair of XLRs that can be unbalanced, like the XLR input, or fully balanced and floating with the optional output transformers. Also on the right side is the LEMO socket for the power-supply umbilical, which supplies 12V to the PL-L. The hefty power supply runs pretty warm; be careful where you hide it.

The front panel, from left to right, has the input, volume, and balance knobs. The input selector has a power Off position and, if one turns it to the setting just beyond Input D, a position that enables the remote control to select input and power On/Off. In the other

input positions, the remote controls only volume and balance. To the right of center is the Nagra Modulometer, a level meter whose independent left- and right-channel indicators have a ballistic response that permits the user to see the correct magnitude of signals, regardless of their duration. This is particularly useful for assessing brief, spike-like events. To the meter's right is a small toggle that turns the meter lamp on or off or, in its spring-return third position, sets the meter to indicate the power-supply voltage. Next to that is another toggle to select between outputs, with Mute in the intermediate position. The remote control's receiver

and indicator are at the extreme right end of the panel.

Inputs on the left, outputs on the right, controls on the front—doesn't that sound like the ever-fastidious Swiss? And on the back? Nada. But wouldn't you know it—my sources are all to the right of the preamp on my double rack, and my power amps are all on the other end of the room, to the left. I thought, briefly, about turning the PL-L upside down, but concerns about cutting off ventilation to the tubes stopped that. I also mused about Nagra offering both recto and verso versions of the PL-L, but quickly recognized the folly of that as well. So, in



my setup, the input and output interconnects crossed paths behind the PL-L. No problems resulted.

I tend to leave my solid-state power amps on all the time, and so far, the preamps I've used have been well-behaved enough—with few or no on/off transients, whether by design or by my use of muting—to let me get away with this. The PL-L, however, made two noises: a small *pop* on turn-on, and, after a prescribed 15-second mute, another *pop*, the magnitude of which could be disturbing at my normal volume setting. The problem was that I tended to use power Off rather than the well-behaved Mute control, because 1) it's more prominent on the front panel, 2) it's more boldly labeled and attractive on the remote, and 3) I know that tubes have finite life spans.

In the hope that my first sample was somehow defective, Nagra's US distributor, Audiophile Systems, Ltd., supplied another, already wrung out to their satis-

## The only remaining gripe I might possibly have had about the PL-L was its lack of any tape ins/outs.

faction at Home Entertainment 2002. The second unit performed, in all ways, exactly as the first. So, even though the PL-L has no turn-off transients, do ob-

serve the rules and turn the power amps on last and off first.

### No Complaints

The only remaining gripe I might possibly have had about the PL-L was its lack of any tape ins/outs, but that's a reflection of its professional heritage. In the studio or recording on location, all the signal manipulation for recording will be handled by the console; the PL-L will be used only for listening and monitoring.

In that task, the PL-L was absolutely satisfying and enjoyable. Noise was never noticeable at any gain setting, and all controls worked silently and smoothly. Fed from turntable, CD, or radio, the PL-L was revealing and natural, imparting little personality or coloration of its own. How can I know that? Well, I can't

## Measurements

The Nagra PL-L preserved absolute polarity for both unbalanced and balanced signals, its XLRs appearing to be wired with pin 2 hot, the AES/IEC standard. Its input impedance at 1kHz was lower than specified, at 29k ohms, though this will not be a problem. The maximum voltage gain into 100k ohms was 12dB from both sets of outputs, as indicated on the volume control. The calibration of the modulometer was accurate, an indicated "0dB" indeed giving unity gain. The unbalanced output impedance was 36 ohms across most of the audioband, this increasing slightly to 125 ohms at 20kHz. The balanced figures, from the optional transformer-coupled XLR output, were 63 ohms at 1kHz, 66 ohms at 20kHz, and 158 ohms at 20kHz.

The increase in source impedance at low frequencies gives rise to a slight rolloff when the PL-L is used to feed very low impedances; for example, the -3dB point into 600 ohms lies at 11Hz (fig.1). The ultrasonic response is sensibly rolled off by 1dB at 79kHz from the single-ended outputs and a little earlier from the balanced, at 33kHz, which results in a slight droop of -0.75dB at 20kHz. Note the 0.25dB channel imbalance in fig.1. I had used the balance control and the modulometer to equalize the channel levels at the unity-gain setting of the volume control. The imbalance crept in when

the volume was set to its +12dB position, as it was for this graph.

The A-weighted signal/noise ratio, ref. 1V output and taken with the unbalanced input shorted and the volume control set to +12dB, was superb at 97dB. The unweighted audioband ratio was almost identical at 97dB, though increasing the measurement bandwidth to 500kHz worsened the figure to 67.5dB. Channel separation (fig.2) showed a uniform decrease with increasing frequency, presumably due to capacitive coupling. The crosstalk is still -50dB at 20kHz, so this should not have audible consequences.

The downward slope of the THD+noise trace with increasing frequency (fig.3) shows that the Nagra's distortion is below its noise floor at less than 2V output into higher impedances. With clipping defined as 1% THD, the PL-L could

deliver 6V into 100k ohms and 5.5V into 10k ohms, both figures more than adequate to drive real-world amplifiers to their maximum power. (The balanced outputs were identical in this respect.) Fig.3 reveals that the PL-L is working hard into 1k ohm, with an earlier increase in THD and a reduced clipping level of 2.8V. This load is unlikely to be encountered in

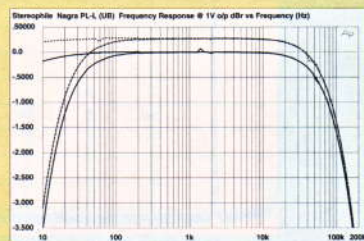


Fig.1 Nagra PL-L, unbalanced frequency response into 100k ohms (top) and 600 ohms (bottom), with volume control at maximum (0.5dB/vertical div.).

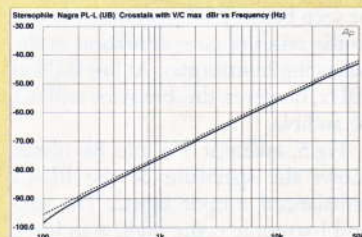


Fig.2 Nagra PL-L, unbalanced channel separation (R-L dashed, 10dB/vertical div.).

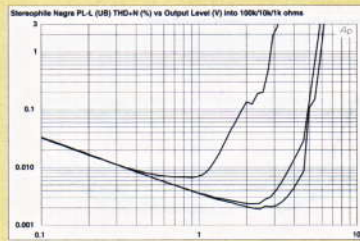


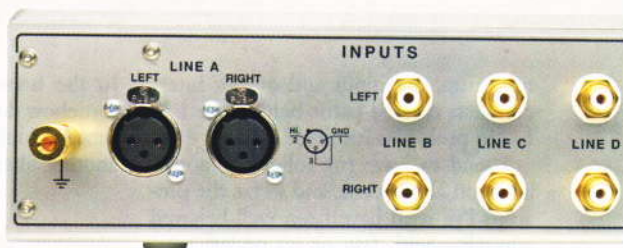
Fig.3 Nagra PL-L, distortion (%) vs unbalanced output voltage into (from right to left at 3%): 100k, 10k, and 1k ohms.



know for sure, but familiar and subtle differences among sources and power amps were as distinct as I'd ever heard. To me, this means that the PL-L must be low in distortion and flat in frequency response, or else these differences would have been smeared and obscured.

I used the PL-L with both the RCA and the balanced XLR outputs and could find little to distinguish them in terms of noise. However, I did think that the direct-driven single-ended outputs were just a tad more dynamic and lively. I noted this particularly in the *Menuetto* of Haydn's Symphony 88, with Thomas Fey conducting the Heidelberg Symphony (Hänssler Classic CD

98.391). Those of us raised on Furtwängler's classic Berlin recording will have had our eyebrows well raised before this third movement, but in Fey's account, brass accents are notably crisp and acute. Switching from the XLR (via AudioQuest) to the RCA (via Cardas) outputs, those accents glinted even more while remaining acoustically natural. Furtwängler might disagree — his accents were less pointed, his pace more slow and playful. Still, Fey's performance is not fey at all, but a brisk, dynamic account that the PL-L,



view of the left side



through either output, presented more crisply than the Sonic Frontiers Line-3 or the Simaudio P-5. Those preamps seemed a bit more distant, requiring greater concentration to hear the details with equal

## Measurements

domestic systems, but fig.3 does suggest that the PL-L not be used to drive "professional" 600 ohm loads.

Fig.4 plots the THD+N percentage against frequency at an output level of 2V, where fig.3 had suggested that the PL-L's distortion was starting to emerge from the noise floor. The unbalanced behavior (bottom traces) is superb, with only small rises apparent above and below the audioband. The balanced traces (top) are very slightly worse than the unbalanced over most of the band, but a greater rise in the measured percentage can be seen below 25Hz, presumably due to the onset of core saturation in the balancing transformer. At just 0.1% at 10Hz, however, this behavior will not be audible.

Fig.5, taken at 1V into 8k ohms, shows the spectrum of the PL-L's unbalanced output signal. The second harmonic is the highest in level, if the word "high" is even appropriate for something at -97dB (0.0014%), with any higher harmon-

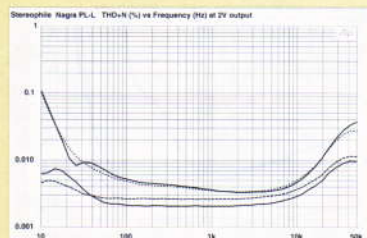


Fig.4 Nagra PL-L, THD+noise (%) vs frequency at 2V into 100k ohms: balanced (top), unbalanced (bottom) (right channel dashed).

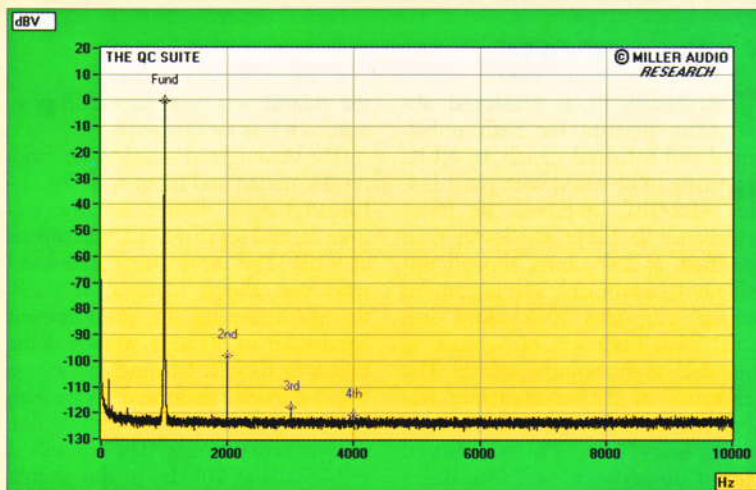


Fig.5 Nagra PL-L, spectrum of unbalanced 1kHz sinewave, DC-10kHz, at 1V into 8k ohms (linear frequency scale, 10dB/vertical div.).

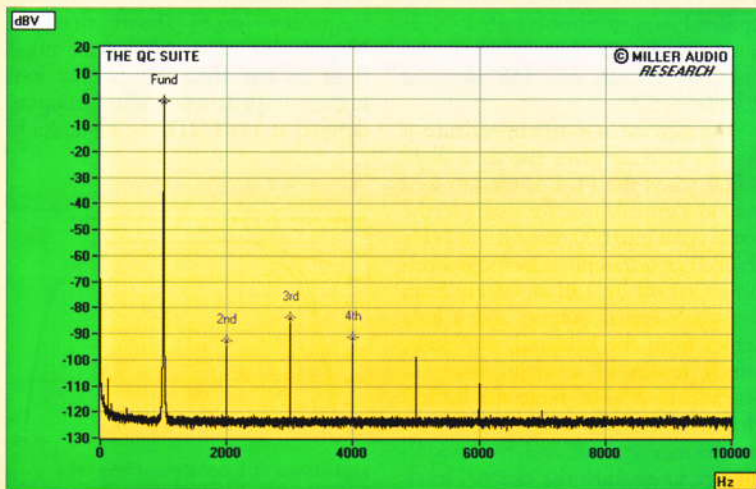


Fig.6 Nagra PL-L, spectrum of unbalanced 1kHz sinewave, DC-10kHz, at 1V into 1k ohms (linear frequency scale, 10dB/vertical div.).



distinction. The difference between the Nagra and the others persisted when I defaulted to the balanced outputs, which made my comparisons easier.



view of the right side

The PL-L was not unsubtle; in terms of ambience and depth, it was the equal of the best units auditioned. On the above-mentioned Haydn and on *Shaker* (Chesky JD236), the follow-up to David Johansen and the Harry Smiths' successful first Chesky CD, the perception of performers placed in an acoustic space was superb. I attended recording sessions for both Smiths CDs and the illusion matched my acoustic memory of the recording venue, Manhattan's St. Peter's Church. On the day I was there for the *Shaker* sessions, I heard a half-dozen takes of "Deep Blue Sea," and I remember the one that made it

onto the disc because of Johansen's *sotto voce* "I want to make this one right" at the beginning. Through the PL-L, it was easy to hear how he got closer and closer to the mike as his voice got softer and softer, verse by verse. Nor was this intimacy achieved at the expense of the sense of ensemble or, indeed, of impact. Johansen and the Chesky team got it right and the PL-L revealed it all, showing how good a monitoring tool it really is.

But the biggest boot I got with the PL-L was with the arrival of the ABKCO SACD sampler, *The Rolling Stones, Remastered*. Now, I ain't much of a Stones fan, and I've got only one of their classic CDs, bought at my wife's insistence. However, even she, as uninterested in sound and equipment as she claims to be, found that CD raucous, muddy, and nearly unlistenable. The new stereo remastering, whether via the CD track or the full-blown SACD track, is something else. Perhaps I'm revealing the limitations of my own experience of the Stones' recordings (I *have* heard them live!), but I had never before heard 1) Mick Jagger's voice so present and palpable, 2) clear distinctions between the other voices and instruments, 3) decent dynamics, or 4) any sense of "air" in the acoustic. Of course, these old master tapes will always lack the richness of a modern recording. Nonetheless, via the PL-L, I probably got as close to the original session sound as is possible.

The PL-L's quickness and microdynamics were noticeable when compared to the Sonic Frontiers and Simaudio preamps. It wasn't that those models lack these capabilities, and it wasn't that the PL-L exaggerated them; it was just that the PL-L had a bit more snap. On the other hand, the SF and Sim seemed richer than the PL-L from the midrange down, but without getting a bit overripe, as the Blue Circle BC-21 does. The PL-L had excellently deep and weighty bass; my preference for the SF in this regard is very dependent on my specific speakers and room acoustics. Driving an active studio monitor with balance/EQ incorporated—or, indeed, any slightly warmer amp and speaker—would likely turn the tables regarding my preference.

These observations should not be taken to mean that the PL-L sounded "bright," independently of or in contrast to the SF and Simaudio preamps. In fact, the PL-L's combination of midbass lightness and treble smoothness only encouraged me to turn up the wick a bit

ics at -116dB or below. Reducing the load to 1k ohms makes the pre-amp work much harder, as expected from fig.3. The sum of the harmonics rises from 0.0014% to 0.009%, and, as fig.6 shows, not only have the second through fourth harmonics all risen significantly in level (particularly the third), but they are now joined by some higher-order spurs. Again, the Nagra's superb linearity will be achieved only into higher impedances.

Finally, fig.7 reveals that, even into 1k ohms, the PL-L has very low levels of intermodulation distortion, the 1kHz difference product from the full-scale mix of 19kHz and 20kHz tones lying at -90dB. Increasing the

load to 8k ohms (not shown) drops the 1kHz product to -94dB (0.002%), while the higher-order components at 18kHz and 21kHz fall to -100dB.

Overall, this is superb measured performance. While the PL-L should not be used into impedances much below 8k ohms, thus ruling out professional 600 ohm loads, the gain structure and overload behavior are sensibly arranged with the expected audiophile usage in mind. Another Swiss jewel of a product from Nagra.

—John Atkinson

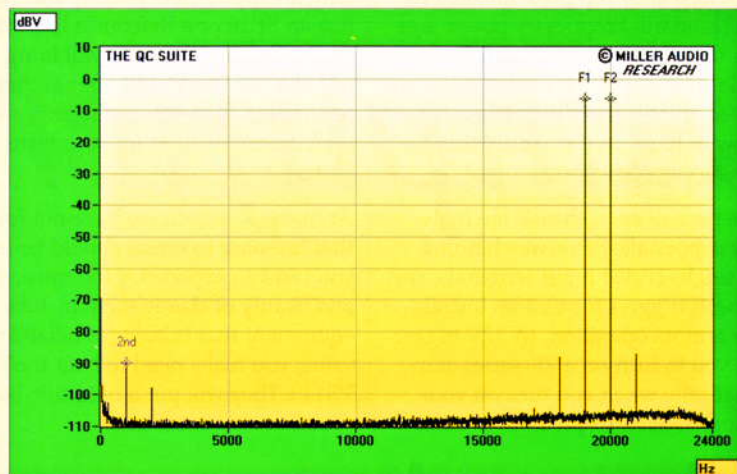


Fig.7 Nagra PL-L, unbalanced HF intermodulation spectrum, DC-24kHz, 19+20kHz at 1V into 1k ohms (linear frequency scale).

more. The bigger the music—Mahler, Widor, or electric blues—the more I appreciated the PL-L for its generously clear and powerful performance.

### Conclusions

A therapist might say that I had “personal issues” with the Nagra PL-L. It forced me to adjust my power-sequence behavior, its connection layout is the opposite of what I need, and it doesn’t have nearly enough inputs for me.

On the other hand, it’s practically impossible to criticize the PL-L’s sound. It was so fast, balanced, and clean that any sonic personality could be inferred only in comparisons with other preamps, from which it differed only ever so slightly. Even then, I had to wonder which preamp deserved to be the reference. And the tactile pleasure of using the Nagra’s controls, and its superb overall fit’n’finish, are givens.

As for the options: These days, I regard remote control as mandatory. I recommend fully balanced outputs only if you must use very long interconnects or will be using the PL-L in studios in which balanced operation is the standard.

The Nagra PL-L’s small size, capable remote control, and sonic transparency commend it not only for professional monitoring, but also for home systems of the very highest quality. ❧

### Associated Equipment

**Analog source:** Heybrook TT2 turntable, SME III tonearm, Ortofon SME30H cartridge.

**Digital sources:** California Audio Labs CL-20 DVD/CD player, Meridian 508-24 CD player, Sony XA-777ES SACD player, Mark Levinson No.360 DAC.

**Preamplification:** Sonic Frontiers Line-3, Simaudio Moon P-5 preamplifiers; Audiolab 8000PPA phono stage, TacT Audio RCS 2.0 digital EQ/room correction.

**Power amplifiers:** Bel Canto eVo2, PS Audio HCA-2, Sonic Frontiers Power-3, Classé CAM-350 monoblocks, McCormack DNA-1 Rev.A.

**Loudspeakers:** Revel Ultima Studio, B&W Nautilus 800 Signature.

**Cables:** Interconnect: AudioQuest Anaconda and Python, both balanced; Cardas Cross. Speaker: AudioQuest Gibraltar. AC: PS Audio Lab Cable. — Kalman Rubinson