



# POSITIVE FEEDBACK ONLINE

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## Norbert Lehmann's Headphone Amp: A Review in Two Parts by Max Dudson, with a parallel review by David W. Robinson

### I. Max's Take

#### Couldahs and Wouldahs

In the small business boutique world that is one tier of the audio industry, there are certain companies operated by the guy who wears many interchangeable hats. One such firm is Lehmann Audio, run by its owner/designer/production engineer/sales manager/chief cook and bottle washer, Norbert Lehmann. A few years back I was in Cologne for a four day conference, and I tried to arrange a meeting with Norbert. We spoke on the phone a couple of times. You know how it is, two busy people trying to set a few hours aside in their overbooked schedules. And I was coming down with a summer head cold. We never met, though I am a fan. Norbert Lehmann has been building a reputation for offering products characterized by good value at the price.

The design of his well-respected „Black Cube“ phono section went through three iterations: one with a limited wall-wart power supply generating about 100 milliamps of available current; a second stand

alone power supply with a transformer, a diode bridge, filtering and storage capacitors as you might imagine necessary to supply 200 milli-amps of available current; and a third supply, similar to the second but able to supply 600 milli-amps of available current. Without my slide-rule I'd say this



represents an increase of 600% in power supply capability. It is this bigger, stiffer power supply that is likely to give the phono stage all the sonic virtues the reviewers have been so enthusiastic about. Of course this newest power supply has upgraded the sound in many regards, most notably in dynamics, but also in stable sound stage presentation, and in spectacular extension of the extreme ends of the audio band.

What I'm getting at is this: Norbert Lehmann has been learning on the fly and this couldah been beneficial to the wouldah-been consumer of the Black Cube headphone amp if Lehmann would have understood the benefits of an over-designed power supply when he started out. Oh well, as

my grandfather the philosopher used to say, „Better hindsight than foreskin.“ And as my old buddy Buddy, who grew up to be a bookmaker used to say, „You can't cry over the couldahs and the wouldahs. If Byner couldah held onto the ball, Cleveland wouldah beaten Elway and the Bonkers in the Playoffs. What's done is done.“

### Power Supplies

In the „Black Cube-Linear,“ which is the name for his headphone amplifier, Lehmann has incorporated all the tricks he learned in the development of his „Black Cube“ power supply. The headphone amp might be characterized as having a smooth mid-range, extended top and bottom, and lots of „zotz.“ That's a high-middle German word for „startle-ability.“ While I

haven't done a survey of headphone amps lately, I'd say the stock „Black Cube Linear“ is among the high second tier of such devices, bested only by the most expensive tube and solid-state Class A designs. At \$778 this amp competes with some amps at twice its price, and more. And with the after-market, Bob Crump-designed SLVR AC power cord, it might compete with anything! More about that soon.

If you've ever examined the insides of, say, a receiver that has a headphone output jack, you'd have seen a little circuit board with a couple of caps, a few resistors (to match the output impedance characteristics of typical headphones), and a unity-gain stereo IC chip (or integrated circuit) op-amp. With surface-mount parts, the whole thing might take up about as much space as a business card. The necessary voltage is usually tapped off some convenient point in the circuit for the „power supply.“ So, including a volume pot for the headphones, the cost of the whole shebang is really quite minimal. And it sounds like it. The output sections of portable CD players, similar to receivers in the need for miniaturization, are quite alright for the cheapie headphones they usually drive, but they just aren't up to the performance of a dedicated headphone amp.

## Features

Using highest quality parts, highest build quality, and an over-designed power supply, as Lehmann does, the cost goes up quite a bit, the most expensive parts being in the power supply of the unit. And this is what he's been working on these past five years, power supplies. I have a lot of respect for re-iterations of designs in which one problem is addressed again and again, improving it incremen-

tally, until the weakness becomes the strength of the design. And this is what has happened with Lehman's phono stage, paving the way for the new headphone amp. Lehmann's taught himself how to build better and better power supplies.

There are other features that are worth noting on Lehmann's Black Cube Linear. The volume pot is a nice 'n' quiet Alps with a silky feel to its action. The selectable gain is on the bottom, and it's user adjustable without opening the chassis. There are parallel output Neutrik jacks for two sets of headphones. And there are two sets of gold-plated RCA jacks on the back: one set for input, one set for output. The output stage of the amplifier is described at the Lehmann website as a „Zero global feedback Class A output stage,“ which would explain its detailed, yet sweet sound. The importer, Tom Hills of Hudson Audio, tells me he used the Black Cube Linear as a line stage to drive a component system at a show, and the sound was „superior.“ I could see how that couldah happened.

At his suggestion I tried the unit in my big rig, downstairs, and it did a terrific job. I was thinking I could use the Black Cube phono stage and the Black Cube Linear as a line stage with my amplification and speakers and it would be bitchin'. And it was. Bitchin'. That is to say, no problems, great sound. If you'd like to know more, go to Lehmann's site <http://www.lehmannaudio.de> or Tom Hills' site <http://www.lehmannaudio.de/hudsonaudioimports/index.htm?internal>.

## Sound

I could go on and on about the quality of the reproduced sound beyond „Bitchin',“ so I think I

will. The AC cord that came with the unit is of the inexpensive variety we often find packaged with gear that features an IEC connector. That is to say, it ain't much. So I tried a series of different AC cords with it, and I was confirmed in my suspicion that the sound the manufacturer was willing to settle for wasn't quite up to what the unit could produce with a first class AC cord.

I went through a small number before I tried the SLVR I had hanging around my „lab.“ This one really got the Lehmann Black Cube Linear to sing. It became more punchy, delivering greater zotz. The bass really reached down to the nether regions, yet produced details. I could separate the bass drum muffled with a blanket or a scrap of sheepskin from unmuffled mallet on drum head on the new, and spectacularly recorded Mahler's Symphony #3, (Riccardo Chailly, Royal Concertgebouw Orchestra; Decca). The midrange demonstrated the detail in sonority and texture that I really like. That is, the instruments sounded real and vivid with correct harmonic overtone structure, even for some tricky instruments, like the oboe or the viola. In this configuration, the system differentiated all the individual sonorities of the brass section, etc. In the tutti passages, the instruments, choir voices, and soprano soloist were equally well defined. In the treble range, the violins made far less bowing and scraping noises in my favorite Vivaldi's The Four Seasons (Giuliano Carmignola, The Sonatori De La Gioiosa Marca; FIM). All in all, the sound got warmer and bigger. The string tones were beautiful, tones I thought I'd known with all their recording process shortcomings I'd grown accustomed to, cleaned up. In my currently favorite blues record, Junior Wells' Come On In This House (Junior Wells, Telarc),

I could tease out drums, electric bass, and the lowest registers of the slide guitar amplified with „fuzz tone“ and „flanger,“ and the rest of those pedals that are really aesthetically congruent distortions. The reproduction was so clean I could separate out the various types of euphonic distortions!!

### A Bargain?

I have no stock in Bob Crump's company, but I'd swear his SLVR power cord brought out the best in my miniature concert hall (Sony Walkman D-E 356 CD player, Lehmann Black Cube Linear headphone amplifier, and Grado RS-1 headphones). There seems to be little substitute for BIG, and with the TG Audio's SLVR AC cord the sound seemed to get BIGGER. I know it is true that we can't remember sonic impressions very well, but I do remember vividly one visit to an audio boutique where the owner allowed me to listen for a couple of hours (it was a rainy Tuesday afternoon) to a set of electrostatic headphones with a dedicated tubed amp. The sound I'm getting now reminded me most of that sound. That is, the sound of my \$50 Sony Walkman, Grado \$700 'phones, together with the Lehmann „Black Cube“ Linear (\$780), and the Bob Crump designed SLVR power cord (\$500—more than many, less than many), most reminded me of a set up that was in the \$15,000 range. I'd say that combination ought to be considered a bargain when compared to a big ticket stand alone system that might not sound any better. For more information go to Crump's website at <http://www.tgaudio.com>.

### Aside

As an aside I'd say, listening through a headphone amplifier that uses an AC cord is a fine way to

evaluate the effects of such cords. There are many fewer opportunities for interconnect cables, loudspeakers, room resonances, etc., to color the sound. The path—CD player/headphones-amp/ headphones—is about as minimal as it gets. So, if you are evaluating the sound of different AC cables you can isolate their impact on the sound „scientifically“ by controlling that one variable. It may not be foolproof, and there are those who might scoff, but I think it's a pretty good way to hear how different AC cables affect the sound.

### Re-Cap

Meanwhile, back at the ranch, Hoppy and the gang are scolding me for not sticking to the Lehmann headphone amp. I'll sum up by saying if you like the sound of the Grado headphone amplifier, you'll love the Lehmann. They have similar midrange sound, though the Lehmann gets the nod on deep bass, and airier highs with an after-market AC cord. While the Grado headphone amp excels as a lightweight, battery powered, portable piece (my favorite for at-the-beach listening), the Lehmann is a stay-at-home piece that has the additional features of variable gain (for different headphones), an extra headphone output (for couples' listening), and an additional line stage output. An inventive user might connect it to his iPod, MP3 player, or Personal Computer.

This makes the Lehmann Black Cube Linear headphone amplifier a high quality, flexible, high value-for-money piece of gear. I can only classify it as „Highly Recommended.“ If you're in the market for a high-end headphone amp, you must audition this piece. It's a winner.

Sheik Y'r Bouti down to the local

audio boutique, and tell 'em Max sent ya!

## II. Ye Olde Editor's Take

### Yeah, what he said!

Having spent some time with the Lehmann Audio Black Cube Linear headphone amplifier before shipping it on to the Dudson, I'd have to „Amen!“ his observations.

The BCL is a fine headphone amp, trim, compact, and packed gills-full with bodacious fine sound—provided that you match it up with a superior power cord. Robinson's Rule of Power Cables applies with special force here: „Stock IEC cables always stink.“

Always.

For convenience sake, I started out with the Black Cube Linear taking a feed from my Dell Precision 650N workstation, which is equipped with dual Xeon processors, 2 GB of RAM, an Adaptec Perc Di Ultra-SCSI 320 disk array, an NEC 1100 DVD+RW optical drive, and a Creative Audigy II 192kHz/“24-bit“ capable sound card. Playback was via Windows Media Player 10.0 (for 96/24 stereo DADs from Classic Records), and Creative's MediaSource player (for 96kHz/“24-bit“ and 192kHz/“24-bit“ DVD-A discs.) Line conditioning/UPS is supplied via APC's Back UPS XS-1500. The sound that this source system produces is not too bad (for PCM, anyway), and convenient for careful listening in my office.

The first set of phones that I went with were my trusty-rusty Beyer Dynamic DT-990's (with integrated ¼“ cannon jack), which I've had for a number of years now. They're very comfortable (an extremely important—nearly overriding—consideration for any set of

headphones, no matter what folks may say), nicely detailed, rich, and always musical. I've used them for home listening, as well as for radio production work, and have always found them to be first-rate.

I let the BCL warm up for a few days, then started to size it up. With the Beyers, the stock power cable was no-go... no surprise. Out with it! I went immediately from the el zilcho power cable to the very fine Kimber Palladian Power Kable. Yes, it costs more than the Black Cube Linear. But believe me, the BCL doesn't come into its own without a 'phile-grade power cord, me hearties!

When you upgrade, you get „zotz,“ all right... in spades! More of just about everything: dynamics, for sure. I also heard broader soundstaging (soundstage depth is very tricky to assess with headphones, for some pretty obvious reasons), better timbre and nuance of detail, more solid bass, and better extension in the higher frequencies. There seemed to be a better integration of frequencies at all levels, and a touch more silkiness.

I then shifted to the Sennheiser HD-650 headphones, courtesy of the good people over at Headroom (<http://www.headphone.com>). What bloody terrific 'phones these are! It's obvious that they deserve the superior reputation that they have. Even with its stock ¼" cannon jack, the HD-650s put my Beyer Dynamic DT-990's to relative shame. With the 650's in place, the Black Cube Linear was revealed to have more detail than I had heard before, better bass extension, and improved clarity. Robinson has another rule, the rule of headphone cables: „Stock headphone cables always stink, too!“

So the next very logical step was to try the Cardas ¼" cannon jack

headphone cable upgrade, also supplied by Headroom. The handy thing about the HD-650's is that they have socketed cables, so that you can change from one cable/connector to another. (For this reason alone, I fell in love with them immediately.) As soon as I put the Cardas headphone cable into place, I was sorely tempted to toss the stock Sennheiser cable out of my office window. I didn't... but I was tempted. A wonderful transparency was immediately apparent; so were better detail and a more continuous presentation of the music. Dynamics were definitely improved over the stock cable. Not only that, but after a few days, the Cardas started to bloom, and the texture became silky as well as detailed—very pleasing to a headphone listener!

The Maxmeister is onto something here when he talks about 'phile 'phone amps being a good place to hear differences between power cords. The playback chain in a good headphone system (assuming superior headphones) is greatly reduced, thus making the differences between, say, the Cardas Golden power cable (slightly on the warmish side), the Kimber Palladian (more neutral), or even the hoary Tice Power Cables from my cable library (detailed, but with a touch of leanness) more clear than they might otherwise be in a full system with whatever speakers you might have at hand. If you're looking to do power cable comparisons, this upgrade BCL chain would certainly make the task easier. The Black Cube Linear does place things more definitely before your ears. Improving its supporting players can hoist it to a truly impressive level.

In conclusion, the Lehmann Audio Black Cube Linear is a very fine headphone amp to start with, but improvements in power cabling,

and headphone cabling can greatly enhance its performance. The best combination that I found in the few weeks that I had the BCL here was with the Kimber Palladian Power Kable/Sennheiser HD-650/Cardas ¼" cannon jack headphone cable. Consider that to be a terrific team—I do!

The Lehmann Audio Black Cube Linear Headphone Amplifier therefore merits a „Ye Olde Editor's 'Recommended!‘“; with the final supporting cast listed above, it receives a „Ye Olde Editor's 'Very Highly Recommended!‘“

### **A Superior Headphone System:**

#### **Lehmann Audio Black Cube Linear Headphone Amplifier**

#### **Sennheiser HD-650 Headphones**

#### **The Cardas Audio ¼" Headphone Cable Upgrade**

#### **Kimber Kable Palladian Power Kable**



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