MODWRIGHT PH 9.0

TUBE PHONO STAGE

I truly enjoy reviewing hi-fi equipment… and not for the reason that by doing it I get to listen to some of the best-performing equipment in the world. In fact, this aspect of being a hi-fi reviewer is in many ways a complete downer, because much of the equipment I review is so expensive that I really can't afford to own it, so having to send it back is often a truly painful experience.

Even when I can afford to buy a bit of gear I've reviewed that I really like, it often isn't cost-effective for me to sell a piece of gear I already own to buy something that's just a wee bit better… not least because I might find that the next piece of kit I review is just a wee bit better again than the component I just purchased. Of course if it's a lot better, then it's a no-brainer. But enough about the trials and tribulations of being a hi-fi equipment reviewer, and on to one of the reasons I enjoy reviewing so much… and that reason is that reviewing inevitably involves research, and research always means I learn something new, and learning something new always brings me joy. Most times I will pass on what I've learned in the review itself, so that hopefully some readers will also get joy from learning something they didn't previously know.

One thing I learned when reviewing the Modwright PH 9.0 is only a very tiny thing… almost inconsequential, in fact, but it brought me a great deal of joy because despite having been aware of this US company's existence—and that of its designer, Dan Wright—almost since he first started the company at the turn of the century, I have never before noticed that his logo reads the same no matter whether you look at it straight on, or turn it upside down, or even mirror-reverse it. No matter what you do, that stylised 'M' becomes a 'W' and the 'W' becomes an 'M'. They don't make fonts this way, so it must have been intentional on Wright's part, or on the part of his graphic designer. It's neat! (I can only wonder if it was dreamed up in Nick's Bar and Grill, while the two were winding down after a day in Modwright Instrument's factory in Amboy, Washington, which is almost alongside.)

THE EQUIPMENT

The Modwright PH 9.0 tube phono stage is not one unit. It's two. The phono stage itself, which is the larger of the two units, measures 254×254×254mm (WDH) and is the better-looking of the two (about which more later). Its power supply measures 178×230×75mm (WDH).

The two are connected by an umbilical cord that carries the high-voltage d.c. This cord is two metres long, so no doubt Dan Wright's intention was not simply that owners should keep the high-voltage (and thus electrically noisy) power supply a good distance from the phono stage, but also that the power supply should be hidden out of sight, where it can't be seen. These are both excellent ideas.

Firstly, keeping a power supply a good distance from a phono stage—particularly one that offers both moving-magnet and moving-coil inputs—is an excellent idea, because moving-coil circuits, in particular, have to be made so sensitive in order to properly ampli-

You'll see a pair of super-expensive Swedish Lundahl LL9226 transformers… as used in some of the world's most expensive phono preamplifiers

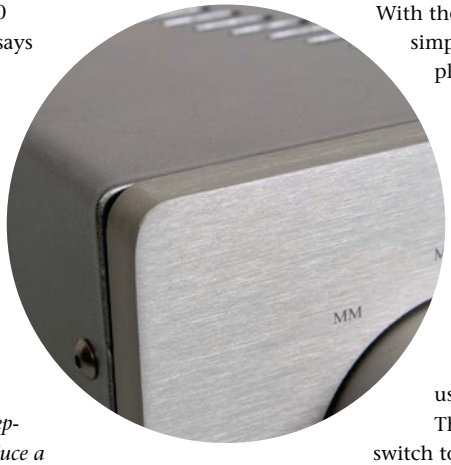
fy the few millionths of a volt delivered by a moving-coil cartridge that they're particularly susceptible to virtually all forms of external electrical interference.

Secondly, hiding the Modwright PH 9.0's power supply is an excellent idea because, as you can see, it looks totally different from the PH 9.0 itself. It's also not finished to what I'd call a 'professional' standard: it looks rather more like the type of power supply an electronics hobbyist would build from a kit of parts. The top and sides are a single piece of black-painted steel that's been bent into a 'U' shape, such that the top is not even flat, and does not join at all with the front or rear panels, leaving unsightly gaps. Why this type of build? Well if you know that something's going to be hidden away, why bother spending any money on the exterior? Better to simply make sure the chassis is solid and invest the money saved into the internal components. What many consumers don't realise about building electronic components is that every dollar you spend on a component in the factory ends up adding around $10 to the retail price, so saving $100 on metalwork might ends up reducing the end retail price by about $1,000. So saving a few bucks on a case certainly makes sense to me!

That said, the appearance of the Modwright PH 9.0 phono stage itself is nothing to get excited about, as its exterior construction also shows signs of cost-cutting. Sure it's alloy-coloured, but it's not anodised, and the painted surface on my sample had many tiny but obvious imperfections. Again, the construction of the case itself also left quite a bit to be desired. For example, the front panel is beautifully made, beautifully anodised and engraved, and the four corners are beautifully rounded. However the rounding of the front panel's top corners don't match the rounding of the case itself, and the case is a smidgeon wider on each side than the front panel, but a bit lower than the top of the front panel across the top. However, if you look *inside* the PH 9.0, it's a completely different story!

Pop the lid of the PH 9.0 you'll see one of the most beautiful and highest-quality printed circuit boards you can imagine, and one that's populated by state-of-the art one per cent metal film resistors, top-quality relays, super-accurate capacitors and some of the largest inductors you've ever seen. Perhaps most obviously, you'll see a pair of super-expensive Swedish Lundahl LL9226 transformers, exactly the same as used in some of the world's most expensive phono preamplifiers. So we're talking quality with a capital 'Q' here. Plus, of course, you will be able to see the four valves that make the PH 9.0 a 'tube' phono stage: a pair of 6C45s (the 6C45 is an indirectly heated triode design) and a pair of 6922s (the 6922 is a medium-gain dual triode similar to the 6DJ8 or an E88CC).

The quality of the PCB and the components populating it should not be surprising, because they're essentially the same as found in Modwright's flagship phono preamplifier, the PH 150 Reference. Dan Wright says of how he went about designing the PH 9.0: '*I made a few parts substitutions and scaled a couple of items down to keep the price reasonable and I did away with variable capacitive loading for MM. The chassis is smaller and simplified. The same tubes are used and the same Lundahl step-ups. The goal was to produce a lesser cost unit with the same flexibility and sonics as the PH 150.*'



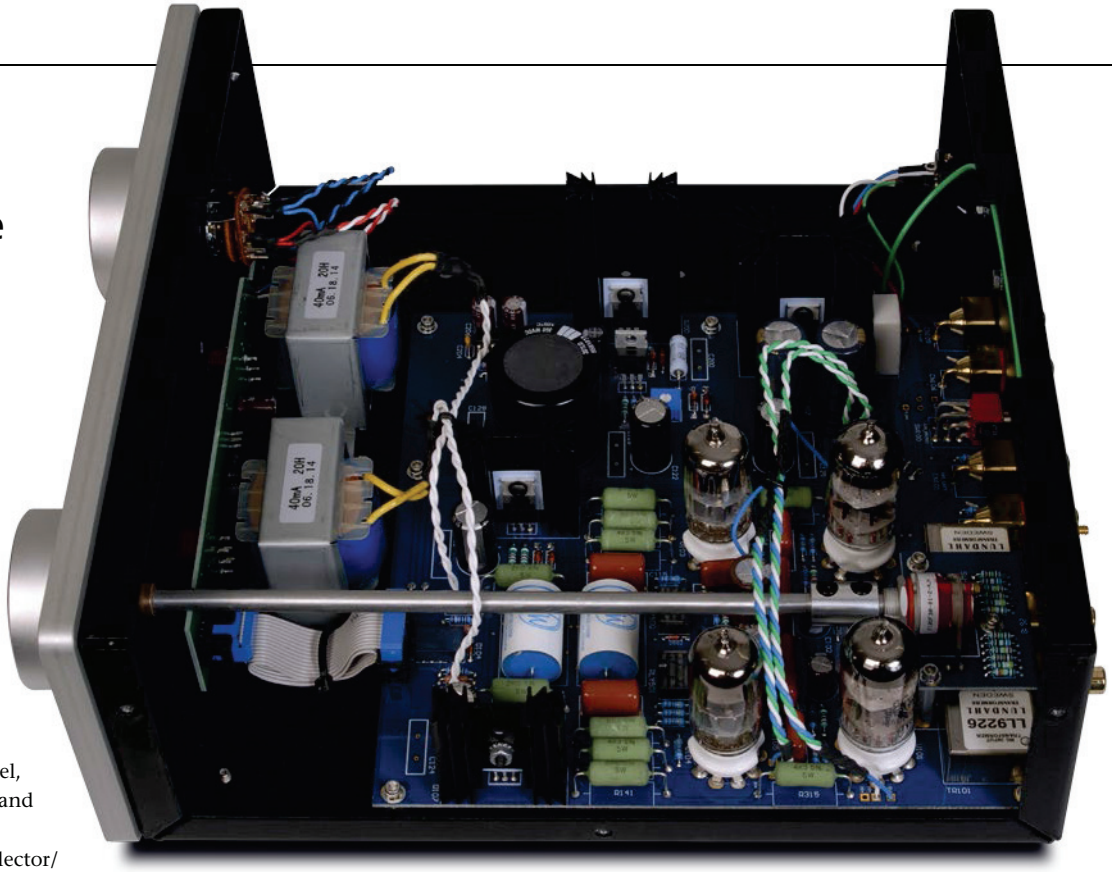
Another circuit element keeping the price of the PH 9.0 down is that in its standard form, it is supplied with only one set of outputs, which are unbalanced (via RCA terminals). You can, however, option-in a set of balanced outputs (via XLR terminals), which increases the retail price to $5,000. On our review sample you can see the blank plate on the rear panel where the XLR terminals would be installed. I think I'd pay the extra $330 just to get rid of this blanking plate, even if I didn't want the balanced option! (But at that price, I'd recommend going for the balanced option.)

The main feature on the front panel is the rotary control on the right that looks like a volume control. It's not. It instead offers what Modwright calls 'on the fly' resistance loading for the moving-coil input, so you can change the load resistance between 10Ω, 20Ω, 50Ω, 100Ω, 250Ω and 470Ω simply by rotating the control.

Modwright refers to this as 'on the fly' because many phono preamps require you to adjust moving-coil load resistance by manually inserting resistors or links, which requires powering-down prior, or by flipping DIP switches, which usually requires at least muting the output while switching. With the PH 9.0, you can simply switch while you're playing, which makes it 'way easier to choose the setting that gives the best sound quality. (Just in case it isn't obvious, only the loading for the moving-coil input is switchable: the moving magnet input's loading is fixed at the usual standard 47kΩ.)

The small three-position switch to the left of the MC resistance load control allows you to adjust the gain of the PH 9.0 between 0dB, –6dB and –12dB. Curiously, the 0dB gain position is the midmost setting of the switch, with the 'Up' position giving –6dB and the 'Down' position –12dB. I can only assume that Wright intended the 0dB position to be the default setting, so he arranged the wiring so that 0dB meant that the switch was neither up nor down.

The large rotary control to the left of the front panel simply switches between the moving coil and moving magnet inputs but, as you can see on the front panel, there's a 'Mute' position midway between the two… or so you'd think by the writing engraved on the front panel. In fact, there are TWO mute positions between the two operating positions, so the control actually has positions for (from left to right) Moving Magnet, Mute 1, Mute 2, Moving Coil. Says Wright: '*To prevent any possibility of switching noise when selecting between MM and MC, we found that it was critical to mute after MM and also before*



Pop the lid of the PH 9.0 you'll see one of the most beautiful and highest-quality printed circuit boards ever

MC, so each MM and MC input has a separate mute position.'

This being the case, I can't quite see why all four positions aren't engraved on the front panel, as in MM, MM Mute, MC Mute, and MC, but there you are…

Alongside the phono input selector/muting control is a small toggle switch for power switching, along with a linked LED. The switch is wired according to the US standard, where the 'Up' position of the switch is 'On' and 'Down' is 'Off'. However, when the PH 9.0 is switched 'Off' using this switch, it's only the PH 9.0 that's actually switched off… the separate power supply stays on… and it does not have its own power switch, so if you want to power it down completely, you'll have to switch the power supply off by using the switch on the 240V power point itself.

Interestingly—and rather surprisingly—there is no user-replaceable fuse on the power supply, despite Modwright's *Owner's Manual* suggesting that there should be, with page 5 of the manual noting: '*For 240V operation, the fuse should be rated for 1.5A*'). I don't think I have ever seen any piece of mains-powered hi-fi equipment that does not have a user-replaceable mains fuse.

IN USE AND LISTENING SESSIONS

According to Modwright Instruments' *Owner's Manual*, the PH 9.0 ships without its four valves installed (and the company recommends that you remove all the valves whenever you ship the unit). To install them you simply need to make sure that the power supply is not connected to a.c. power and, as a further safeguard, that the umbilical cord between the power supply and the PH 9.0 is not connected, after which you can use the supplied 5/64 hex driver (a.k.a. 'Allen key) to remove all six chassis screws, after which the valves can be installed in their ceramic sockets. (My loaner sample was shipped to me with the valves already installed.)

I noted that Modwright's *Owner's Manual* (page 4) says to '*remove four lid screws in top panel*' so the design of the PH 9.0 chassis has obviously been changed at some stage. The Allen key Modwright supplies with the PH 9.0 is a real beauty. Firstly, it's the largest Allen key I've ever seen (it's fully 167mm long), and secondly, it's shaped like an old-fashioned door key, which is a bit of fun. However, the key is also superbly designed, because its length when combined with the flexibility of the bow that forms the grip means that the key works like a torque wrench, so that when you're re-installing the screws, you can get them to exactly the right amount of tightness. It's a truly wonderful tool.

As you'd expect of any amplifier stage using valves, the PH 9.0 does not immediately spring into life when you flip the front panel power switch upwards. The blue LED comes on instantly, but it's a further 25 seconds or so before listening is possible, due to a muting circuit that activates to permit the various operating voltages to stabilise.

Most of my serious listening is done using my tried-and-true Denon DL-103 moving-coil cartridge, I just love its sound quality, plus it's remarkably robust and relatively inexpensive… in fact it's one of the best-value moving-coils on the market, IMHO, despite the fact that because the stylus assembly is fixed, it's usually cheaper to replace the cartridge than get the cantilever re-tipped. The fact that the DL-103 is getting a bit long in the tooth as a design (it was first introduced before I was born… in 1963 to be precise) doesn't seem to have impacted on its popularity with audiophiles one whit.

After a bit of experimentation with the load settings I settled on the 100Ω resistance setting (which will hardly come as a surprise to fellow DL-103 enthusiasts) and was immediately impressed by the extended bass response and the beguiling tonal quality of the bass issuing from the Modwright PH 9.0. Listening to Chris Copping's remarkably energetic bass-playing on Procol Harum's 'Home', I felt that the valves added a degree of warmth and musicality I don't hear when using either my own step-up transformer or phono amplifier, yet the sounds of Copping's bass guitar and Wilson's bass drum were maintained spatially separate, just as they should be, so there was no unwanted melding of sound.

The bass and drum sound was also a standout on the track *No-one's easy to Love* from Sharon Van Etten's latest LP 'Remind Me Tomorrow' (though if you're new to Van Etten you should probably first use the PH 9.0 to listen to the bass and drum sound on *Comeback Kid*.) Once you've evaluated that track, listen to the piano sound on the opening track *I Told You Everything* for proof positive of this. Via the PH 9.0 the sonic deliver was in perfect harmony with Van Etten's voice and, indeed with the lyric itself. This harmoniousness speaks of what true musicality is all about: Van Etten has a fragile voice, and this fragility is perfectly preserved by the Modwright PH 9.0, even when it's fighting against a wall of synthesis and electronica, as it is in her absolutely wonderful song *Seventeen*, where Van Etten sings: '*Down beneath the ashes and stone, Sure of what I've lived and have known, I see you so uncomfortably alone, I wish I could show you how much you've grown.*'

Through-out all my listening sessions, using both my DL-103 and my MM cartridges (wait, I'm getting to them), I found the Modwright PH 9.0's midrange clarity continually superb-sounding and that circuit noise was just not an issue: it was always so low that record surface noise is always going to be higher.

Stereo separation is outstandingly good. Listening to Billy Joel's 52nd Street (the Impex pressing, not the original CBS!) the separation between the two channels was as outstanding as the accuracy of the imaging that put Joel exactly centre-stage and out-front.

Since I am mentioning stereo separation and imaging, it's probably a good time to mention that the Modwright PH 9.0 has a mono/stereo switch hidden away on the rear panel. I guess it's been put there because so few audiophiles will be playing mono LPs that it didn't make any sense to put it on the front panel… or maybe having it on the rear enables a shorter signal path and thus better sound. One of my favourite albums, which I have on both LP and on CD is Harry Belafonte's live album 'Belafonte At Carnegie Hall' and that's in stereo (actually, 'Living Stereo' according to the album cover!) even though it was recorded back in 1959. But it's true that stereo wasn't used much during the 60s, to the point that even bands as famous as The Beatles were being recorded and released in mono until the late '60s, so if you have any of their original LPs, they may well be in mono (one can't be certain, because stereo versions were also released).

The fab four did eventually switch exclusively to stereo recording ('Yellow Submarine', 'Abbey Road' and 'Let It Be') but they were great fans of mono, and many Beatles purists say that Beatles albums should be always be auditioned using mono equipment, an opinion with which at least one former (now departed) Beatle would likely agree. George Harrison has been quoted as once having said: 'When they invented stereo, I remember thinking "Why? What do you want two speakers for?", because it ruined the sound from our point of view.'

True Beatles fans will already know, but non-diehard fans would probably like to know that you can now buy newly-mastered versions of The Beatles' nine UK albums, plus the American-compiled Magical Mystery Tour, and the Mono Masters collection of non-album tracks on 180-gram vinyl mono LPs—either individually or as a 14-LP box set (but you'll have to cough up A$1,599 for the boxed set).

I do my casual listening using one of my moving-magnet cartridges, not least because they have user-replaceable stylus assemblies, so I can swap styluses depending on the age and condition of the LP I am playing at the time. For example I'm certainly not going to endanger any of my more expensive elliptical styluses playing a record with a scratch… no matter how small that scratch might be! Usually I use my Audio-Technica VM760SLC cartridge for stylus swap-outs, because then I have a choice of fitting it with line contact, elliptical, shibata, or conical styluses (the last mentioned in two different-sizes).

For the sake of continuity, I played exactly the same LPs using the A-T as I had with the DL-103, and again I thought the PH 9.0 delivered outstanding sound quality with the moving-magnet design—an obviously flat and extended frequency response, excellent stereo imaging, and low noise. I thought the A-T's sound was a bit more dynamic than that from the DL-103, and the tracking was certainly superior, but that's down to the cartridge, not the PH 9.0. And no, just in case you were wondering, although the VM760SLC is a fantastic cartridge, and does lots of things better than the Denon, I still prefer the sound of the DL-103!

CONCLUSION

OK, so the Modwright PH 150 Reference Phono Stage has more features and options, but the Modwright PH 9.0 Tube Phono Stage delivers essentially the same sonic performance at almost exactly one-third the price… and because of that I am more than happy to turn a blind eye to the finish—and so too should you be! *Angus Bradley*

CONTACT DETAILS

Brand: Modwright
Model: PH 9.0
RRP: $4,690
Warranty: Five Years
Distributor: Absolute HiEnd
Address: PO Box 370, Ormond VIC 3204
T: (04) 8877 7999
E: info@absolutehiend.com
W: www.absolutehiend.com

- Great sound!
- Variable MC loading
- Gain selector
- MM & MC inputs

- External finishing
- Stand-by mode
- Switch orientation
- 240V fuse

Readers interested in a full technical appraisal of the performance of the Modwright PH 9.0 Tube Phono Stage should continue on and read the LABORATORY REPORT published on the following pages. Readers should note that the results mentioned in the report, tabulated in performance charts and/or displayed using graphs and/or photographs should be construed as applying only to the specific sample tested.

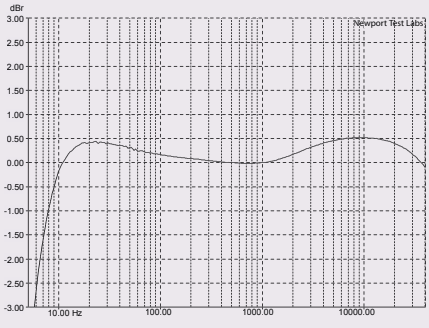
LABORATORY TEST REPORT

Newport Test Labs measured the gain of the Modwright PH 9.0's moving-magnet input using the 0dB gain setting as being 51.24dB, just shy of Modwright's specification of 52dB, meaning that for a 10mV input, the PH 9.0 will deliver 3.65-volts at its output.

Switching to the –6dB gain setting reduced the output voltage to 1.88-volts, which is 45.48dB of gain and 5.76dB down, again very, very close to Modwright's specification of –6dB.

At the –12dB setting, the output voltage dropped to 1.26-volts, putting total gain at 41.79dB, which is 9.45dB below maximum gain, and around 2.5dB below Modwright's specification of –12dB. The fact that the other two settings were so accurate, and that –9.45dB is so close to –10dB makes me wonder whether at some point someone at Modwright decided to switch the gain of the PH 9.0 switch setting from –12dB to –10dB and forgot to tell the person engraving the front panels. Either way, there's more than sufficient adjustment available.

Newport Test Labs measured the gain of the PH 9.0's moving-coil input using the 0dB gain setting at 65.1dB, just shy of Modwright's specification of 66dB,



Graph 1. Frequency response, moving-magnet phono input, Modwright PH 9.0.

meaning that for a 1mV input, the PH 9.0 will deliver 1.80-volts at its output.

Switching to the –6dB gain setting using the moving-coil input reduced the output voltage to 930mV, which is 59.36dB of gain and 5.74dB down and, once again, a test result that's very, very close to Modwright's specification of –6dB.

At the –12dB setting, again using the moving-coil input, the output voltage dropped to 620mV, putting total gain at 55.84dB, which is 9.26dB below maximum gain, and again around 2.5dB shy of Modwright's 12dB spec. Again, the fact that the other two gain settings were so accurate re-inforced the ideas that the circuit had been changed to give –10dB of gain, rather than –12dB. Again, either way, there's more than sufficient adjustment available for any low output moving-coil cartridge.

The frequency response measured by *Newport Test Labs* was very flat, extending from 20Hz to 36kHz ±0.25dB, which is so close to Modwright's specification of 20Hz to 20kHz ±0.2dB that it makes no difference, with the response rolling off very steeply below 20Hz to be 3dB down at 5.9Hz, so it would appear that the PH 9.0's RIAA equalisation includes a low-frequency (rumble) filter.

Although the response is very flat, it starts off about 0.25dB high at 20Hz, then rolls off to –0.25dB between 400Hz and 1kHz, before rising to +0.25dB at 6kHz, where it shelves to around 13kHz before rolling off to be –0.25dB at 36kHz. (You can see the visual representation of this response in Graph 1. The fact that the response doesn't appear visually flat is because of the greatly expanded vertical scale of the graph which, as you can see from the scale on its left, is 0.5dB per vertical division.)

Channel balance at 1kHz was 0.25dB which, while not exceptional, will introduce far less variation in volume between the left and right channels than either the LP itself or, more importantly, whatever phono cartridge you're using, because even the best of them will struggle to deliver channel balance of any better than 2dB.

Channel separation was excellent, with the 84.5dB (at 1kHz) measured by *Newport Test Labs* being several orders of magnitude better than would ever be required by any phono stage in order to deliver perfect imaging and sound-staging, as well as channel separation exceeding that able to be delivered by any LP, even if specially mastered. One also has to take into account that even the best phono cartridges can manage only around 25–30dB of channel separation.

Distortion was low. Tested at 1kHz, spectrum analysis of the Modwright PH 9.0's output showed a second harmonic component at –50dB (0.28% THD), a third at –65dB (0.56% THD), plus a fourth and fifth at –82dB (0.007% THD). All other distortion components were more than 100dB down (0.001% THD).

The signal-to-noise ratio of the Modwright PH 9.0 measured by *Newport Test Labs* was also exceptionally good, with the lab reporting an S/N ratio of 84dB A-weighted (referred to an output of 3-volts).

Input sensitivity for a 2-volt output (at 0dB gain) was measured as 5.5mV for the moving-magnet input, and 1.1mV for the moving-coil input. This means that the PH 9.0 will be a perfect match for the vast majority of today's high- and low-output phono cartridges. *Steve Holding*

The signal-to-noise ratio of the Modwright PH 9.0 measured by Newport Test Labs was also exceptionally good, with the lab reporting an S/N ratio of 84dB

Modwright PH 9.0 Tube Phono Stage – Laboratory Test Results

Test	Measured Result	Units/Comment
Frequency Response @ 3 volts o/p	20Hz – 36kHz	–0.5dB
Channel Separation	84.5dB	@ 1kHz (re 3 volts out)
Channel Balance	0.25dB	@ 1kHz (re 3 volts out
Interchannel Phase	0.15	degrees @ 1kHz
THD+N	0.7%	@ 3 volts out
Signal-to-Noise Ratio	84dB	A-weighted re 3V output
Resistance Loading (MM)	10, 20, 50, 100, 250, 470	ohms
Input Sensitivity (Moving Magnet)	5.5mV	for 3 volts out (0dB Gain)
Input Sensitivity (Moving Coil)	1.1mV	for 3 volts out (0dB Gain)
Power Consumption	0.6 / 46.65	Off/On (See copy)
Mains Voltage Variation during Test	241 – 248	Minimum – Maximum