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JULY 2008

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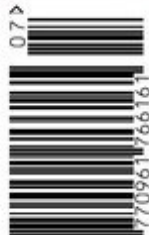
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JULY 2008



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10 PAGES OF YOUR QUESTIONS ANSWERED



PrimaLuna's new Prologue Eight is one of the first CD players to reach the market with a valve driven clocking circuit. David Price watches and learns...

Clockwise

Although your grandma will associate it with the nineteen thirties jazz dance craze, jitter has a less benign connotation for us audiophiles, as it's the word used to describe digital time domain distortion. Put simply, digital audio circuitry, running in 'real time' (i.e. playing music 'on the fly') needs to know exactly when to (and when not to) look for audio data coming from an optical transport. It then needs to read it at exactly the right

time before it can properly perform the various number crunching duties required to turn it into an analogue waveform. If the timing drifts ever so slightly out, then things get 'smeared' like a photograph taken at too slow a shutter speed...

Whilst the recent craze in digital audio has been upsampling – ramping the sampling frequency up to 96 or even 192kHz – where it produces few artefacts anywhere near the audio band, clever tricks like this mean nothing if the digital

data itself isn't running through the circuitry with metronomic precision – correct timing is an absolutely fundamental start point for accurate sound. The trouble is, not all digital clocks are created equal – some are like Swiss trains, others like those that randomly roll into the stations in this great country. How so? Well, wherever there's a chance to save money, manufacturers will invariably take it...

Although measurable by sophisticated electronic equipment,

the most accurate gauge of the phenomenon is the human ear, which hears jitter as tonal hardness and general lack of clarity. And because it's so fundamental, you can't really make up for it later on in the digital signal processing chain, by ramping down the treble response for example. Just like a speed-unstable analogue turntable, no amount of fancy ancillaries further down the chain can reign the problem back in.

What's needed is the best possible clock – and here we see a number of manufacturers now actively attempting this in their designs. PrimaLuna's ProLogue Eight is the first production CD player to come fitted with the 'SuperTubeClock', which uses a low-noise mini-triode vacuum tube. Neville Roberts tried AH!'s aftermarket version of this very design in the September 2007 issue of *Hi-Fi World*, and was most impressed. It is claimed to provide "vastly superior resolution, detail retrieval, improved clarity, increased definition from top to bottom" no less, and for once we found the manufacturer's claims matched our findings [see MEASURED PERFORMANCE], with this machine turning in the lowest jitter we have ever measured.

That's not the only tube in the player, because the ProLogue Eight sports more glass bottles than the perfume counter at your local House of Fraser. In addition to the single clock valve, there's a dual mono zero-feedback analogue output stage using one 12AX7 and one 12AU7 per channel, plus a vacuum tube rectified power supply incorporating eleven separate power supply regulation circuits. Custom designed isolation transformers separate the analogue and digital devices for decreased signal degradation and improved sonics, say PrimaLuna, and there's also a decent sprinkling of high quality resistors and polypropylene coupling capacitors fitted as standard. In-between the specially clocked transport and the tube output stage lies the latest Burr Brown PCM1792 DAC with SRC4192 upsampling circuit.

The machine wins no prizes for good looks or slick operation – the ProLogue Eight is merely purposefully styled, with the large complement of valves on top making it look strangely similar to a tube preamplifier. The thick, slab-like aluminium front panel confers a sense of quality, as does the not inconsiderable weight, but the disc drawer is a generic plastic affair, its feel remarkably similar to the cheaper Eastern Electric MiniMax CD. Round the back there's a single pair



of RCA analogue outputs, plus one coaxial and one optical digital output. A nice, substantial metal remote control unit is supplied.

SOUND QUALITY

A highly distinctive sounding design, put against my class reference Astin Trew AT3500 (a £1,100 player that easily competes with most £1,500 machines), the PrimaLuna turned in a dramatically different performance. Whilst the former delights with a vast, expansive soundstage and a bombastic, exuberant musicality – where everything seems a little larger than life – the latter follows an altogether different track. The PrimaLuna seems obviously less coloured than my reference, erring closer to the likes of Rega's

soundstage but doesn't exactly place instruments within it with millimetric precision. The ProLogue Eight is quite different; its soundstage isn't quite as huge (I've heard nothing at this price that is), but inside it things are rendered with breathtaking accuracy – both tonally and rhythmically. It's like you've just given your auto-focus camera's shutter release button first pressure, and it's suddenly snapped everything into exact focus.

Kate Bush's 'Moving' showed this in no uncertain terms. The song is a beautiful late period analogue recording (1977, Abbey Road), and sounds warm and beguiling through the AT3500, but switching to the ProLogue Eight showed it to be more than just a romantic, sumptuous, sepia-tinted epic. Instead, the

"instead of the usual digital facsimile, the song sounded earthy and organic..."

solid-state Saturn in its natural, unembellished tonality. Indeed, it's actually quite spry by comparison to the Astin Trew – with a very crisp and well lit treble.

Fun Lovin' Criminals' 'Up on the Hill', a rich, fulsome slice of classic pop/rap made for fascinating comparisons. You can hear the fact that the PrimaLuna has a slightly rising treble; it's not forward but is certainly atmospheric. Interestingly though, unlike some CD players even with ruler-flat response curves, there's no spitch – no sense of sibilance that suggests a 'peaky' design. At the other end of the scale, bass is obviously lighter than the AT, again the PrimaLuna lacking anything in the way of euphony down low, but it isn't weak kneed in any sense, as we shall see later...

Obvious differences already then, but the midband is where the real action is. The Astin Trew could be criticised for being a little rich and loose here – it throws out a vast

PrimaLuna locked down the recorded acoustic, letting me hear the four walls of her vocal booth, the exact location of each instrument and the sound of fingers against bass guitar strings. More startling however was the way the song timed; it snapped the musicians' rhythms together, letting me hear how they were 'playing off' one another. The space between the notes became far more marked, the song sounding more broody and evocative.

Kate's vocals were carried differently too – the AT made them a little warm and mushy; very nice to listen to and suitably seductive. Tonally the ProLogue Eight gave them a chilly clarity, without erring towards hardness in the least, but more marked was the way the two players carried her phrasing. The Astin Trew sounded out of time all of a sudden, making Kate appear to be reading from the lyric sheet. The PrimaLuna, however, snapped her back into the soul of the song, carrying her delicate



tones perfectly syncopated with the band. Suddenly the song had great emotional purchase, and I could 'feel' as well as hear the performance. This is precisely the sort of thing good, high end vinyl does for me, and I have to say I was surprised to be getting the same sensation from a sixteen hundred quid CD spinner.

The strains of Dave Brubeck's 'Time Out', a classic slice of breezy, modern jazz if there ever was one, proved another fascinating proving ground for the PrimaLuna. With 'Take Five', the player set up a capacious soundstage inside which dizzying amounts of detail could be heard – from the breathing of the brass players to the shaking of the double bass. Tonally smooth yet obviously well lit, this machine didn't try to artificially enhance this late fifties recording one jot, but rather tried to recreate as much of it as it could. Again, the interplay between the musicians was masterful, this new CD player capturing every last dynamic accent. Switching to my reference machine, and I got a larger than life sound, inside which things were less precise. Bass was fuller but softer, while dynamics seemed to go louder but somehow still have less impact.

Blondie's 'Atomic' ended up being a three minute-long commercial for the PrimaLuna, the Prologue Eight locking on to singer Debbie Harry's voice and conveying it with astonishing clarity and naturalness. Instead of the usual digital facsimile that comes with anything except the most expensive silver disc spinners, it sounded so earthy and organic – as if she was in the room with me. True, it lacked the body that the AT was able to muster, but the expressiveness was enthralling. The clarity with which the PrimaLuna carried the rest of the mix was also breathtaking, making an inspiring job of the interplay between the snare drum and the hi-hat cymbal. The result was that all-elusive live feel to the song that I'm used to when playing my vinyl version of 'Eat to the Beat'.

A Deutsche Grammophon recording of Vivaldi's 'Four Seasons' (Karajan, Berlin Philharmonic)

showcased the eerie clarity of this CD player, which served up a precise yet musically convincing rendition. Unlike other, so-called 'analytical' machines, the Prologue Eight doesn't suffer from a cerebral sound ('analysis paralysis') that rewards only with detail. Indeed it is dazzlingly detailed, throwing out every last squeak of an orchestra chair from the back of the hall, but never does this become a trade-off with its unerring musicality. Things bound along with a joyous, carefree nature that unipivot tonearm-using analogue addicts will instantly recognise. Indeed, the similarities are marked...

The only real downside of the PrimaLuna is its even-so-slightly curtailed dynamics – although in no way flat or undynamic sounding, it didn't quite have the final one-tenth of visceral impact on crescendos in classical music. Its deliciously natural and lucid midband more than makes up for the rival Astin Trew's fraction more 'show' however – that startling clarity at lower levels makes it just as lively sounding on most recordings, if not more.

CONCLUSION

A fascinating new entry to the £1,500 silver disc spinner market, the PrimaLuna Prologue Eight brings vanishingly low jitter to the game, and its associated clarity and rhythmic ease. The way it recreates the phrasing of a piece of music is breathtaking considering its price – very few machines at any market position can compete in this particular respect. It's not as warm and beguiling a machine as you'd expect considering its hefty tube complement (if you want this, the Astin Trew is class of the field), but that's not to say its only party trick is stark detailing. Rather, this is one of the most liquid sounding digital disc players I've heard, in the way the different elements of the mix seem to live and breathe by themselves. An essential audition – don't be late!

CLOCK THIS!

PrimaLuna's SuperTubeClock replaces the solid state oscillator normally found in a CD player's digital clocking device with a Russian military triode specifically designed to produce an ultra-clean sine wave. This is then shaped into a square wave with excellent speed, accuracy and jitter properties. Specifically, the parasitic noise in the 10Hz to 100kHz region is claimed to be much lower than of any of the comparative designs and this noise is considered to be the determining factor for the audibility of jitter. The absence of this should result in a reduced sense of the 'digital' sound of a CD.

REFERENCE SYSTEM

Astin Trew AT3500 CD player
Yamaha A-S2000 integrated amplifier
Monitor Audio PL100 loudspeakers

VERDICT

Exceptionally natural sounding CD player, thanks to novel engineering and rugged build.

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FOR

- arrestingly natural timing
- dizzying amounts of detail
- organic musicality

AGAINST

- prosaic styling

MEASURED PERFORMANCE

CD players with valve output stages usually distort a little (0.3% or so) at peak output of 0dB, only the Edgar CD-1 did not. The Prologue Eight distorts quite heavily, producing 1.45% at 0dB, albeit of valve distortion, meaning primarily second harmonic, with higher harmonics of descending amplitude. All the same, as 0.45% exists at -6dB, musical peaks at least will distort and this may add some just perceivable thickening or muddle to the sound. The degree of subjective impact will depend upon music level on any CD played. Recordings compressed upward toward 0dB to increase loudness will be distorted in any case; those not so compressed will generally be little affected by the Prologue Eight's distortion I suspect, so distortion may not be obvious, but only listening tests can judge subjective impact.

At low music levels distortion was much the same as that of any other player and the good, but unexceptional EIAJ dynamic range value of 109dB reflects this.

Frequency response has a small tilt upward at high frequencies, our convoluted impulse analysis shows. The player is unlikely to sound dull as a result. As valves deliver treble more deftly than transistors, this may not be a negative.

Intriguing was an exceptionally low jitter spectrum, presumably due to the valve based clock used in this player. I have never measured narrow band jitter levels down to 5pS before. The Prologue Eight performs exceptionally well in this area and a pure sound free from a 'grey' tonality should result.

The PrimaLuna Prologue Eight has obvious measurable weaknesses, but it has great strengths too. Its basic

measured performance is good and its strengths may outweigh weaknesses, I suspect. NK

Frequency response (-1dB)	
CD	5Hz - 21.75kHz
Distortion (%)	
0dB	1.45
-6dB	0.45
-60dB	0.24
-80dB	1.8
Separation (1kHz)	
Noise (IEC A)	-104dB
Dynamic range	109dB
Output	2.1V

FREQUENCY RESPONSE



DISTORTION

