

PrimaLuna

ProLogue One Integrated Amplifier



It's sometimes hard to love a valve amplifier. I find that this is usually entirely the fault of the manufacturer. Some are downright ugly, some are poorly built, some don't have sufficient inputs, and a few are simply strange. So despite being an avowed fan of valve amps, it was with a little trepidation that I started unpacking the PrimaLuna ProLogue One. I needn't have worried: it was love at first sight.

The Equipment

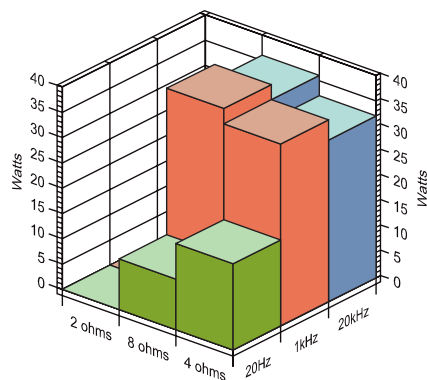
I say 'love at first sight' because you have only to see a ProLogue One to understand that it is superbly constructed: the evidence is right there in front of your eyes, five coats deep on a hand-polished heavy-gauge steel chassis. You can see your reflection in the paint. It's so beautifully built that I thought it just had to be made in Italy, not least because when last I was in that amazing country, I passed through the town of Primaluna on my way to Lake Como, but mainly because the word itself is Italian (it means 'First Moon.')

Alas, it transpired that I was completely and utterly wrong, because PrimaLuna equipment hails from Holland. The brand name is owned by Durob Audio BV, a company owned by Herman van den Dungen, a Dutchman who has been distributing high-end audio components

in Holland for more than 30 years but recently started manufacturing his own equipment. During his time in the audio business, Dungen has obviously made a few crucial contacts, because working for him on the PrimaLuna range are none other than the famous Marcel Croese, (formerly with Goldmund) and Dominique Chenet (late of Jadis). They don't actually build the amplifiers in Holland of course: that's all done in China.

As you'd expect given Croese's background, the ProLogue One is a very high-tech valve amplifier, with a soft-start circuit to enhance valve life, an auto-biasing system that ensures the valves run at optimum temperature for best performance and longest life and, because the bias is continually adjusted, you're assured of the lowest possible distortion (and of course, there's nothing for you to adjust!). All valves are fitted with plate fuses, so in the event of a failure of any kind, the most you stand to lose is a valve and a fuse. However, since PrimaLuna's US distributor, Audio Excellence, says that in all the years he has been selling PrimaLuna he's never had a single failure of either, the possibility seems remote.

Open up a ProLogue One (don't try this at home, because you'll void the warranty!) and you'll find it's mostly point-to-point wiring—all of which has to be done by



Power Output: Single channel driven into 8 Ω , and 4 Ω non-inductive loads at 20Hz, 1kHz and 20kHz, using 8 Ω tap.

hand, of course. There is a printed circuit board inside, but it's for the auto-biasing. The inside of the amplifier is otherwise populated by high-quality components including metal film resistors, and Nichicon and Realcap capacitors. All tube sockets are ceramic, and the output transformers are completely encapsulated. The volume control is made by Alps. If you have ignored my sage advice and ill-advisedly popped the lid, you may be wondering about that JFET on the PCB. You needn't. I have it on good authority that it's part of the adaptive autobias system, all of which lies outside the signal path, and is fed from a signal sent forward from the amplifier's input.

So far as I could establish, other than the soft-start and the autobiasing, the circuit follows a fairly standard ultralinear topology with the 12AX7A dual triode driving the two halves of the 12AU7, (configured as a long-tail pair), after which the signal ends up at the EL34 output valves, operating in push-pull with their screen grids linked to the output transformer primary. The autobias continually adjusts the bias voltage in response not only to the input signal, but also in response to temperature. The output transformer has two taps, one at 8Ω and the other at 4Ω. As in the olden golden days, the 'negative' terminal is not marked as such, but is instead marked 0Ω, which brought back a flood of memories. The speaker terminals appeared to be made by WBT, but did not carry that company's initials. They are very high quality. They are also fixed on standard 12.7mm centres, so if you use the 4Ω tap you can connect your speakers using a dual Pomona plug. If you use the 8Ω tap, you'll need individual bananas.

All four inputs are line-level and unbalanced, using RCA sockets. On the rear panel the inputs are (left to right): CD, Tuner, Aux 1 and Aux 2. At the far right of the rear panel is a standard IEC 240V socket with an integral fuse.

In Use and Listening Sessions

I was a little surprised that my review sample came with all the valves already installed and, since the EL34s were wrapped in foam, I assume this is the standard method of delivery to consumers, and was not peculiar to my review sample. I was equally surprised to find that all eight valves were branded with PrimaLuna's name. I assumed the valves were not matched, but I am not actually

sure of this. The manual notes that *'While matched tubes are not a requirement, it is still recommended if you want to get the very best results. Better tubes sound better and matched better tubes sound even better than that! You can get the very best in replacement tubes as well as rare vintage NOS (New Old Stock) tubes from us and other parties if you wish to upgrade.'* Further on in the manual are listed various different valve types that can be substituted in the appropriate positions. The list contains the usual valves I would consider as likely candidates with the sole exception that PrimaLuna says the ProLogue One will work OK if you substitute the 12AX7s with 5751s. I didn't try this, but on the face of it, it's not a substitution I think I'd personally recommend. Indeed I would say you should use only exactly labelled 12AX7s from your preferred manufacturer. If you really want to experiment, go with old favourites like ECC83s or 7025s.

I am not a believer in leaving valve amplifiers on all the time. I cannot see the point in reducing the valve's already limited life (though as I have mentioned in past reviews for *Australian HI-FI*, I would be surprised if you don't upwards of 10,000 hours from small signal valves and more than 3,000 from power valves, so that's a lot of listening) or, indeed, the point in hastening the effects of global warming which in this case would come about from the coal burned to provide the 240 volt power for the ProLogue One, and the heat given off by the valves themselves!

Because I think turning off power should be made as easy as possible, I was a little dispirited that the power switch has been mounted at the side of the amplifier, rather than on the front, where it'd be really easy to get to. I sat the amplifier on a specially-made table I recently acquired, so I didn't personally find the switch at all hard to reach, but if I were still locating my equipment in the lowish equipment rack I used before I bought my table, my access to the power switch would have been quite restricted.

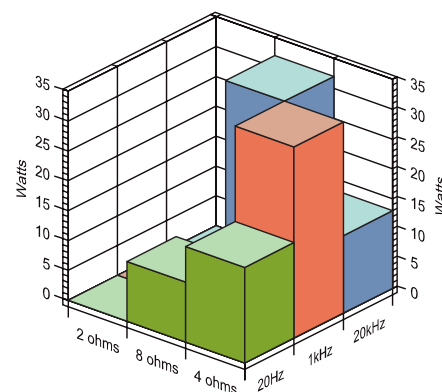
First up I connected PrimaLuna's ProLogue One to another new arrival at my place, a pair of ProAc Response One SCs, which I had been encouraged to audition by one of my fellow reviewers at *Australian HI-FI*. [Editor's Note: James Ross's review of these ProAc's appeared in *Australian HI-FI Volume 37 No 1*.] I was impressed. The sound was everything I

PrimaLuna

Brand: PrimaLuna
Model: Prologue One
Category: Integrated Valve Amplifier
RRP: \$2,495
Warranty: One Year
Distributor: Reference Audio Visual Pty Ltd
Address: PO Box 171
 Park Orchards
 VIC 3114
T: 1800 133 135
T: (03) 8813 0133
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E: steve@referenceav.com.au
W: www.referenceav.com.au

love about valve amplifiers: sweet and warm, but with a transparency that allowed me to listen 'through' the music and a 'liveness' to the sound that removes it from the dull, stodgy 'by-the-numbers' reproduction of music that's so evident on so many solid-state amplifiers. I find too many solid-state designs—and increasingly so these days, for reasons I have yet to fathom—remove the 'life' from the music. Sure the sound is accurate, free from distortion, and free from extraneous background noise, but without life, music is nothing. Music is supposed to live and breathe.

The PrimaLuna revealed one of its strongest points on Steve Hunter's CD 'Condition Human', which features a different (female) vocalist on almost every track. I'd been enjoying this CD for several weeks, but it wasn't until I hooked up both the ProAc's and the PrimaLuna (or 'dad's new Ps', as my daughter—who's at the age to appreciate scatological humour—would have it) that I really began to appreciate the different qualities of the voices, and how they worked in with the songs Hunter had selected, so the ProLogue One was obviously doing something very right! The combination also let the vocals 'float' clear of the backing instruments, yet at the same time project the complete image forward



Power Output: Both channels driven into 8Ω, and 4Ω non-inductive loads at 20Hz, 1kHz and 20kHz, using 8Ω tap.




into the room. There's a lot of reverb and effects on this CD, and the PrimaLuna worked its magic in this area as well, adding interesting complexity.

Switching over to my usual large floor-standing speakers, the PrimaLuna quickly revealed what turned out to be its Achilles' heel, which is that it doesn't exert a lot of control over the bass, most notably low percussion—kick drum and tympani, for example—so that rather than just a sharp 'thwack' sound, there's a lengthier decay that meant that if a lot was going on at very low frequencies, the sound presented as being a little 'dark', though I didn't hear any attendant low frequency confusion *per se*. This barely affected music that used only small forces (soloists and small ensembles, whether they were jazz, rock, or whatever...) but was noticeable—though not overly intrusive—with orchestral works.

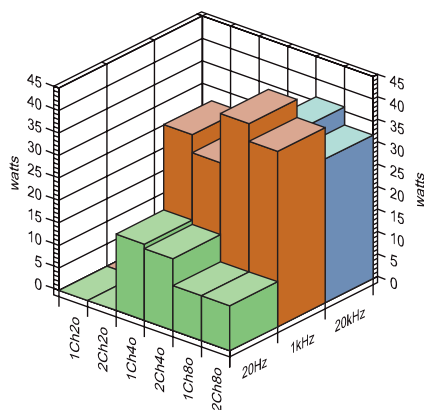
I was pleasantly surprised to find the PrimaLuna ProLogue One worked its midrange magic when driving my floor-standers, with the vocals still sounding beautifully fluid and limpid and projected

forward into the room with plenty of surrounding air. When I re-listened to 'Condition Human' to check this, I thought James Muller's guitar came though more smoothly, with a little more ambience, which worked well on this recording. Nick McBride's cymbals also sounded sweeter than I think I've heard them previously, and with a bit more 'ride' and 'zing'.

Conclusion

PrimaLuna's ProLogue One is a lovely-sounding amplifier, that in every way fulfills the promise of its appearance, not to mention its attractive-sounding name. Audition one with your preferred loudspeakers, or choose speakers specifically to partner it, in which case I'd suggest you bias your decision based heavily on their efficiency—89dB or higher would be optimum, in my view—and their design—bookshelf, electrostatics, planar magnetic or floor-standing speakers using bass drivers less than 30cm in diameter would be ideal—and your ears will quickly reveal the good news. 

Chris Croft



Power Output: Single and both channels driven into 8Ω and 4Ω non-inductive loads at 20Hz, 1kHz and 20kHz using 8Ω tap.

LAB REPORT

Readers interested in a full technical appraisal of the performance of the PrimaLuna ProLogue One should continue on and read the LABORATORY REPORT published on the following pages. All 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.

TEST RESULTS

Test Results

Newport Test Laboratories measured power output at 39 watts per channel (15.9dBf) into 8Ω, both channels driven into 1kHz, which was just 4 watts (and 0.4dB) above PrimaLuna's 35 watt rating. Measured power output increased to 43 watts (16.3dBf) into 8Ω when only a single channel was driven. Power output fell slightly at higher frequencies, with the extreme example of this being at 20kHz, where the lab recorded 32 watts output into 8Ω when both channels were driven and 36 watts into 8Ω with just a single channel driven. Power output sagged significantly at very low frequencies, with NTL recording a maximum output of 10-watts per channel into 8Ω, which remained the same irrespective of whether one or both channels were driven. As usual with valve amplifiers, maximum output was not measured at the onset of clipping, as it is with solid-state amplifiers, but when the output contained 3 per cent THD.

When measured whilst driving 4Ω non-inductive loads, the ProLogue One met its power specification only at 1kHz and only when a single channel was driven, with power output at this frequency falling to 32 watts (15.5dBf) when both channels were driven. At high frequencies, output was measured at 13 watts and 14 watts per channel (both-channels and single-channel driven respectively). Interestingly, output at low frequencies was higher with 4Ω loads than it was with 8Ω loads, as you can see from the tabulated figures and the bar graphs.

Frequency response was moderately extended, with -3dB points at 3Hz and 64kHz and, using non-inductive 8Ω dummy loads, it was also very flat across the audio band, measuring at 3Hz to 64kHz ±0.5dB. However, as you can see on the combined frequency response graph, the amplifier's frequency response when driving a simulated speaker load (the red trace) was far from flat, swinging 2dB either side of reference. It was nearly 2dB high at 70Hz, 1.8kHz, and 18kHz and nearly 2dB low at 200Hz and 4.5kHz. What this means is that unless you are driving speakers that present a purely resistive load (such as a pair of Magneplanars, for example), the tonal balance of the PrimaLuna ProLogue One will be altered very perceptibly depending on the speakers that are connected to it.

The cause of this variation turned out to be the output impedance of the transformers, which was very high, coming in at 5.1Ω for the 8Ω tap (the 4Ω tap wasn't tested). Presumably, the output transformer has been wound with such a high impedance in order to guarantee maximum power from the amplifier, but it also means a very low

damping factor—in this case one of just 1.6—which in turn limits the amplifier’s ability to control unwanted cone movement. (Research by Floyd E. Toole in the 80s showed that damping factors of less than 30 can easily be perceived by trained listeners.)

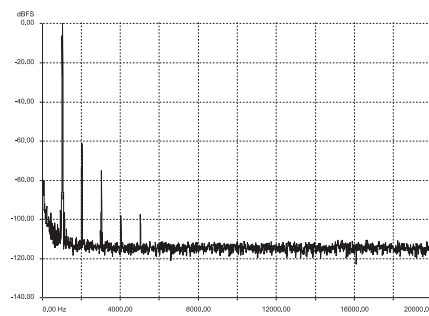
Channel separation was adequate, with a maximum of 67.5dB at 1kHz, reducing to 60dB at 20Hz and 64dB at 20kHz. Separation between different inputs was measured at 68dB or more at 1kHz and below, but increased with increasing frequency, to around 53dB at 20kHz. Input separation is usually greater than 90dB. What this means is that when listening to the ProLogue One you should have only one input ‘active’ at any time. So if you’re listening to a CD player plugged into the CD input, for example, you should make sure the components plugged into the Tuner, Aux 1 and Aux 2 inputs are switched off. Channel balance was adequate, at 0.3dB, and inter-channel phase accuracy quite good for a valve amplifier, at just 1.6° in error at 20Hz and just 1.03° at 20kHz.

Distortion was relatively low at low power outputs, but increased rather spectacularly at higher power output levels. You can see from the spectrograms that at one watt out, the primary distortion components were the second and third harmonics. Into 8Ω, the 2nd harmonic sat at -60dB (0.11%) and the 3rd at -75dB (0.01%). These two components increased slightly when driving 4Ω loads, but the major difference between the two graphs is the marked increase in levels of the fourth and fifth harmonic distortion components. At rated output into 8Ω, harmonic distortion components are visible right across the audio spectrum, up to the 18th harmonic. The primary low-order components (which have the most effect on sound quality) hover around -50dB (0.3%), though the fifth almost reaches -40dB (1.0%).

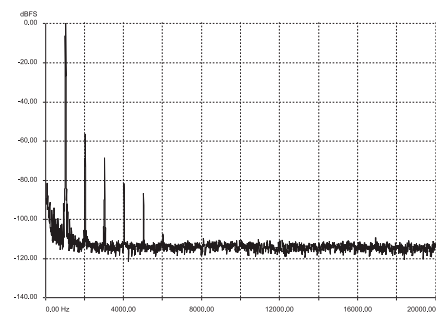
The level and structure of the harmonic distortion components when the amplifier was driven into 4Ω was similar to what’s shown in the 8Ω spectrogram, but kicked in at much lower output powers. The spectrogram shows distortion across the audio spectrum when the amplifier is delivering 9 watts into 4Ω (using the 8Ω transformer tap). Despite all this, overall THD+N figures were respectable at 1kHz into 8Ω loads, coming in at 0.08% for one watt, increasing to 0.87% at rated output.

Intermodulation distortion was relatively low. The spectrogram shows the twin peaks of the 19kHz and 20kHz test signals at the far right of the graph. The (unwanted) sidebands to the left and right are around 65–68dB down. More importantly, the unwanted regenerated 1kHz signal (the difference

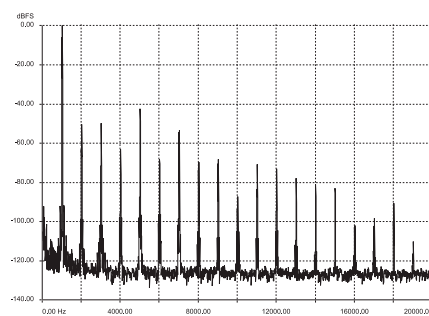
PrimaLuna ProLogue 1 Integrated Amplifier THD @ 1kHz @ 1 watt (8 ohms)



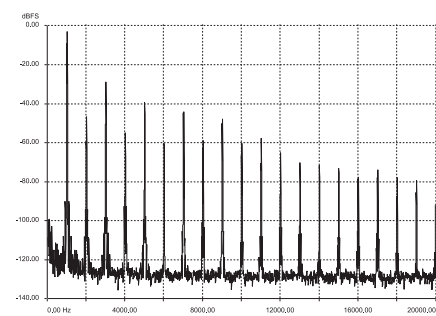
PrimaLuna ProLogue 1 Integrated Amplifier THD @ 1kHz @ 1 watt (4 ohms) 8 ohm Tap



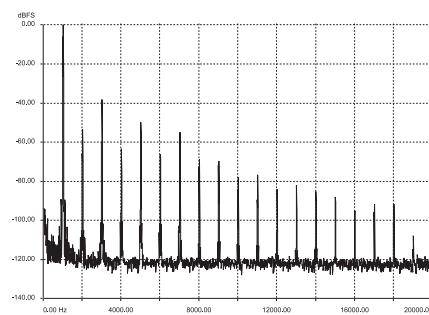
PrimaLuna ProLogue 1 Integrated Amplifier THD @ 1kHz @ 35 watts (8 ohms) 8 ohm Tap



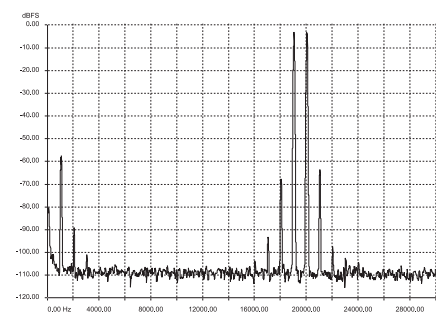
PrimaLuna ProLogue 1 Integrated Amplifier THD @ 1kHz @ 12 watts (4 ohms) 8 ohm Tap



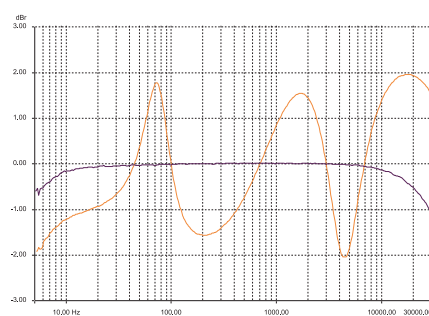
PrimaLuna ProLogue 1 Integrated Amplifier THD @ 1kHz @ 9 watts (4 ohms) 8 ohm Tap



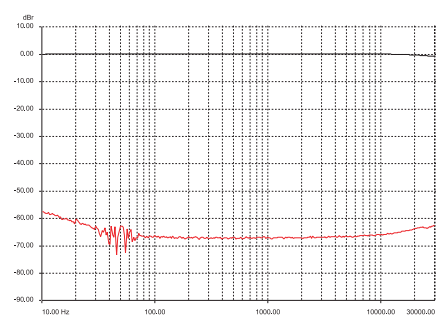
PrimaLuna ProLogue 1 Integrated Amplifier IMD @ 19/20kHz @ 1 watt @ 8 ohms



PrimaLuna Analogue 1 Int. Amp. Freq. Resp. @ 1 watt (8 ohms & Sim L/Spkr)



PrimaLuna Analogue 1 Int Amplifier Channel Separation @ 1 watt



between 19kHz and 20kHz) over at the far left of the graph is down at -58dB (0.12%).

The PrimaLuna ProLogue One's signal-to-noise ratio was satisfyingly high, with unweighted noise coming in at 78.1dB referred to one watt, increasing to 85.6dB with 'A' weighting. Referred to rated output, the signal-to-noise ratios were 94.1dB and 100.1dB respectively, so the amplifier will be quiet. The sensitivity of the CD input was standard, requiring just 35.5mV at the input to drive the amplifier to the 1-watt output level, and 215mV to drive it to rated output.

The square wave oscillograms show graphically most of what I have already described. The tilt on the top of the 100Hz square wave shows the amplifier's limited low-frequency response, and the curvature on the top of the wave its low-frequency

phase shift. The 1kHz square wave is good, but far from being a replica of the input signal, shows some rise-time limitations, and what appears to be a rising frequency response (above the audio band). Loaded down with a 2µF capacitor, there was no ringing nor any output stage instability, so the amplifier would be well-suited to driving electrostatic loudspeakers. The wrinkled appearance of the leading edge of the 10kHz square wave appears to indicate some ringing at ultrasonic frequencies, which is obviously undesirable but apparently benign.

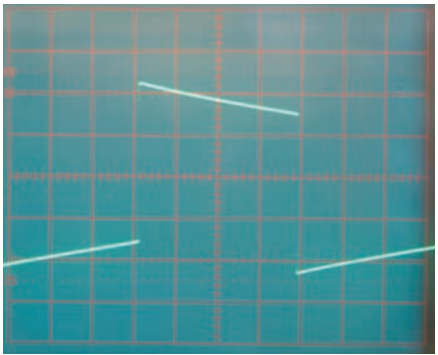
Mains power consumption was high, with the amplifier drawing 132 watts from the 240 V mains supply whenever it is switched on, increasing to 138 watts operating at the one-watt level, and to 250 watts when operating at full power.

Steve Holding

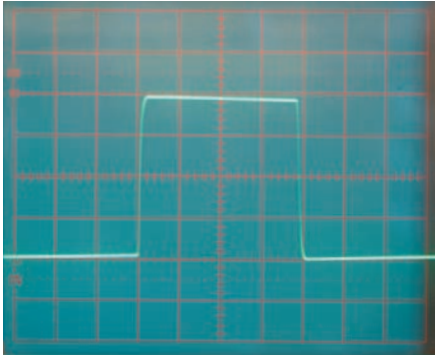
PrimaLuna ProLogue One Integrated Amplifier - Power Output							
Channel	Load (Ω)	20Hz (watts)	20Hz (dBW)	1kHz (watts)	1kHz (dBW)	20kHz (watts)	20kHz (dBW)
1	8Ω	10**	10.0	43	16.3	36*	15.5
2	8Ω	10**	10.0	39	15.9	32*	15.5
1	4Ω	17**	12.3	36	15.5	14*	11.4
2	4Ω	16**	12.0	32	15.5	13*	11.1
1	2Ω	NT	NA	NT	NA	NT	NA
2	2Ω	NT	NA	NT	NA	NT	NA

Note: Figures in the dBW column represent the output level, in decibels, referred to one watt output. NT=Not Tested **=3% d

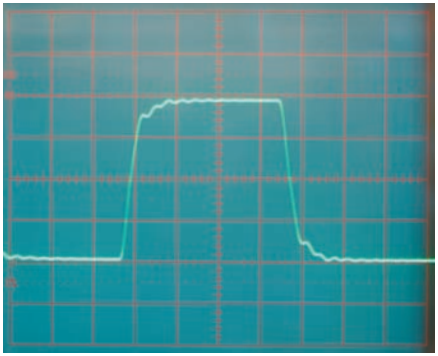
PrimaLuna Prologue One		
Test	Measured Result	Units/Comment
Frequency Response @ 1 watt	4.2Hz-30kHz	-1dB
Frequency Response @ 1 watt	3.0Hz-64kHz	-3dB
Channel Separation	60.9dB/67.5dB/63.8dB	(20Hz/1kHz/20kHz)
Channel Balance	0.3dB	@ 1kHz
Interchannel Phase	1.6/0.08/1.03	deg (20Hz/1k/20k)
THD+N	0.08% / 0.87%	1 watt/rated o/p
S/N Ratio (unweighted/weighted)	78.1dB/85.6dB	dB re 1 watt output
S/N Ratio (unweighted/weighted)	94.1dB/100.1dB	dB re rated output
Input Sensitivity (CD input)	35.5mV/215mV	(1 watt/rated o/p)
Output Impedance	5.1Ω	OC = 4.519V
Damping Factor	1.6	@ 1kHz
Power Consumption	N/A/132 watts	Standby/On
Power Consumption	138 watts /250 watts	1-watt/Rated op
Mains Voltage Variation	237-245 volts	Min-Max



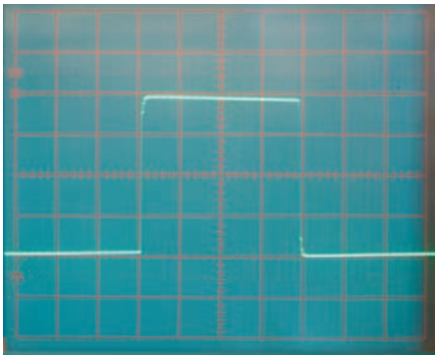
100Hz Square Wave (8Ω resistive load)



1kHz Square Wave (8Ω resistive load)



10kHz Square Wave (8Ω resistive load)



1kHz Square Wave (8Ω//2µF capacitive load)