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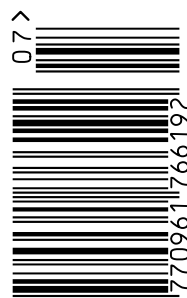


EXCLUSIVE!

MARTIN LOGAN RENAISSANCE ESL 15A loudspeakers

ICON AUDIO HP8 MKII HEADPHONE AMPLIFIER **EXCLUSIVE!**
T+A PA 2000 R INTEGRATED AMPLIFIER **EXCLUSIVE!**
VAN DEN HUL MC-ONE SPECIAL CARTRIDGE **EXCLUSIVE!**
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HIGH END MUNICH SHOW SPECIAL REPORT

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EDITOR

Noel Keywood
e-mail: editorial@hi-fiworld.co.uk

DESIGN EDITOR

Faiza Chunara
tel: +44 (0) 20 8206 6018
e-mail: adproduction@hi-fiworld.co.uk

PRODUCTION EDITOR

David Noble
tel: +44 (0) 20 8206 6019
e-mail: classifieds@hi-fiworld.co.uk

SALES MANAGER

Louise Palfrey
mob: +44 (0) 7917 047 548
e-mail: louise@hi-fiworld.co.uk

PUBLISHER

Noel Keywood
e-mail: publisher@hi-fiworld.co.uk

FREE READERS CLASSIFIEDS

tel: +44 (0) 20 8 206 6019
e-mail: classifieds@hi-fiworld.co.uk

SUBSCRIPTIONS

tel: +44 (0) 1442 820 580
fax: +44 (0) 1442 827 912
e-mail: hifiworld@webscribe.co.uk

PHOTOGRAPHY

David Noble
tel: +44 (0) 20 8206 6019

WRITERS

Paul Rigby, Jon Myles, Martin Pipe,



This month we have the privilege of presenting to you the first review world-wide of Martin Logan's new Renaissance electrostatic loudspeaker – see p10 of this issue. Apparently, export models were shipped before the home market – the USA – and since we are known by Martin Logan to be somewhat interested in electrostatics, they were happy for us to receive a pair for review – pronto. And I was happy to review them.

If you want to hear this loudspeaker to die for – or perhaps disagree with that comment – then I'd recommend getting an audition at your dealer. Just remember to phone first. Open panel loudspeakers are worth hearing, especially Martin Logans. I would like to know your opinion, because there's always debate about the difference between a box and an open panel, one that reviewer and musician Rafael Todes and I are constantly involved in, for example.

We were surprised to learn B&W have been sold to new owners, if less so that Tannoy's Coatbridge plant will close, something that has been on the cards for months since Behringer's Music Group took over last year. Since both are global brands with a valued customer base I doubt they will be diminished, so much as re-structured. Tannoy design is likely to take place in Manchester with product being built in China. I've seen big Wharfedales being built by five men at a time in IAG's Shenzhen factory – and a very good job they made of it too. Music Group specialise in professional audio so they could spin Tannoy off: just look at what happened to Bentley, Rolls Royce and Mini. Germany excels in this sort of thing.

As they excel in holding what is now probably the biggest hi-fi show on the planet. The High End show in Munich is just a 90 minute flight from the UK and these days costs around £60 return. I'd encourage you to go – it can be done in a day – because it is a show like no other. Most British manufacturers exhibit you may be pleased to know, but it attracts companies from around the world, who demo some startling products. As always, Silbatone was for me a highlight – see our report on p53 – since their 1924 Western Electric cinema system, driven by very early valve amplifiers, is extraordinary in its sound, wowing visitors and exhibitors alike.

Not that good hi-fi has to be big or expensive (or old) – as our exclusive review of the new Blue Aura V40 hybrid valve amplifier attests. Here's a small unit that combines tubes with the convenience of Bluetooth for hooking up to your mobile device. It's different but sounds superb – see p61. I hope you enjoy this issue where we cover the big, the small but most importantly the best equipment on offer.

Noel Keywood,
Editor.

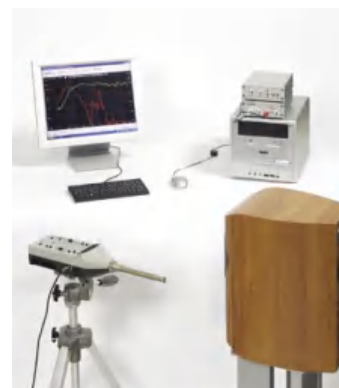
testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

To ensure the upmost accuracy in our product reviews, *Hi-Fi World* has extremely comprehensive in-house test facilities, and our test equipment - from big names like Rohde & Schwarz and Hewlett Packard - is amongst the most advanced in the world.

Loudspeakers are measured using a calibrated Bruel & Kjaer microphone feeding a Clio-based computer

analyser, using pulsed and gated sinewaves, in a large room to eliminate the room's influence. Pickup arm vibration is measured with a Bruel & Kjaer accelerometer.

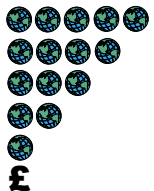
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contents



LOUDSPEAKERS

MARTIN LOGAN RENAISSANCE ESL 15A ELECTROSTATICS 10

Noel Keywood reviews Martin Logan's latest top of the range hybrid electrostatic 'speakers.

DALI OPITICON 2 LOUDSPEAKERS 58

A standmount loudspeaker that combines elegant looks with a beguiling sound, says Jon Myles.

DIGITAL

UNISON RESEARCH UNICO CD DUE 16

Martin Pipe reviews Unison Research's latest CD player/DAC.

EXOGAL COMET DAC 41

A computer DAC that is different from the rest, says Martin Pipe.

AMPLIFICATION

T+A PA 2000 R INTEGRATED AMPLIFIER 21

T+A's new slimline amplifier is both sophisticated and powerful finds Jon Myles.

ICON AUDIO HP8 MKII HEADPHONE AMPLIFIER 36

Paul Rigby plugs his headphones into Icon Audio's upgraded valve-powered headphone amplifier.

BLUE AURA V40 BLACKLINE BLUETOOTH TUBE AMPLIFIER 61

Small but superb - the V40 could form the heart of an excellent system according to Jon Myles.



JULY 2016

VOLUME 26 : NO. 5

FEATURES

53 HIGH END SHOW, MUNICH

Noel Keywood travels to Germany to bring you all the latest news from Europe's premier hi-fi show.

OLDE WORLDE

75 SONY MINIDISC PART II

Martin Pipe continues his look at the pros and cons of Sony's Minidisc format.

HEADPHONES

51 KENNERTON MAGISTER STEREO HEADPHONES

Wooden earcups and stylish presentation distinguish the Kennerton Magister over-ear headphones. Jon Myles listens in.

VINYL

84 NEWS

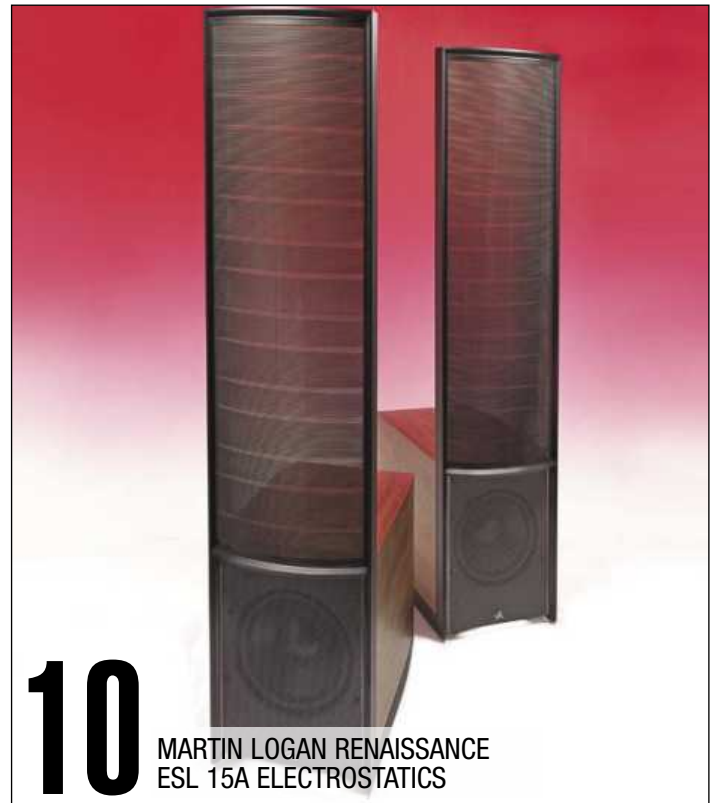
All the latest and greatest vinyl releases for you, from the pen of Paul Rigby.

87 ORACLE PARIS MkV TURNTABLE

Good looks and a good sound mark Oracle's new Paris MkV turntable as one to look out for says Noel Keywood.

91 VAN DEN HUL MC-ONE SPECIAL CARTRIDGE

Paul Rigby is more than impressed with the latest hand-built Van Den Hul moving coil cartridge.



MARTIN LOGAN RENAISSANCE
ESL 15A ELECTROSTATICS

REGULARS

7 NEWS

Words from the world...

26 MAIL

Seven pages of your views, wonderful as always...

25 COMPETITION

Your chance to win a Quad PA-One Headphone amplifier worth £1200

38 SUBSCRIPTIONS

Ensure your copy every month and save money too!

44 WORLD STANDARDS

Updated guide to the latest and greatest hi-fi hardware on sale

64 AUDIOPHILE VINYL

Paul Rigby rounds up the latest audiophile vinyl releases

67, 69, 71, 73 OPINION

The Hi-Fi world team get to grips with matters music, hi-fi and life!

92 DIAL-A-DEALER

A comprehensive guide to UK hi-fi retailers

94 CLASSIFIEDS

Two pages of second-hand bargains

96 NEXT MONTH

What we aim to bring you in the next sizzling issue...

97 ADVERTISERS' INDEX

98 CLASSIC CUTS

Paul Rigby looks back at Saxon's heavy metal classic Dogs Of War.

Hi-Fi World measurement

Two products in this month's issue, under test.

The products we review are tested first to ensure they work properly and meet their manufacturer's specification. Our measurements also look at factors that affect sound quality, like frequency response, distortion and dynamic range, as well as those that affect compatibility, such as output level, output power etc. These tests are complex and can only be made using a professional audio analyser, calibrated to international ISO standards to ensure accuracy – we use the excellent Rohde&Schwarz UPV. Loudspeakers and headphones require acoustic analysis. For this we use the well known Clio test system from Audiomatica, Italy, to provide reference standard acoustic measurements, within a very large 6000 cu ft test room. You can be sure our loudspeaker reviews, covering the full audio band from 20Hz to 20kHz, are accurate as a result.



Cartridge testing is disc dependent: LPs are notoriously approximate things compared to digital, so test disc accuracy is everything and accurate test discs rare and mostly now-unobtainable. Such as the German DIN 45 542 test disc we have, being used in this shot, where the Van den Hul MC One Special moving coil cartridge is under test to measure its Vertical Tracking Angle (VTA). The European standard was and still is 22 degrees, but few cartridges manage this low value, because they'd have little disc clearance and "ground" over warps. Most come in around 28 degrees in practice, but this keeps distortion on left and right images within reasonable bounds. To carry out this test a spectrum analyser is needed to measure the 1kHz sum tone (intermodulation distortion) generated by 370Hz and 630Hz test tones on the LP. For this we use a Hewlett Packard HP3561A.

Traditionally, large panel loudspeakers are difficult to measure because phase cancellation across the panel causes local variability in output, meaning inconsistent results dependent upon microphone position, when 1 metre away – the usual standard.

To minimise this problem it's necessary to move the measuring microphone 2 metres or so away, whereupon room reflections start to strongly disturb measurement accuracy. This demands either the hire of an anechoic chamber (big money) or the great open doors where passing planes and dicky birds then introduce their own form of disturbance. However, our measuring room is large enough, at 6000 cu ft, to not influence measurement and we got a consistent result from the big Renaissance electrostatic panel.

Shown here on-screen is a third-octave, pink noise analysis of frequency response, made through the Clio test system measuring microphone, sitting atop an adjustable tripod stand.



email:news@hi-fiworld.co.uk

news**TANNOY**

Bowers & Wilkins

TANNOY TO CEASE UK MANUFACTURING - B&W BOUGHT OUT BY SILICON VALLEY START-UP

Two of the UK's most iconic hi-fi loudspeaker brands have announced major changes. Tannoy is planning to shut its Coatbridge plant in Scotland with the loss of 70 jobs and move production to China while B&W has been bought out by a Silicon Valley start-up company.

Tannoy's owners Music Group – who bought the company in 2015 – said it was planning to close the Scottish plant and move loudspeaker manufacture to a purpose-built factory in Zhongshan, China. Research, development and marketing operations will move to Music Group's Innovation Centre in Manchester.

A spokesman for Music Group – the company behind the giant Behringer pro-audio brand – said “Following an extensive evaluation of our operational and financial structure we have taken the difficult decision to propose that the staff in our Tannoy manufacturing and office facility in Coatbridge are dismissed as redundant which, if confirmed, would see the facility closed”.

Meanwhile, B&W has been sold to Eva Automation – a company founded in 2014 by former Facebook chief financial officer Gideon Yu. Mr Yu and B&W chief executive Joe Atkins said there would be no staff cuts and the firm would continue to sell its range of loudspeakers under the Bowers & Wilkins name.

The move came as a shock, though, as Eva Automation currently employs just 40 people compared to B&W's 1100-strong workforce and has yet to produce any products. A statement on its website says it is “making products that will change how people interact and think about the home”. Financial details of the deal were not disclosed.

CYRUS A-ONE-TWO-THREE-FOUR...

Cyrus ONE is a 100W amplifier, the third generation of the company's hybrid class D technology and includes a built-in phono stage, Bluetooth streaming and headphone amplifier but without the need for internal heat sinks, reducing heat extremes.

The built-in Class A/B headphone amplifier is automatically activated when the headphones are plugged in, the toroidal power supply switching all its power to the headphone circuits. At the same time, the volume is automatically returned to zero to protect the user's hearing and headphones and, in turn, the volume reverts to zero when the headphones are removed.

Four additional line level inputs provide connectivity to other devices and the amplifier is also fitted with an AV Bypass mode for use in home cinema systems.

The selection of partnering loudspeakers is aided by the automatic Speaker Impedance Detection (SID) circuit instantly measuring the speaker impedance and adjusting the amplifier to suit.

Other features include LED dimming to match the brightness of the front panel indicators to the environment. Firmware updates are made possible via a micro USB port on the rear. Price is £699.

Go to www.cyrusaudio.com or call 01480 410 900 for more details.

**NAD DIGITAL PAIRING**

NAD has announced two new additions to its Master Series. The M32 Direct Digital Amplifier is a BluOS-ready integrated amplifier, including a phono input and a dedicated headphone amplifier. The M50.2 Digital Music Player will offer high resolution music listening, multi-room wireless streaming to other BluOS-enabled speakers, 24bit/192kHz storage and CD ripping.

For the M32, Direct Digital amplification combines all pre-amplification and power amplification functions into a single amplifying stage.

With 150W on tap, the M32 is computer controlled and amplifies entirely in the digital domain, converting to analogue at the speaker terminals. You also get four MDC (Modular Design Construction) slots with three for customisation and expandability and all are 24bit/192kHz capable.

The M32 is multi-room and high-res ready with the optional BluOS module that can occupy one of the MDC slots. BluOS is NAD's operating system for music management and control that includes support for local NAS drives and Internet-streaming audio services like Spotify and Tidal.

The M50.2 Digital Music Player is an upgrade on the company's M50. It can network music throughout the home via digitised and centrally stored music

that is made available to other BluOS-enabled components. It can rip CDs into 24bit/192kHz storage, stream from a cloud service or plug in an existing digital music library from a hard drive. Features include Wi-Fi and Ethernet inputs; automatic ripping of CD to the internal RAID of two 2TB hard drives; CD play back; decode of FLAC, ALAC, MP3, WMA and AAC; front and rear USB inputs; remote control and TFT touch panel display. Price will be £3,700 apiece. For more information, contact www.nadelectronics.com





PMC twenty5

PMC is launching the twenty5 series to mark the company's 25th anniversary and there are five designs in the range.

In keeping with all PMC products, the foundation of the twenty5 series is Advanced Transmission Line bass loading, enhanced with the new aerodynamically designed Laminair vent technology.

The twenty5 series project also offers new, low throw mid-bass drivers, with resin-bound, g-weave fine-weave glass fibre cones. The motor system has been optimised while the Sonolux fabric dome tweeter has been further fine-tuned here.

The twenty5 series cabinets feature five degree sloping front and rear baffles, while custom-made, single piece stainless steel spikes thread through the bar to facilitate level adjustment.

The range comprises two stand mount speakers: the two-way twenty5.21 and twenty5.22, plus three floor-standing models: the twenty5.23, twenty5.24 (both two-way) and the three-way twenty5.26 that features PMC's 50mm soft dome midrange unit.

The 27mm tweeter is common to all models, with the 21 and 23 sharing the 140mm long-throw g-weave bass driver, with a 170mm variant used in the 22 and 24, and a 177mm version in the flagship twenty5.26.

All speakers within the range are available in a choice of three real wood veneers: oak, walnut and amarone plus the high gloss diamond black finish. Every model comes with an invisible magnet-fixing grille, finished in a black textured PMC cloth.

Prices are: twenty5.21, £1,870; twenty5.22, £2,450; twenty5.23, £2,970; twenty5.24, £4,250; twenty5.26, £6,995 & twenty5 stand, £295.

To learn more, click on www.pmc-speakers.com or call 01767 686300.

SENNHEISER 'PHONE/AMP BUNDLE

Sennheiser and Apogee are launching a new bundle that brings together Sennheiser's HD650 stereo headphones with the Apogee Groove – a USB DAC and headphone amp.

The HD650s are open, dynamic headphones. Their high, 300 Ohm impedance means they require more power than can usually be provided by a computer. This is where the Groove (spanning 95 x 30 x 16mm) comes in. Providing support for WAV, AIFF and FLAC, the Groove's output provides power via its Constant Current Drive technology.

The Groove also features a Sabre DAC and Apogee's Quad Sum DAC design which utilises four digital-to-analogue converters per channel.

The bundle will be distributed exclusively via Sennheiser's online shop from the end of June. Price will be £490.

For more information, click on www.sennheiser.com or <http://en-uk.sennheiser.com/audiophile-headphones-high-end-hd-650> or call 0333 2408185.



AT-ART1000

Known as the Direct Power Stereo Moving Coil Cartridge, the AT-ART1000 is Audio-Technica's new flagship design.

Direct Power System means that it places the moving coil directly on top of the stylus tip so signal transmission from the stylus diamond to the moving coil is direct, not transmitted along the length of the cantilever. The AT-ART1000 features a line contact diamond tip stylus and a solid boron cantilever.

To create the non-magnetic core coil, 20µm diameter PCCO wire wound eight turns to a diameter of 0.9mm is used. Despite being a non-

magnetic core type, an output voltage of 0.2mV is obtained by placing a 3 Ohm coil in the 0.6mm gap of a magnetic circuit.

Due to the nature of the product and to protect against damage to the cantilever and wear of stylus tip, Audio-Technica will offer AT-ART1000 customers a paid Cartridge Rebuild Programme service. This programme provides the replacement of the whole assembly including stylus tip, cantilever, coils and rubber dampers and will be offered via the 'Excellence' retailer network. Price will be £4,100.

To learn more, click eu.audio-technica.com/hifi-phono/cartridges/AT-ART1000 or call 0113 277 1441

MELCO N1ZH60

MELCO, the audiophile division of Japanese computer peripheral company Buffalo Technology, has announced the launch of the N1ZH60 Digital Music Library. Based on the same platform as the N1Z, the N1ZH60 employs two 3TB HDDs and medical-grade dual power supplies. The storage discs have been mounted on a floating mechanism for improved stability and to reduce internal vibrations, while the N1ZH60 is housed in a rigid H-Cross frame chassis construction, with thick aluminium panels. Price will be £3,500.

To learn more, click www.melco-audio.com.



A.C.T. One Evolution P1

Wilson Benesch says it has produced the world's first loudspeaker constructed using coloured carbon fibre composites.

In partnership with Hypetex (noted Formula 1 Engineers) the new A.C.T. P1 Monocoque will be available in 'Enzo' red, with a number of other motor sport-inspired colours in the pipeline, reflecting the F1 racing origin of the Hypetex material.

The A.C.T. P1 Monocoque will first be seen in the A.C.T. One Evolution P1, with the promise of additions to the British manufacturer's reference line Geometry Series in future that benefit from Hypetex's composite material. Price is £21,500.

To learn more, click www.wilson-benesch.com or call 01142 852656.



PRISM CALLIA

The Callia is a new PCM and DSD-capable DAC, pre-amplifier and headphone amp that includes USB (UAC2 over USB 2 or later), coaxial RCA phono (supporting S/PDIF and AES3-id or AES3 with suitable adaptor) and S/PDIF optical, all for digital devices.

For analogue audio outputs, Callia offers both balanced XLR as well as unbalanced RCA phono connectors on the rear panel. The output volume can be set via the volume control in order to use the Callia as a pre-amp straight into a power amp, or optionally fixed for use with integrated and pre/power combos. Headphone users are also catered for with a separate volume control potentiometer.

Digital signals up to 32bit/384kHz (USB only) are catered for, alongside DSD processing. Price will be £1,495. To learn more, click on www.prismsound.com or call 01353 648 888



OFF ON A TANGENT

Clearaudio's 'TT' range of tonearms moves tangentially, with the stylus propelling the tonearm along a linear bearing. This bearing comprises a carriage running on rollers along a polished glass rail.

This is a more affordable entry point into tangential tonearm technology as it has removed one or two of the features of its 'big brothers', the TT2 and TT3.

For example, the TT5 adopts a new, fully rigid design. However, for those who still crave the convenience of the bigger arms' ability to swing out of the way when loading records, Clearaudio has created the optional TT5 swing base that allows the entire arm assembly to be swung out of the way when swapping one album for the next.

Tracking force and azimuth are adjustable. It weighs in at 560g without the arm base (620g with it) and spans 200 x 150 x 140mm. Price is £1,750. The optional swing base is priced at an additional £250. Call 0118 981 4238 or click on www.soundfoundations.co.uk for more information.



MC CLEARAUDIO: THE ESSENCE OF MUSIC

Like the company's Concept MC design, the Essence MC's body is constructed from a high-density aluminium-magnesium alloy, which is then coated with a ceramic layer.

The moving coil's design features a boron cantilever, microline stylus and Clearaudio-patented moving coil generator with OFC copper coils.

Other details include a 2g tracking force, 11 Ohm impedance, 8g total weight. Price is £795.

To learn more, click on www.clearaudio.de or call 118 981 4238

ATLAS DUAL DRAIN

Atlas Cables has redesigned its mid-priced analogue range of stereo interconnects – Hyper dd. By adding its dd (dual drain) technology developed for its Asimi, Mavros and Ascent reference cable range, the new Hyper dd range comprises four central multi-core conductors made up of OCC (Ohno Continuous Casting) copper wire with 99.9997% purity encapsulated within a gas foamed high efficiency Polyethylene dielectric.

Dual drain technology consists of twin symmetrical drain wires (each attached to 180 degree segments of the plug) inserted between a 100% copper Mylar foil and screen. This system connects the screen to the cable return plug interface and provides total 360° screening from RFI (Radio Frequency Interference). Price for 1m is £395 (RCA) or £520 (XLR).

For more information, call 01563 572666 or click www.atlascables.com.





Static power

Newly introduced to the top of Martin Logan's hybrid electrostatic loudspeaker range is the Renaissance. Noel Keywood listens in awe.

Gilbert Briggs, founder of Wharfedale loudspeakers, said after hearing Quad's first electrostatic loudspeaker in 1955, "we solemnly agreed to change into black and meet in the workhouse". It wasn't the end of the conventional box loudspeaker and that's why the Martin Logan Renaissance I am reviewing here has one, and why it is termed a hybrid. But the electrostatic drive unit is a shock all the same, threatening to put conventional loudspeakers out of business – and the new Renaissance is now one of the world's top electrostatics, price £25,000. And it makes large the reason Gilbert Briggs' was fearful.

The Renaissance ESL-15A is yet another step up the performance scale from the wonderful Summit X (£15k) I reviewed in our February 2014 issue. The Summit X was big but the Renaissance moves into the realms of being physically challenging size-wise, mainly because of its even-larger powered bass cabinet. Three of us struggled to unbox these 'speakers, yet in spite of their 64kg weight and near 6ft height (177 cms) they don't consume much floorspace, one major benefit of Martin Logan's tall, slim electrostatic panel.

Martin Logan shoehorn two 12in bass units into the bass cabinet of this loudspeaker, one firing forward and one backward. They're housed in a 70 cm deep cabinet, each working in an 'infinite baffle'

sealed chamber; there are no ports.

Also in each cabinet are two 500 Watt Class D power amplifiers no less, one per driver – so you can see where Martin Logan are positioning this speaker in the marketplace: it is very much for those who want a large sound in a large room – and have large pockets to match. The Summit X went very loud in my view – the Renaissance goes even louder. It is altogether a bigger and bolder statement.

But that's not all. Where the Summit X integrated an XStat panel with a powered bass cabinet using clever phase and radiation shaping techniques, Renaissance has similar but switched options and a Perfect Bass Kit (PBK) that can be bought as an optional extra. This compensates for room behaviour at low frequencies using a measuring microphone, a practice common in AV receivers. We were supplied with PBK about which I will say more later.

I'm going to presume you know that the tall, curved, see-through panel of each Renaissance holds a sheet of super-thin, transparent mylar film, like Clingfilm, that produces most of the music. It radiates front and back through all the tiny holes you can see in the fixed metal panels, or 'stators'. The film is super light, having virtually no mass, so it can start and stop perfectly, and it is driven all over by electrostatic force, not at one point by the cone of an electric motor, as in a conventional drive unit. This suppresses distortion to levels three times lower than cone speakers, from 0.3% to 0.1% our measurements show. Electrostatics are recognised as super-low distortion transducers.

That explains how and why Martin Logan's XStat panel is a see-through loudspeaker. It can also be Hoovered, believe it or not. Traditional electrostatics have dust bags to prevent dust ingress, and outer safety grilles, so they're not see-through and are sonically hampered by the protective covers.

Martin Logan have progressed way past such issues: their panels are insulated and the polarising supply switches off when the speaker is not playing.

The Renaissance uses an XStat panel 38cm (15in) wide and 117cm high – it's a big panel. If you want even more technical detail read the on-line instruction manual where film thickness, resistive coating, stator

coating and such like are all talked about.

The electrostatic panel works from 20kHz down to 300Hz Martin Logan say – most of the audio band – and the subwoofer from 300Hz down to 20Hz (see our Measured Performance for full details).

The bass unit cuts off hard below 20Hz our measurements, so as not to reproduce LP warps since two 12in bass units driven by 500 Watts apiece would otherwise be over-driven, something I suffered with Celestion's SL-6000 open dipole subwoofer that reached down to 5Hz, that I paired with a Quad ESL-63. The Martin Logan bass cabinet is not a dipole however, it is a monopole where both bass units are either going out, or in, at the same time (i.e. they are in-phase).

A bass system like this can

razor sharp images on it; electrostatics image superbly – and Martin Logan's curved panel is one of the best at this. If you sit 12ft back and leave 4ft behind the speaker then you are up to an 18ft long room including speaker depth – and that will just do. The Renaissance, however, is really purposed for bigger environments: think up to 30ft or more. They are meant to be able to fill a big space – and go loud.

Ideally, the wall behind the loudspeaker should have light sound absorption to ensure a clean, composed sound from the XStat panel which on the Renaissance is producing a lot of rear-radiated sound power because of its huge radiating area.

The bass cabinet houses two Class D 500 Watt Icpower amplifiers, one per drive unit, plus a



The bass cabinet houses a 12in bass unit behind a protective mesh grille. Below are single input terminals, so the panel cannot be split from the bass unit. There is a bass level control knob and an array of switches.

produce vast power and drive a big room but with bass turned down via the rear on/off switch Renaissance can also be used in a smallish room, down to 18ft long or so – or smaller with suitable back wall (front wall in ML parlance) acoustic treatment. I suspect those that can afford them will not be using a small room however.

You must sit well back for a coherent soundstage that will have

Digital Signal Processing Unit (DSP) in its base. A DSP is needed to apply equalisation, filtering and what have you, so the input signal is first turned to digital through an ADC, then processed, then turned back to analogue through a DAC before being amplified. There's a bass gain control with a large 10dB of gain or cut plus a switch that offers boost or cut in the crossover region between electrostatic and bass cabinet.

With cut, you get a dry sound; with boost you get a full sound more reminiscent of a box loudspeaker; there is also a zero (i.e. flat response) position – see Measured Performance for more.

Additionally, room tuning can be switched in or out, and there's a mini-USB socket computer input to facilitate room tuning.

To be clear, the electrostatic panel is driven directly from an external amplifier – transistor or valve – but the bass units have their own Class D power amplifiers.

The rear wave of a big bass unit isn't fully absorbed within a cabinet, coming out through the cone as delayed sound; only isobaric loading attempts to address this issue (or a dipole such as I used). This is the

forward. Looking at the expansive XStat panel of Renaissance firing forward and backward I knew that I was about to receive powerful treble – and in initial 'sighting tests' I did. No surprise here.

Faced with such a clean, clear yet forceful delivery I was also pushed into thinking about which amplifiers and source products would match and which would not. Super clean sources are needed. The Renaissance can be a challenging listen when spinning CDs passable on other loudspeakers. Good CDs like Dali demo discs we often use survived well but older CDs did not. The ruthless delivery and analysis of the Renaissance isn't flattering to poor CDs. I can see from measurement that Martin Logan have made an

Direct Drive fitted with SME309 arm carrying our Ortofon A-95 MC cartridge. This fed an Icon Audio PS3 valve phono stage (with volume control), connected directly to the Quad power amps. This way of operating is simple and offers pure sound quality – and it suited the Renaissance loudspeakers so well. Almost strange that LP played like this still remains ahead of even hi-res digital – at least, when spinning high speed 12in, 45rpm singles.

Why? Well LP via this system had drier and seemingly deeper bass than digital. The vast power of the Renaissance bass enclosures best utilised it. LP bass usually has more bloom than digital bass, but here spinning old 1980s, hi-cut disco 12in singles like Billy Ocean's 'Get Outta



At left are an RJ45 socket for connection during room tuning, a miniUSB input for computer connection and an ARC switch. At right of the input sockets lie a small toggle switch for crossover level adjustment and at far right a light switch.

source of the "box sound" conventional loudspeakers suffer. Putting two 12in bass units and power amplifiers into a small box doesn't ease this, so it's eyes wide open here: you get bass power, good cone damping, electronic equalisation and all but still you have box bass.

An interesting feature available as an optional extra with Renaissance is Perfect Bass Kit, or PBK. This allows the bass cabinet to be tuned to the room, cancelling a room's influence on accuracy. Room tuning is a complex subject and PBK was problematic but useful so see our box-out on it.

SOUND QUALITY

I haven't sat in front of a 15in wide XStat panel before but guessed from previous experience with 12in panels what was coming – huge sound power, especially at high frequencies. Your average loudspeaker has a tiny little tweeter cone firing only

effort to lessen this by progressively reducing high frequency output in Renaissance – an exercise in tiger taming.

The ultimate digital source is the new Audiolab M-DAC+ with its John Westlake designed, time-domain optimised digital filters within the ESS ES9018 Sabre32 series DAC, connected via its balanced output: I felt obliged to use it. Meaning I needed an amplifier with balanced input – and our Quad QMP mono blocks were ideal. They have the Quad smooth'n'easy sound and this was just what the ESL-15As needed.

Into the Audiolab M-DAC+ I mostly fed hi-resolution digital from my Astell&Kern AK120 portable digital player, to avoid CD (16bit) quantisation noise and distortion. I did however also use the Oppo to spin CD through the Audiolab, using the Oppo's digital output.

I span LP on our Timestep Evo modified Technics SL-1210 Mk2

My Dreams, Get into My Car', with all its sound effects, the opposite was true.

The huge 12in aluminium cone bass drivers had absolutely massive slam plus Mack truck power in full US fashion – but were also dry and tight in their delivery. There was no subtle, wall-flower stuff here: the bass cabinets shook and shuddered our 25ft long room on a Sunday when I can get to play at vast levels without Notting Hill complaining.

Big 'speakers like this shake a building and upset others far and wide; my only competition was a lone street sweeping vehicle that wouldn't go away, so I kept turning the volume up – and the ESL-15As didn't blink.

In the end it did go away, leaving a Sunday silence that allowed me to hear how these loudspeakers revealed the edits and added reverb existent in studio produced music. Again, ruthless analysis makes for jaw-dropping insight but sometimes

you wish to hear less, a bit like sometimes you like to see less when what you see isn't so good, if you know what I mean!

Pressing the 33rpm button on the Technics and spinning Kate Bush singing 'King of the Mountain' from Aerial (180gm vinyl), the deep repetitive bass line cruised along with unbridled power – and again LP bass made the speakers sound especially tight and well integrated. Kate Bush's hushed tones at centre stage were pure and easy to enjoy, a fine tapestry of treble percussion illuminating the background. Only a big Martin Logan can paint a sound stage so large and detailed, yet in this

"a breathtakingly powerful musical ability yet one that also delivers the clearest sound with finest detail imaginable."

case suitably gentle, befitting the song.

With LP then, the Renaissance offered a wonderful sound; for some reason bass quality was better than that from digital playback. My simple initial explanation here is that LP has more low-end energy (not necessarily music) than digital and fed more into the bass cabinets at very low frequencies. This produced dry, seismic bass.

With CD the 15in panel was incisive in nature – lightning fast and razor sharp in its delivery of transients, giving the acoustic guitar strings in Nils Lofgren's 'Keith Don't Go' the feeling of a surgical knife. There was, I fancy, a slight smoothing here as time went on and the panels ran in; tracks I played initially then later had eased in terms of laceration. Martin Logan say the panel needs little run in, the bass bin needs more. I found the XStat panel sweetening in delivery as it ran in, rather than losing its transient speed.

With Nigel Kennedy playing Massenet's 'Meditation' (CD), the Martin Logans gave his Stradivarius a light, clean and wondrously pure tone, unsullied by the usual crossover phase problems of conventional loudspeakers.

As a result the instrument was all of a piece – and I could hear right into the way he was bowing the strings; the emotional intent behind his playing was evident in the subtly worked intonations. With a such a

pure and large image in front of me it was impossible not to hold my breath at times with pieces like this. You can't approach the ability of an electrostatic to handle violin and Martin Logan's XStat panel in the Renaissance was breathtaking here.

Such large projection brought scale to the London Symphony Orchestra playing 'Mars' under Andre Previn's guidance. A thunderous piece like this was made large by the speakers, filling the room with heavy percussion, massed horns and agitated violins. The individual instruments I could pinpoint easily across the width of the soundstage – 7ft between

all the way down to 25Hz was staggering.

With tunes like this I realised just how monstrously powerful bass lines can sound in what is an active loudspeaker of unlimited power. The Renaissance quite obviously has more bass grunt than an unpowered loudspeaker and the cone area of two 12in bass drivers move air like a big 15in Tannoy, but from a smaller cabinet. There were times that – when really pushed hard to very high volume – the boxes had the characteristic box sound I mentioned earlier, due to return energy through the cone, but this wasn't apparent at normal to high listening levels.

CONCLUSION

The Renaissance is a statement electrostatic loudspeaker, as you might expect for £25,000.

But it delivers a sound quite beyond conventional box loudspeakers in almost every way. It literally dwarves others with its massive, precision soundstage, hung between electrostatic panels nearly 6ft high.

The bass cabinets deliver vast bass power from two 12in drive units driven by 500 Watts each – way beyond the power of all else.

This is a big loudspeaker with a breathtakingly powerful musical

loudspeaker centres. Imagine then, a 7ft wide and 6ft high TV screen, but one delivering audio instead of video, my eyes in awe.

With visceral Rock, like Queen's 'Radio GaGa' (24/96) the deep synth line and metronomic drum machine intro welled up from the floor whilst



Inside the bottom tray lies a complex array of electronics, including two B&O Icepower Class D 500 Watt power amplifier boards (right), high and low voltage power supplies plus DSP (top) and an enormous crossover board with air core coils and polypropylene capacitors (bottom left).

Freddy Mercury crooned down at me from just above, about teenage nights in front of the radio.

The sheer grip of the bass units and the enormous force of their delivery, with 1kW behind them

ability yet one that also delivers the clearest sound with finest detail imaginable. It's very different from all else but also extraordinary for it. Gilbert Briggs would have been even more impressed – or depressed!

Enjoyed Worldwide.



"The Sigma SSP can be regarded as a superb stereo analog preamp, and all the rest of its bells and whistles as a gift."

Kal Rubinson, Stereophile, USA

"It combines the flexibility of a Swiss Army knife with the precision of a surgeon's tool in an easy-to-use package. There's simply not enough room here to even pretend to detail what you can do with this processor. It's just awesome."

Theo Nicolakis, Audioholics.com, USA

"But most impressive is the sound quality. This is real high-end at a price that must be considered reasonable. And the step up from the traditional home cinema receivers is nothing but huge."

Ludwig Swanberg, HemmaBio, Sweden

"Oh my, what a wonderful system Classé has provided with the Sigma range. It shows that audiophile sound is not the sole preserve of stereo and equally that it is not incompatible with reliable and convenient operation."

Stephen Dawson, Audio Esoterica, Australia

"This Sigma system is a huge achievement which everyone must absolutely discover."

Adrien Rouah, Québec Audio & Video, Canada

Old meets new



In the Unico CD Due, Martin Pipe discovers that the latest silicon wonders have not tempered Unison Research's passion for tubes.

Italian tube-loyalist Unison Research generated much interest a few years back with its Unico CD player, a digital disc-spinner with a tubed output stage. It followed this up not long afterwards with the more upmarket Unico CDE, that worked from an external digital source.

Unison Research has now replaced the CDE with a new model that's specced for the digital age yet continues the firm's tubed traditions. The Unico CD Due, instantly recognisable as a Unison product on account of its distinctive styling and superb build quality, is rather more expensive than the CDE/Twin. But then again it does a lot more.

For a start there's now Bluetooth 3.0, with support for A2DP, SSP and Android HID profiles, so it should work with practically all wireless Bluetooth.

Then we have wired S/PDIF (coaxial), TOSlink (optical) and AES/EBU (professional balanced XLR) digital inputs. A major benefit here is that hi-res is supported – all the way to 24/192. So too is DSD64, claims the spec, courtesy of DSD-over-PCM.

There's also asynchronous USB, which supports 32-bit resolution and DSD-over-PCM. And to its eternal credit, Unison has explained how to set it all up so you can enjoy DSD64 files 'natively'. Foobar and JRiver player programs are detailed for the benefit of Windows users and the necessary drivers are available on the Unison website. The only mistake – and it's a minor one – is that Italian-language screenshots rather than English ones are used in the manual.

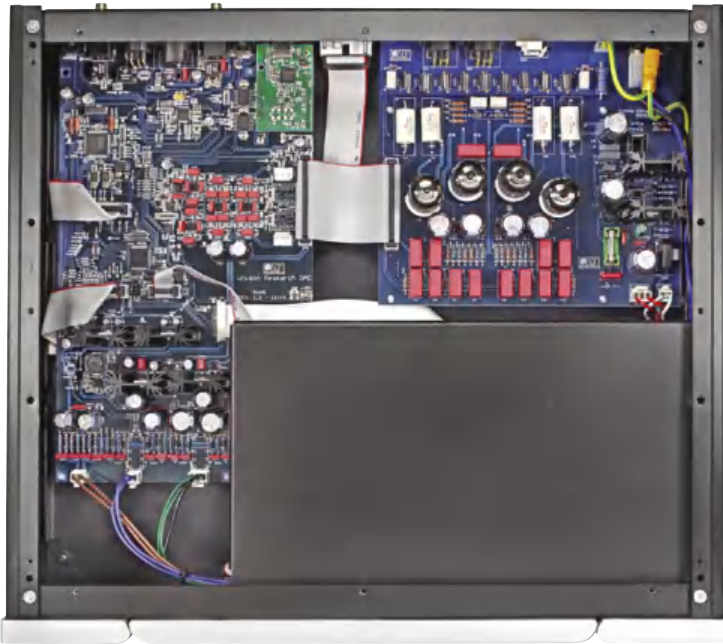
Oh...and did I mention there's CD playback too? As with previous Unicos, a computer-type CD/DVD

type 'loader' has been specified for disc replay. The designers have put in their low-jitter interface circuitry, though. This transport is optimised for CD; DVD-ROMs (and for that matter, CD-ROMs) containing uncompressed or compressed audio files are rejected. And you can't play such material via USB either. But what the hell! That's what computers are for!

Another advantage is that input-switching is now electronic – and you can switch between sources from the luxury of your armchair courtesy of Unison's characteristically wood-encased handset. No need to fumble around the back, then.

You will, however, need to fumble around the side to turn the Unico CD Due on or off, as that's where the mains switch is – and no remote-operable 'standby' mode is available.

You can use the handset for the



Neat construction and high-grade components are visible here. Behind the metal screen is the CD loader mechanism and the toroidal power supply transformer.

roster of expected CD playback modes – repeat, shuffle, skip, search and direct track access.

Three digital-filter modes (various combinations of linear/minimum phase and roll-off) and an invert-phase facility can also be selected by remote, for DAC-mode and CD playback alike. Volume control isn't possible, though.



The remote can't control volume or place the player in standby.

Like the hardware it operates, the handset is solidly-built. Its buttons are rather tidily, though.

Front panel controls are minimal (stop/play/eject/skip) and so you'll need the handset for all but the most basic of operations. The alphanumeric front-panel OLED display is clear and neat but I'm surprised that it doesn't support CD-Text information. It will however yield track and disc timing and limited details about the currently-selected external source (DSD/PCM sampling rate).

Internally, construction is very neat. The transport and toroidal mains transformer (a conventional linear power supply here) are hidden behind a metal hum shield.

One circuit board handles the DAC duties. On here you'll find a cornucopia of circuitry including the ESS ES9018 Sabre32 series chip, one of the best-sounding 'off-the-shelf' DAC chips currently doing the rounds. Lots of other high-quality components (WIMA capacitors and Vishay resistors) are also in evidence.

It links via a ribbon cable to a second board containing the two output stages, each of which is built around a pair of 12AX7 double-triodes (Tung-Sol) operating in differential mode. Yes, the Unico CD Due offers balanced (XLR) outputs as well as unbalanced phonos.

It's a sound design, although its electrolytic capacitors are positioned rather too close to the (warm) tubes for my liking. An unusual feature (engaged with the handset's 'opt' button) is a solid-state (op-amp)

output buffer. It's relay-bypassed if not required.

SOUND QUALITY

All listening took place in conjunction with an Arcam A49 and Quadral Aurum Wotan VIII speakers. In addition to CDs, listening sources included a Samsung Galaxy S4 Mini (Bluetooth), Windows 7 PC and Cambridge CXN streamer. The Bluetooth system worked well in practical terms despite the lack of a visible aerial (it's hidden behind a rear-mounted rectangular panel). Use is easy – a case of pairing your device with a newly-found 'Unison Research-EBD9', and initiating playback on your device.

It also scores well on the sound quality front if my varied selection of tracks, stored in lossless form to minimise quality loss, is anything to go by. Will.i.am and Britney Spears' 'Scream and Shout' lost none of their urgency and pace and the track's bassline bounced along nicely. Meanwhile, the saxophone part of Herbie Hancock's 'Chameleon' was given a vividness that allowed it to stand out from the mix – yet without compromising the other elements.



Tung-Sol 12AX7 double-triodes – two per channel – are used in the Unico CD Due's output stage.

Next, I tried USB. As previously outlined, I was able to get this going with ease thanks to the thoroughness of Unison's instructions, and could thus enjoy DSD64 content to the best of its potential; when a track

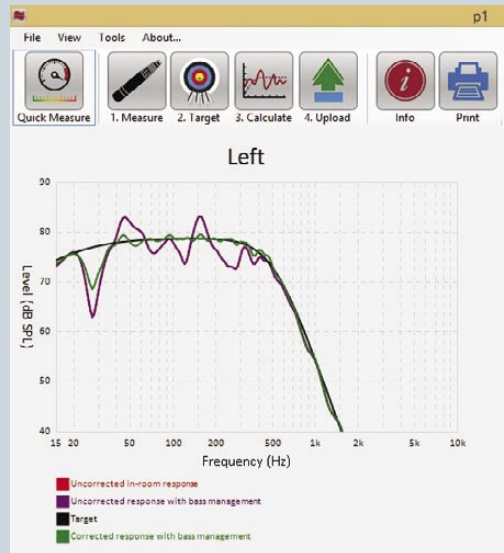
PERFECT BASS KIT

Martin Logan offer electronic room equalisation in the Renaissance, in this case the ARC system from Anthem AV, of Ontario, Canada. The Perfect Bass Kit has a small measuring microphone, a pivoted holder and a tripod, two 13ft long USB A to mini-USB cables to attach both loudspeaker and microphone to a computer and a CD carrying software. Documentation was minimal and PBK comes with difficulties that, I would suggest, make it a dealer install tool. We had "fun" with PBK; there were many problems with this Windows-only programme.

The computer sends a measurement signal – a fast sine sweep – to the subwoofer and processes the sound it receives from the mic. The software puts up on-screen a target response and the measured room response – and attempts to equalise latter to former. Position-averaging using five mic positions during measurement is used. Such a system should ameliorate room effects, rather than wholly cancel them.

You can see the results from the system here, showing it flattened the smaller peaks at a listening position that is a settee against a wall at one end of a 25ft long, 18ft wide room. The room has a 1st length mode pressure peak here at 23Hz, and a width mode dip at 31Hz in theory; the system sees a dip at 28Hz that it ameliorates. The smaller peaks and dips are flattened, however. There was a slight subjective smoothing of bass at this position as a result. This analysis just shows what PBK can do.

Because of the controversial nature of such room tuning systems, if you don't like what it does you can switch it out, using an off switch on the rear of the loudspeaker. You cannot however, manually tune the system. As a dealer install, PBK is



used at no charge, otherwise it costs £222.00.

As a general note, big rooms like our listening room (6000cu ft) hardly need equalisation; PBK is most needed for small, modal rooms, especially square rooms of around 20ft or below.

MEASURED PERFORMANCE

With the Renaissance, wherever I put the measuring microphone it gave the smooth, consistent result you see in our analysis. So the 'speaker is very consistent across what is termed a wide solid angle, meaning laterally and vertically. It is also accurate and predictably smooth, due to an absence of resonances in the radiating structure, and little interference by the stators, the metal front/back panels with holes. This is an almost text book perfect measured result, even at bass frequencies.

The overall response trend of this huge loudspeaker is down toward high frequencies, to subdue the amount of high frequency power fed into a room. Deep bass output is +6dB higher than output at 10kHz, showing how Martin Logan have sought to give the Renaissance a subjective balance closer to a box loudspeaker.

The XStat panel handles all frequencies from 300Hz up to 16kHz our analysis shows – a huge frequency range. This means there is no change of character from different materials or drive unit structures, no phase dips and no dispersion problems. A wide range electrostatic eliminates a whole host of drawbacks conventional loudspeakers suffer.

The bass cabinet runs smoothly from 300Hz down to 25Hz, below which it cuts off sharply. With LP strong attenuation of warp signals is needed to prevent

cone flap in such a powerful bass set up. Running down to 25Hz does not subjectively lessen deep or subsonic bass.

With the bass cabinet gain control set to zero, the system has slight bass lift, so the Renaissance set 'flat' will have obvious bass. Around -2 on the gain control was flat under measurement and a large +/-10dB adjustment range available. Maximum bass cut would suit a smallish resonant room; the roll down starts at 80Hz. Maximum boost is extreme.

The lower midrange boost/cut switch (+2/-2) alters output at the subwoofer's crossover frequency to change the subjective match to the XStat panel, a trick I used in 1993 to blend a powered Celestial SL-6000 open dipole subwoofer to a Quad ESL-63 electrostatic.

With one nominal Watt of input (2.8V) the Renaissance produced 90dB sound pressure level. Turning down bass a little, to -2 for a flat response, gave 89dB, so the speaker will run very loud from little external power, and could be used with a 20 Watt valve amplifier.

Our impedance trace shows that at high frequencies the panel is almost a short circuit across an amplifier, measuring just 1 Ohm – and not all transistor amplifiers like this. Valve amplifiers have no problem with it though.

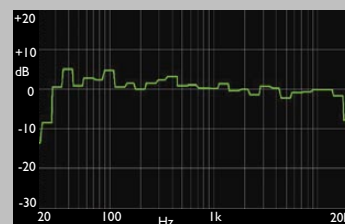
The Renaissance ESL-15A measured superbly in all areas, being flat and

smooth right across the audio band from all angles. It has accurate tonal balance and low colouration, but Martin Logan now trend high frequencies downward to account for the high amount of sound power from a big panel firing forward and backward at very high frequencies.

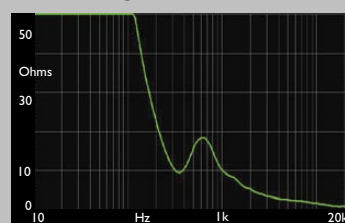
The bass cabinet is sufficiently adjustable without the Perfect Bass Kit to suit all rooms. The monopole-bass to dipole-panel lower midrange gain switch, for subjective matching, also works perfectly. Martin Logan have a full grasp of what they are doing in this system and have implemented technology superbly.

NK

FREQUENCY RESPONSE



IMPEDANCE



MARTIN LOGAN RENAISSANCE ESL-15A £25000



OUTSTANDING - amongst the best

VERDICT

The Renaissance moves the electrostatic further toward perfection in sound. It isn't perfectly integrated at high volume, but it gets very close.

FOR

- pure sound
- pinpoint imaging
- wide and high soundstage
- massive bass power

AGAINST

- needs a large room
- brutally revealing
- expensive

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Decoupled Double Dome tweeter





The Unico CD Due can take all common digital sources – including Bluetooth, the aerial for which lurks behind the rectangular panel in the top centre of the rear panel. The digital outputs allow recorders and external DACs to be driven.

was played Foobar 2000 'DSD' was shown in the display; if the computer was doing the decoding then 'PCM' would be indicated instead.

A simple recording of a solo violin performance – Palen's 'Light in the Fracture' captured straight to DSD by Blue Coast Records – was bestowed with grace and liveliness. I got a sense of the San Francisco Grace Cathedral recording venue's acoustic ambience and detailing, such that I could easily pick out the intricacies of the bow sliding on the strings.

The same USB link also worked with PCM material up to 24/96 (in this case, a careful rip of Jethro Tull's 'Thick as a Brick' – here, an early vinyl release).

The guitars, piano – and of course Ian Anderson's trademark flute – flowed effortlessly, while bass was given commensurate warmth. That's probably down to the recording; the overall impression I got from the player itself was one of transparency.

And so to CDs. First into the disc tray was Prince's 'Controversy'. The 1981 album's title track, a blistering slice of funk, was here experienced with a low-end that was tight – but not unduly overpowering. Other tonal colours were painted realistically, but although the Unico CD Due certainly makes for an engaging listen you don't get the out-and-out rhythmic excitement of some competing players.

This was confirmed with a spin of Terry Riley's 'In C', a 1971 performance (CBS/Edsel release) of a minimalist work that's clearly influenced by the rich textures (done justice) and driving rhythms (less so) of Balinese gamelan music.

Having said that there's a beguiling sound about the Unison Research that marks it out as a truly classy performer.

CONCLUSION

The Unicon CD Due is an extremely capable player with an eminently enjoyable sound thanks to its combination of valves and solid-state. Add in a quality DAC and digital filter options and you get a very impressive package for the money.

MEASURED PERFORMANCE

The Unico CD Due uses valves and direct grounding for safety, which affects its behaviour. It measured well from the balanced XLR output, but through its unbalanced phono socket output an external source or load, such as a grounded amplifier, affected performance adversely, due to ground loop current from multiple earths.

Playing CD internally, or using either the balanced AES/EBU or optical (Toslink) S/PDIF inputs and balanced output gave a maximum 117dB dynamic range with 24bit digital – very good, if commonly bettered these days by players capable of 123dB dynamic range. USB also gave 116dB dynamic range. But the unbalanced output earthed gave 98dB dynamic range – poor.

Frequency response reached 63kHz with 192kHz sample rate digital using Filter 1, it was curtailed slightly by Filter 2 but this offers better damping. Filter 3 gave the same result as Filter 1.

With CD (44.1kHz sample rate) Filter 2 again offered more damping

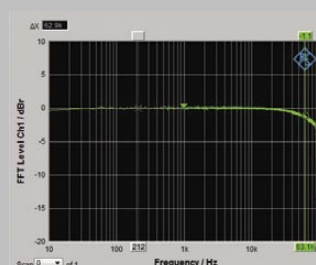
with an 18kHz upper limit, whilst Filter 1 measured flat to 21kHz, a traditional result.

The optical input had a 96kHz limit, so cannot handle an optically connected 192kHz sample rate source, such as an Astell&Kern AK120 portable.

Dynamic range of the CD Due was measurably reduced by earth loop currents if the player was earthed by either source or amplifier (load), through the ground of its unbalanced phono socket output, so it is best connected through its balanced output. Then it measured well, giving very good if not class leading results. **NK**

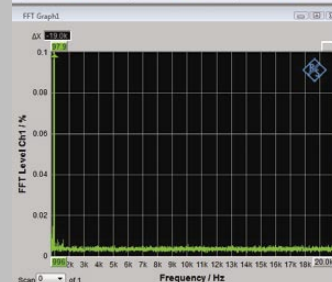
Frequency response (-1dB)	10Hz-63kHz
CD	
Distortion (24bit)	
0dB	0.1
-60dB	0.04%
Separation (1kHz)	98dB
Noise (IEC A)	-112dB
Dynamic range	117dB
Output (Phono/XLR)	2.8/5.6V

FREQUENCY RESPONSE



DISTORTION

THD @ 1kHz	Level (mV)	Frequency
0.0320 %	5.5881 mV	996.97 Hz
OFF	OFF	OFF



UNICO CD DUE
£3,200



EXCELLENT - extremely capable.

VERDICT

Beautifully-made, well featured and capable of seducing your ears with a smooth and transparent yet detailed presentation. A refined performer.

FOR

- effortlessly musical
- excellent choice of inputs
- well-documented PC DAC configuration

AGAINST

- falls short of the verve and low-end slam of some competing models
- no volume control or standby
- don't lose the remote control...

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Engineered to please

Germany's T+A has revamped its classic R series of components. Jon Myles lends an ear to the new PA 2000 R amplifier.

If any evidence were needed over the health of the German hi-fi industry then look no further than our report on the Munich High End Show in this month's issue.

Then take a roll-call of the established brands emanating from the country - Quadral, German Physics, MBL, Graff, Burmester. And, of course, T+A. The name stands for Theory and Application and the company produces a complete range of equipment and accessories from its base in Herford in Eastern Westphalia.

Prices range from the affordable to the truly eye-popping - but in the

middle of the scale stands its R series of components which first appeared way back in 1992 and have been steadily revised ever since.

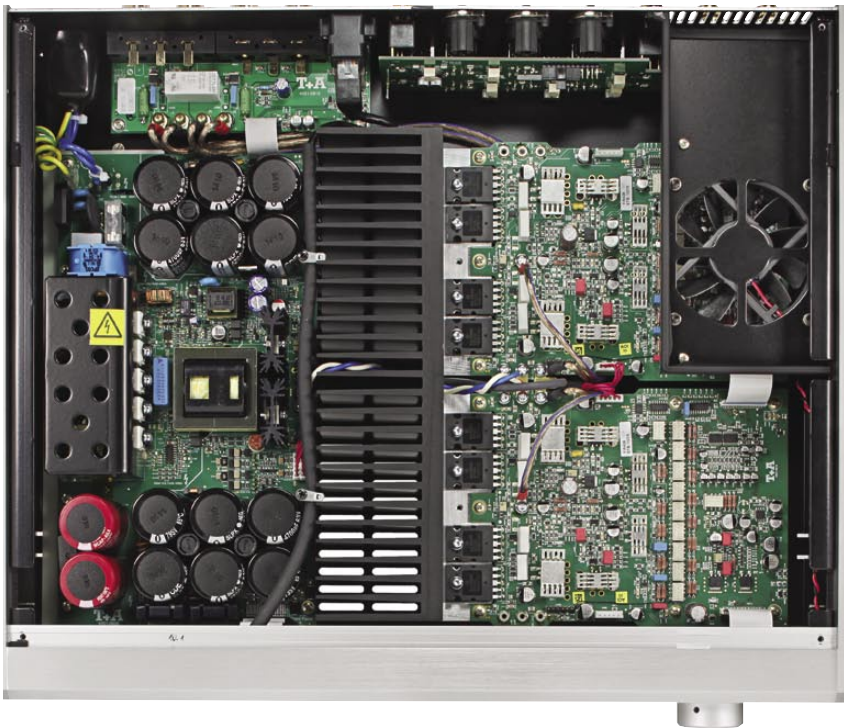
The latest iteration of the range is the 2000 series of components - featuring a turntable, CD/network player and two integrated amplifiers. There's the large PA 2500 R priced at £5577 and its smaller, and rather more svelte, sibling - the PA 2000 R on review here which costs £4200.

And while that might seem a little expensive for a slim - 8.2cm x 46cm x 40.5cm (H/W/D) - amplifier, once you see it in the flesh and start to explore its various options then any misgivings start to fade away.

For a start, it is beautifully engineered, with brushed aluminium casework whose fit and finish is exemplary. There's a large, round window adorned with the T+A logo on the top which allows you to see the innards, while the buttons on the fascia have a firm, tactile feel to them.

You can use those buttons to access the various configuration options or default (as I did) to the clever remote which allows you to access all the settings. These include customising the display, naming inputs to match your sources and adjusting bass and treble levels - either individually for the right and left channels or in unison.





T+A's dedication to engineering is reflected in the internal layout of the amplifier - neat and elegant.

In addition there are three loudness settings, aimed at matching the amplifier to the sensitivity of the chosen loudspeakers and the size of your room. So, as unassuming as it may look at first sight, the T+A is a feat of engineering in terms of its technical ability.



The front panel controls are well-judged - being firm and responsive. The rotary volume control operates in 1dB steps for fine adjustment.

That ability extends to its inputs - with three balanced XLRs and a trio of single-ended RCAs on offer, while there's also a pre-amp out - and an MM/MC phono module can be fitted if required.

SOUND QUALITY

Some amplifiers impress you with their outright drive and vibrancy. Others beguile you with their warmth. The T+A does neither of these. Instead it impresses with its sheer even-handedness and lack of colour. In essence it is relatively neutral and extremely detailed - letting you really hear what's going

when hooked up to high-quality standmounts.

Playing John Coltrane's 'Ascension' through a pair of Quadral Megan VIII loudspeakers, for example, the T+A cut through the dense free jazz improvisations to pick out the individual instruments. This album can often sound like a squall of sound on less capable amplifiers but the PA 2000 R brought out the subtle interplay between the various players - making it easy to track the spiralling tenor and alto sax lines as they revolved around each other.

Switching to Leftfield's 'Phat Planet' the low-end was well-judged - firm and deep but without any bloom or bloat to it. It doesn't have the warmth of, say, a Naim NAP 250 DR but is slightly drier, giving a sense of pace to the music.

There was also bags of detail on offer. Indeed, the T+A unearthed extra elements from even the most familiar tracks - bringing out subtle electronic effects on the remixes of New Order's 'Bizarre Love Triangle' that I hadn't noticed before.

"The T+A seems to unearth extra elements from even the most familiar tracks - bringing out subtle electronic effects on the remixes of New Order's 'Bizarre Love Triangle' that I hadn't noticed before"

on with the music.

It also sounds more powerful than its quoted figures would suggest (see Measured Performance for more details). It had no trouble driving the big Martin Logan Renaissance electrostatics (see review elsewhere this issue) but was also just as happy

The same quality extended to gentler music as well, female vocals having a lovely air and space to them. Margo Timmins voice on Cowboy Junkies' 'Blue Moon' was spine-tinglingly good - projected well out into the room and dripping with emotion.



The bass/treble settings can be individually tailored for the left and right channels via the front panel.

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QUAD'S SUPERB PA-ONE HEADPHONE AMPLIFIER WORTH £1200 IN THIS MONTH'S GREAT GIVEAWAY!



Here's your chance to win the superb Quad PA-One headphone amplifier we reviewed in the August 2015 issue. Read the review excerpt below and answer the questions.

"This is a thermionic computer headphone amp! Definitely not of the portable variety I'll note but it has other charms and strengths. One is that of glowing valves; the protective cover unscrews using a screwdriver supplied, to reveal two 6SL7 pre-amp valves, two 6SN7 output double-triodes, one per channel, driving an output transformer, probably in push-pull. Quad also use a valve rectifier,

an EZ81, and these always help smooth the sound I've found from experiment with World Audio Design amplifiers, since they soft-switch and are high impedance, so are easy to silence with capacitive filtering – you get very quiet d.c. power lines from valve rectifiers.

This brace of valves reflects the latest preference for pre-war triodes, especially 6SN7s, rather than smaller post-war types like ECC83s or TV audio ECL86s. The early triodes are bigger but they have a silky smooth and wonderfully neutral sound – and that is why Quad use them in the PA-One. They run just-warm, by the way, producing very little heat.

But don't worry! Early triodes they might be but they have the bandwidth to do justice to hi-res digital audio and Quad have ensured, in their usual thorough approach, that the PA-One processes 192kHz PCM (but not DSD) through all inputs, including its Toslink optical input. This means it played a 192kHz sample rate file from my Astell&Kern AK100 digital player that has only an optical digital output; many optical inputs cannot manage this.

The PA-One has both electrical and optical S/PDIF inputs in addition to USB, I should add, so you can connect up a computer, CD player with digital output, or portable hi-res player. Since there's an analogue output (Pre out) you can also use it as a valve equipped DAC for a CD player."

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 8th July 2016 to:

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QUESTIONS

[1] What are the preamp valves?

- [a] EF81
- [b] 6SL7
- [c] ECC83
- [d] 6SN7

[2] What rectifier is used?

- [a] EZ81
- [b] selenium
- [c] diode bridge
- [d] GZ34

[3] Early triode sound is -

- [a] dull and warm
- [b] bright and gritty
- [c] silky smooth
- [d] graunchy

[4] It can also be used as a -

- [a] washing machine
- [b] lawn mower
- [c] VHF radio
- [d] valve equipped DAC

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Answers by: NK - Noel Keywood; JM - Jon Myles; PR - Paul Rigby; MP - Martin Pipe.

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Letter of the Month

CD ZAPPED

Being a long-time fan of Hi-Fi World I do wonder if some of the articles about the death of CD might be a little premature? I agree that many of the early players left a lot to be desired and also the trend of up-sampling may have given a rather antiseptic sound. But I believe that done well, a simple CD player can sound quite stunning. I have had various CD players over the years (Philips, Arcam Alpha 5 & 6, Arcam FMJ 33, Naim CD5) and the sound was never close to vinyl.

But recently I bought an Audio Note CD 4.1x (one-box player) and the sound is really incredible: to say it's like a top quality vinyl player is not an overstatement. To be honest I don't understand the technology "blurb" e.g. "no upsampling" and it would be great if one of the team could explain what is special about the CD 4.1x technology. But, the bottom line is that I have never heard CDs sound so good. And so I wonder if the problem is not so much the format as the technology used to play it?

On a separate topic I have bought a lot of kit over the last 30 years, most still cluttering the attic, from Mission 753s, Arcam amps, Gyrodec, Naim etc. But was never too happy with the



Audionote 4.1X CD player. "The bottom line is that I have never heard CDs sound so good" says Zap. It uses a conventional DAC chip, the Analogue Devices AD1865N, but follows it with a transformer and valves - an unusual approach giving a radically different sound.

sound and I became worried that I was listening to the boxes rather than the music. About 5 years ago, having become rather disenchanted by dealers each identifying the exact box "I really needed to fix my problem" I decided to start again from scratch and go for a single manufacturer throughout.

I tried Naim, Arcam (again), Cyrus but nothing really did it for me and so perhaps I was asking too much. Then I

went to the Audio Note room at a hi-fi show; I had to queue to get in. And I really was enchanted. And so I bought Audio Note throughout, including silver cables, exactly as recommended by the AN dealer. I've not even contemplated buying anything since I just listen to the music. And so I just wonder if perhaps sticking with a single manufacturer throughout, with kit that is presumably designed to work and sound best

together, might be the way to go to reach hi-fi heaven?

Regards,

Zap (Zaphinkas)

Hi Zap. We have actually never written an article about the death of CD, but have mentioned often that the technology is old and sales are in decline, all of which I am sure you would not disagree with.

It appears to me that you finally found heaven with a valve-based system, since the major distinguishing factor between Naim, Arcam and Cyrus, who "didn't do it for you" and Audionote is that the latter use valves, whilst the former use transistors.

Audio note do also pursue their own unusual solutions at a technical level – and I know from past designs and the blurb for your player, that says that the Analogue Devices AD1865N DAC chip is "digital filter free and has a patented I/V transformer interface followed by a 6DJ8 anode follower output stage" that the 4.IX follows the company's design philosophy here of eliminating sharp roll-off digital filters, the drawback being a substantial presence of alias information that gives poor measured results. However, Audionote argue that improved naturalness in sound quality justifies this.

Whatever, your Audionote system is a world apart from conventional transistor engineering solutions and if you just like listening to music as a result, then that's great.

One-manufacturer systems do sound all-of-a-piece, but they also sound distinctive – but in your case you have selected a valve based system, rather than just a manufacturer-based system, I'd suggest. It's also an Audionote system – and that in itself means different!

NK

Hi Zap, I'm glad to hear you have found a CD system you enjoy. Yes, sales of the format may be falling but it is still far from dead. What's changing is one of the silver discs main selling points, it's inherent convenience compared to vinyl replay, is being slowly eroded by the likes of streaming, downloads and NAS-based storage which is why people are increasingly gravitating to those for their listening pleasure. Single manufacturer systems have their advantages - namely a



Chord Dave DAC, new in 2016. Expensive – but with its own unique DAC chip inside, built on a Field Programmable Gate Array. It has a performance few can match.

consistent house sound and the fact they are designed to work together. Having said that, mixing and matching can have its advantages. I'm a confirmed Naim amplifier fan, for example, but have frequently found combining them with a valve-based pre-amplifier can bring out an extra tonality and sweetness to their sound. **JM**

TEMPTATION

I am extremely happy with my system that I have honed to suite my taste in music which is 70s SoullFunk and Jazz, basically music with emotion and that has a groove, tight punchy bass is paramount as it undermines the rest of the musical spectrum for me.

My system is the Musical Fidelity Nu-Vista Power 300 (fine tuned 5 yrs ago by Musical Fidelity), Music First Audio Classic with MKII transformers and a Chord Electronics QDB76 front-end serving a Squeezebox Touch streamer and matching Blu transport, all driving my Sonus Faber Electa Amator IIs.

Why am I upgrading if I am happy with the sound? Well, I have a big birthday coming and am tempted with two options.

The first is a Devialet 400 mono replacing Nu-Vista 300 and MF Audio Pre. I have heard the Devialet 400 mono driving Sonus Fabers and my Electa Amator IIs are SAM ready, so

very tempted by this option as it would rationalise my setup and future proof it so some extent.

The second is Chord Dave replacing QDB76, and potentially replacing the MF Audio Pre as it has a volume control. I haven't Demo'd the Dave, but have had the DAC 64MKII then upgraded to the QDB76, so I am familiar with the house sound.

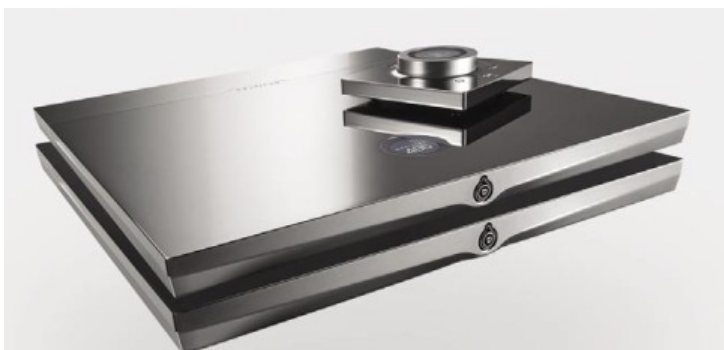
Which do you think I would derive the most improvement from musically? The second option would be the most familiar as I would just be replacing the DAC and the Nu-Vistas to drive my Electa Amators very well combined with the MFA Pre, very clean, dynamic and musical.

However the Devialet – especially with the SAM ready feature which I heard make an audible difference to Guanari Evolutions – is very tempting with its customisability features and sound quality.

Regards

David

Awkward question David, choosing between a top DAC or a snazzy amp. However, whilst the Devialet is sophisticated and customisable, it is not quite the best I have heard; if you can, try listening to a MacIntosh MC152 power amplifier, with its output auto-transformers, an unusual idea but one that works like crazy. This amplifier is clearer, faster and



Devialet 400 mono uses Class A and Class D, they say, to produce 400 Watts per channel from a slim case. It also has Speaker Active Matching (SAM) loudspeaker tuning that applies to individual models including David's Sonus Faber Electa Amator IIs.



One of the best transistor amplifiers we have ever heard is the McIntosh MC152 – with output transformers. It is the baby of the range but sounds powerful and sophisticated.

subjectively more powerful than just about all else, driving loudspeakers with ease we found over a long period of use in a review system.

So I suggest the second option, where you get a Chord Electronics Dave DAC, that will likely shade all others, based on what we know and have heard of Chord's unique technology, and stay with your tuned Musical Fidelity Nu-vista amplifier – for the time being at least. This way you will have the best digital front-end by a large margin.

There are two issues I would consider in your circumstance. Firstly, as good as the Electa Amator IIs are, they can be bettered and you may like to consider Quadral Aurum Megan loudspeakers. The small VIIIIs I have been using are impressive and with new models due, I'd suggest they are worth hearing. I'm assuming you have a small-to-medium sized room that suits the Electa Amator II and stand mounters, rather than floor standers.

Then there is the recent announcement of a new, even better ESS DAC chip, the ES9038PRO. This will go head-to-head with the Chord Dave, all others now wallowing in the technological dust. It's going to be a fascinating contest and since you are a Chord man you obviously have an ear and an appreciation for all this, so I'm thinking it may interest you. **NK**

DARK DELAY

Amazon have just emailed me to say my copy of Dark Side Of The Moon on vinyl has been delayed, and would I like to consider an alternative – and here they offer me the album on CD.

This raises a number of issues. First, I have The Immersion Set of the album, and thus already have the CD, and am buying the LP for completeness sake. I also have it on SACD, along with a book on how the album was made (along with other Pink Floyd books, including

the Wish You Were Here Immersion Set). In other words, I am quite a big Pink Floyd fan.

Anyway, I also have The Division Bell box set, which contains the album on Blu-ray and a 29/96 hi-res voucher (which I have downloaded), along with the album on 2 LPs and other vinyl.

Now the ironic thing here is that I don't have a record deck, I don't have space for a record deck, and nowadays

I reckon I'm not the only one (yes, I saw the recent BBC survey about how many people buy vinyl and don't even have a turntable) who now uses vinyl just for its cosmetic value. In quite a lot of ways this New Fad has become a show-off thing; something to impress the neighbours. The fact its quality can be fantastic may be mentioned, but then the owner starts up one of those suitcase players (surely the modern equivalent of a Dansette) and proceeds to demonstrate its lathe-like abilities on innocent vinyl... OK, to some people, the Dansette is better than the CD (vinyl: check, valves not transistors: check) but I wouldn't let one near my record collection. I have some standards!

So, what to do? I will carry on getting the (extremely) occasional LP, just for its art and presentation factor, and continue listening to my more tolerant CD and X3 system, which still gives me enough music pleasure to satisfy my ageing ears.

Yours sincerely

John Malcolm



Go on John Malcolm - get one! A budget record deck that is, like the novel Pro-ject Essential II digital deck with digital output. You can site it anywhere, connecting up to a DAC through a long optical digital lead.

I don't think I could cope with the lowering of an expensive diamond on to an expensive piece of vinyl accurately any more (I grew up with vinyl and went CD in the late 80s).

In other words, my extremely small vinyl collection is cosmetic, like a coffee table book, while I listen to CD or (more likely) a microSD card in my Fiio X3 portable player.

I still like the feel of vinyl and the decent physical size, but its fiddle/faff-about factor, the so-careful-ness about handling, short playing time etc outweighs the potential improvement in sound. It appears also that it's what vinyl brings with it to colour the sound, compared to the clinical-ness of digital, that attracts many – again, I'm happy to acknowledge that.

P.S. The hassles of writing this on a Hudl 2 using a Bluetooth keyboard is almost enough to drive me to clear off the stuff off the keyboard and turn on my main computer - modern technology eh?!

Hi John. If you ever change your mind, there are plenty of starter turntables around, Rega and Pro-ject come to mind, and modern budget MM cartridges really work very well whilst being inexpensive. Anyone cack-handed can consider Shure's M97XE whose damped stylus brush not only cleans the record but protects the stylus cantilever too, a bargain at £80, if with a warm sound. Alternatively, Goldring and Ortofon make cartridges that sound less

trad-warm but cost little. Or there's Pro-ject's digital turntable, which is a great all-in-one package that allows recording – but for this you will have to switch the computer on and download free Audacity sound editing software. It's fascinating what you can do now with all this – and interesting too.

Having spent much of my life pounding a keyboard I was taken aback to find hand writing on a Samsung phone was very easy on the move – much better than dragging a keyboard or laptop around. Does anyone have experience of this? Methinks going backward is the way forward. **NK**

HOW TO CONNECT

I attended the Bristol Sound & Vision hi-fi show this year with the intention of viewing all the new audio on show and especially the Quadral room, since I think a speaker upgrade is due and I fancy the Chromium Style 8s after reading your reviews and listening to them at the show.

I enjoyed the show a lot and had a listen to all the new equipment I had read about over the year. Then I thought while I was there I would subscribe to Hi-Fi World again as I do like getting your magazine through the post each month. So while doing this I was given a FiiO X1. I have had MP3 players in the past and thought they were convenient but lacked in sound quality, but decided to try it out when I got home.

Let's just say they have improved quite a bit since the last time I used one. I downloaded the dbpoweramp application and have been experimenting with different FLAC conversions of my CDs to see which type I preferred, after a few weeks I have settled on 192/24 bit as I think it sounds the best.

I already had a set of mini headphone socket to phono cables that I use with my Sony Walkman Pro to output through my hi-fi so I connected it up through my amplifier and am impressed. The sound is very good, especially when considering I got the X1 for free!

Now comes the crunch. After listening like this for a while I can't help but wonder how good the FLAC files would sound if I could output this music files from my player digitally through my Audiolab M-DAC. Of course the X1 is not capable of doing this but after reading around the web I get the impression that the X3 model can (although I can't find a clear explanation of what cables I would need and where I would plug them in on the X3 player?).

Could you explain this in your magazine as I am happy with the sound output from these players via headphones but would really like to optimise the output when I am at home.

Thanks

Andrew Burtchaell

Hi Andrew. Ah – you arrived early! We were taken by surprise at the popularity of this offer and they all disappeared pretty darn fast. I hope there are a lot more happy users.

As you say, the X3 has a digital output and all you need do is connect this to your M-DAC's coaxial input, using the short 3.5mm jack plug-to-phono socket adaptor lead supplied with the X3, in addition to a 'digital' phono lead (an analogue phono lead will do, but may increase jitter) that connects directly to M-DAC's co-axial input. The result is impressive; it is something I do all the time, carrying a whole hi-res music collection around on an AK120 portable player, plugging it into any DAC available, albeit via an optical link since this is all the AK120 has as a digital output.

You get great sound quality, as well as great convenience. The only drawback is that small portable players are easily mislaid, borrowed by curious friends who want to know what it's all about, or even stolen, I'm finding. **NK**

Hi Andrew, wiring the FiiO X3 up as described by Noel and playing through M-DAC will provide you with excellent high-resolution sound. I use an X1 for listening while out



The FiiO X3 player (£150 or so) connects digitally to a DAC through a supplied adaptor lead, then an electrical digital S/PDIF lead.



The very affordable Shure M97XE MM pickup cartridge. It has a damped stylus brush that protects the cartridge, suiting the cack-handed. A warm sonic balance gives the sound of the 70s.

and about through good in-ear headphones and the X3 through a DAC in my home set-up and the results from both are excellent. In terms of absolute dynamic drive they are probably bettered by the Astell&Kern AK120 - but in terms of value for money there is little to touch them in the current digital audio player market. **JM**

MINIDISC DELIGHT

There I was thinking that it's about time a hi-fi journal wrote something about Minidiscs and recording, and was so pleased to find Part 1 of your two-part article, in the June issue of Hi Fi World.

I have been a fan of Minidisc format and recorders for almost as long as they have been around. Currently, I have a Sony JE-480, MDS JE510, a portable MZ-R70 Walkman, and just acquired a brand new Tascam MD-CD1 Mk3 recorder/player.

I have always thought that Minidiscs and ATRAC were underrated, and on good recordings and with ATRAC 3 and above, the recordings can be quite excellent and very close to CD.

The new Tascam machine was purchased by me, as I suspect it will be shortly discontinued, having been around in Mk3 version for a good while. No other manufacturer seems to be making them, as downloading is now the 'norm'. Tascam don't say which version of ATRAC it uses in the spec or manual, so a quick e-mail fired off to them before I purchased it confirmed it was ATRAC 3.

The Mk3 recorder seems really well built, and I have a lot of respect for them, as have other Tascam gear including their DR100 digital recorder and the CD RW901S CD recorder,

which is outstanding, and even puts some hi-fi CD players to shame.

I understand that Tascam or Teac Corporation, used to sell a "four track" Minidisc recorder at one time, on the same theme as their "porta-studios" using cassette tape. I didn't have one, but did use a sophisticated Tascam 4 "studio" cassette track recorder which ran at double speed, and had DBX. Even without the DBX it was excellent. I bought it from a recording studio years ago, which closed down, but the heads were almost new, so had not much use. Never really understood how one could get four tracks from a single Minidisc, unless it sliced up the disc and allocated a track per section. Then again, Minidisc always had the option of stereo or mono, even Long Play too.

The portable MD Walkman I was given, has incredible battery life and runs on a simple 1.5 volt AA battery or rechargeable. The controls are fiddly for larger fingers, but it sounds excellent, providing you use good headphones.

I have never had a Minidisc disc fail on me, but cannot say the same for CDs. Even my oldest Sony Minidisc has been utterly reliable, with easy to use controls and logical operation.

There is a noticeable difference on playback between the older Sony and the JE-480, which has ATRAC 3 and Type S processing. It has better resolution,



Sony MZ R70 Minidisc portable recorder. "Recordings can be quite excellent and very close to CD" says Ron Koorm.

although unless you heard them side by side, you would not know. The Tascam is designed for dubbing from CD with the built-in unit, and has pitch control on the CD and better analogue and digital inputs and outputs than many units. I record from various sources, but when using computer recording, run digital optical through my Quad CD2 P digital interface which has an excellent DAC, and improves the audio significantly.

Although my main "source" of audio



A FiiO adaptor lead from advancedmp3players.co.uk. It has a four-pole 3.5mm jack – not the usual three pole – that plugs into the player's digital output socket.

is vinyl, and I am seriously into that with three vinyl audio systems, I find that 'Minidisc' has a lot going for it, and is much less hassle than using rewritable CDs to record onto. To be honest, I really wanted to have a replacement tape reel to reel deck, to replace a Sony TC 377, but all sorts of issues with tape deterioration, heads, maintenance, degaussing, and expense, so I decide to go for Minidisc instead.

One can easily add text to a recording using a standard PC keyboard on one of my recorders, to label the discs and tracks. Moving tracks around, splitting or merging them is easy. Try that with a CD recorder, if you can still find one. I also have a Focusrite Firewire Interface for recording to the computer with superb preamps, and have transferred a lot of cassette recordings successfully via Audacity, to my old iMAC.

On another subject, I have heard so many systems which sound impressive at first, but become tiring and listener-fatigue creeps in. A visit to my local hi-fi dealer to purchase some record liner sleeves, gave me the opportunity to listen (under duress) to a new all-in one speaker and amplifier system, which he offered to play at levels that literally shook the foundations of the shop.

When he asked me to choose an artist and track from Tidal, the source via smartphone, I selected various music and singers. One I selected, Keely Smith, on a recording I know backwards, didn't sound like the artist at all, on the super-duper new system. He looked shocked when I mentioned this, as I had this recording on Vinyl (four copies) and also CD. I knew the sound of her voice and the balance with the musicians, and I have to say, if this was 'progress', then it was not for me.

Not saying the system wasn't impressive, loud (bring your ear defenders even for low volumes) and would fit into many modern homes aesthetically, but it just didn't do it for me. Was it that the balance was wrong, or something else? Maybe the high-resolution digital didn't transfer the original vinyl recording well. Or, maybe it was from a CD source and then to a high-res file? High-res can sound fabulous, so am not knocking the concept, but please don't assume just because something is branded 'High-res' it must be great. They tried that with digital = perfect, didn't they?

Ron Koorm Pinner, Middlesex.

Streaming from a smartphone isn't the best thing to do, especially when the link to the hi-fi is via Bluetooth, as it often is. But in any case, today's all-in-one systems are sold as being wire-free – now seen as a major benefit. Add in unlimited access to



US Jazz and Pop singer Keely Smith. "Didn't sound like the artist at all" on an all-in-one system, says Ron Koorm.

music from iTunes through to Tidal and you have a different environment to that of the 1970s, when steam reigned, as people now think.

Ron – you should have taken in your portable MZ-R70 Walkman, asked him to use it as a source and watched the result. **NK**

Hi Ron, you don't say what all-in-one loudspeaker/amplifier system you were listening to. I've reviewed a number recently and there can be significant differences in sound quality. Some can be exceptionally good - but none can match a full-size system in terms of pure quality. They do offer exceptional convenience, however, and are well suited for smaller rooms.

Also remember Tidal isn't strictly high-resolution - it is CD lossless quality at 16bit/44.1kHz at the moment mainly due to the limitations of streaming higher sample rate material over a wireless network. All this might change soon, however, as Tidal has signed up to Meridian's new MQA format which potentially makes this considerably easier. HTC, for example, has already unveiled a prototype mobile telephone equipped with MQA capability which will allow 24/96 and higher files to be streamed.

It's still early days for the technology but the signs look promising. **JM**

CROSSOVER CONFUSION

I noted your comment in the measured performance section of the Luxman L-590AX MKII review concerning a little crossover distortion below 1 watt at high frequencies. Your review says the Luxman runs very rich class A up to 30 watts. I thought class A was used to fix crossover distortion and the Luxman should run in class A at least 99% of the time going out of class A only on very large, short peaks. And 1 watt is certainly below 30 watts. So I wouldn't expect crossover distortion at low power. Could you comment further on this for my education?

I'd also like to second your comments on the KT-120 tube. A few years ago I was told by a major manufacturer of high end tube gear in the USA that he would never use the KT-120 and was sticking to the KT-88 because of the significant poorer linearity of the KT-120. This company still uses the KT-88 in its latest amps.

Allen Edelstein
New Jersey,
USA

Hi Allen - you are so right of course. Class A doesn't suffer classic crossover distortion, because both transistors amplify the full signal, not one half of it. The L-590AX MkII had an extended even-order harmonic spectrum though, so looked like crossover as it were, except the latter usually has odd-order harmonics. Best for me to say there was some high frequency distortion at low levels, rather than being too clever about it!

Thanks for your comment on the KT-120. Those that use them defend them of course - they are cheap and robust. These properties are more important to manufacturers than customers. Now the KT-150 has



Tube Depot says -
With an internal plate length of 55mm and a massive plate dissipation of 70 watts (a KT88 is typically only 35mm and 42W), the Tung-Sol KT150 is the most powerful octal base beam tetrode ever produced. A pair of KT150s are capable of producing 300W of audio power. The thick glass envelope has a futuristic "egg" shape structure which improves thermal dissipation and provides the strength needed for a superior vacuum. The Tung-Sol KT150 is built to survive the most demanding audio environments possible.

The overall sound of the KT150 is thunderously powerful. The bass is tight, full, and precise with a neutral mid-range and transparent high end clarity. The dynamics are unlike anything we have ever heard before.
www.tubedepot.com

arrived however, manufacturers have flocked to it, sidelining the KT90/120. Which says a lot I feel - like they were not very good.

I found an interesting description

of the KT150 from TubeDepot of Memphis, Tennessee (www.tubedepot.com) who obviously know a thing or two about them and reproduce it here to make clear the KT150's advantages. **NK**

DAC ATTACK

Thank you for the totally amazing review of the new Audiolab M-DAC+. I very rarely see you deploying that 'ultimate hi-fi statement' which is 'the best I have heard so far'. My wife enforced a 'hi-fi is grounded' order to stop me rushing out and buying an M-DAC+ immediately. I can't complain after all the new equipment we have purchased recently, and anyway, I am waiting to see if the forthcoming Audiolab 8300N network player has the same DAC circuit as the M-DAC+. This is due in summer and I can't wait to read your review.

I have the Audiolab Q-DAC which is endlessly fascinating listening. It takes the output of my PC and Rega RPI turntable (all sitting on a massive desk) and feeds an analogue input of the Naim Superunit and Quad ESL63s (4 metres away in a 7 metre room). It does mean long phono leads (what is it that makes Naim avoid XLR) but still a lovely 'desktop' system?

I have it set up like this for recording LPs (except at present the Novafidelity X40 is in another room and the ADL GT40a is still on the ever lengthening waiting list). Thank goodness for my ZxR soundcard and Aureon/Maplin external ADCs. I still can't decide which is best of these internal or external ADCs for recording LPs.

However, your reply and review raised a few more questions (sorry). I hope you have time to answer even if just briefly.

You did not answer my question about the measured noise/distortion/dynamic range of the ADC recording



The new Audiolab M-DAC+ uses an ESS ES9018 chip for superb sound quality, best via its balanced XLR output that connects 'almost directly' to the chip itself.



Three balanced XLRs and a trio of single-ended RCAs mean the T+A can handle a variety of source components. The R2 link sockets allow for connection to other T+A products for total system control.

All this listening was done with the tone controls set to off, as is my usual preference. Switching them in does allow tailoring of the bass and treble but at the expense of a slight loss of definition.

There's also a loudness control that allows you to set the amplifier to match the size of your room and efficiency of the loudspeakers being used. In practice the effect of this was quite subtle and experimentation is recommended.

This feature does show just how well-equipped the T+A PA 2000 R is. At first sight it may look like a basic integrated amplifier but it, in fact, is a feature-packed feat of German engineering. And it is also extremely enjoyable to listen to.

CONCLUSION

The new T+A is a beautifully constructed amplifier that simply exudes quality and sounds as good as it looks. Add in a comprehensive range of features and it makes a strong case for itself.



Totally flexible: Users even have the option to individually name sources if desired.



Loudness control allows the amplifier to be set for specific speakers and room size.

MEASURED PERFORMANCE

The PA 2000 R produced 112 Watts into 8 Ohms and 196 Watts into 4 Ohms under test, so it delivers sufficient power to drive any loudspeaker loud under all conditions.

Distortion was very low, measuring 0.005% in the midband (1kHz) and 0.01% at 10kHz driving a 4 Ohm load, our analysis showing just a small amount of innocuous sounding second harmonic here. With almost no change in the distortion spectrum from low to high output levels the T+A will sound clean and neutral under all conditions.

Frequency response was wide, extending from 1Hz up to 53kHz, a stepped attenuator volume control imposing no change irrespective of volume setting. Wide bandwidth usually provides a clean, open sound with airy highs.

Sensitivity was on the low side, the amplifier needing 370mV to deliver full output from an unbalanced phono socket line input, and 600mV from balanced XLR

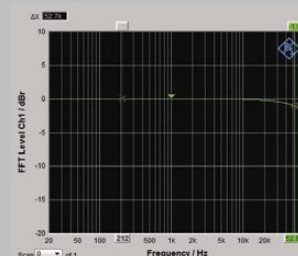
input.

The tone controls were uneven in effect, the minimum available lift of +2dB giving +1.5dB, whilst -2dB setting gave -2.5dB. The latter value is quite high; analogue controls offer subtler levels of cut to finely trim tonal balance. By way of contrast the PA 200R's tone controls impose quite large steps in response variation.

The PA 2000 R amplifier delivers high power and low distortion. It also has wide bandwidth. It will sound clean and open as a result. The tone and loudness controls were coarse in action, not offering fine levels of tonal trim. **NK**

Power	112watts
CD/tuner/aux.	
Frequency response	1Hz-53kHz
Separation	98dB
Noise	-100dB
Distortion	0.01%
Sensitivity	370 / 600mV

FREQUENCY RESPONSE



DISTORTION



T+A PA 2000 R
£4200



OUTSTANDING - amongst the best.

VERDICT

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FOR

- detailed sound
- neutral
- good bass
- facilities

AGAINST

- not cheap

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circuits in the Novafidelity X40 - did you check these when you tested? Thank you for the helpful reply about comparable filters on the M-DAC/Q-DAC versus the X40.

In the M-DAC+ review you made the fascinating comment that the DAC output is connected directly to the XLR output with no intervening circuitry, thus obtaining maximum dynamic range. Is this the case with the X40 as well? If so will they sound the same? Can I justify 'upgrading' from the X40 to the M-DAC+ or 8300N? (I want the X40 back on my desk for LP recording, unless I buy an ADL GT40a - which is best for LP recording.) Does this mean that in future as more makers use the built-in digital volume control inside some DACs and then connect the output directly to



A Yamaha CD-N301 – "what a bargain" says Mike Tartaglia-Kershaw.

the XLR output that this will mean that all makers using the same DAC in this way will sound the same?

Best wishes,

Mike Tartaglia-Kershaw

PS I also have a Yamaha CD-N301 network CD player on my desk - what a little bargain - well worth a test - so cheap it is silly - lovely sound for the price even used directly as an analogue source. I use it digitally connected to the Q-DAC. I bought it as a 'temporary streamer' before the 8300N arrives (possibly) but the X40 has taken over for now.

Hi Mike. We measured the ADC of the X40 at 96dB dynamic range. I do not have the circuit diagram of the X40 so cannot explain the output circuit arrangement.

With regard to M-DAC+ and my comment about "direct connection", I was being figurative. With most DAC chips there is inevitably an output current-to-voltage convertor and this is so with the 9018, so it is not usually connected truly directly. I'm sorry not to make this clear.

ESS publish a circuit showing the use of AD797 chips that perform this function and their output does then go straight to an XLR balanced output socket, albeit through some filter components. The unbalanced

RCA socket output is derived through an additional AD797 so passes through an additional stage. It is possible to connect directly, or through a transformer, but in a commercial product an IC is the preferred solution, or discrete components, to provide gain and line drive. And whilst on this issue, I see Audionote use a transformer for 'I/V conversion' then valves, so not everyone sticks to the rules (good for them – it is a nice way to do it!). See what Zap thinks about the result in the another letter this month.

A 32bit volume control with small 0.5dB steps is part of the chip, as are slow and fast filters, a programmable filter section, a DSD section and much else, not all of it



Make your own ES9018 Sabre32 DAC? Yes, you can, with this DIY (Buffalo II/SE) board from Twisted Pear Audio of the USA (West Newbury, Massachusetts: see www.twistedpearaudio.com). It comes assembled and tested for \$379 (£265). Not for beginner but good for students, engineers and experienced hobbyists.

The name is a skit on 'twisted pair' by the way, to which Wikipedia devotes much space.

Because high performance DAC chips are these days very specialised and sensitive devices, needing a lot of support circuitry, it's unlikely commercial DACs will sound the same because they use the same chip inside. The power supply is a major issue and the best use expensive and bulky linear supplies, whilst the cheapest use off-the-shelf Chinese wall warts. So watch out for this differentiating factor.

Audiolab's new M-DAC+ offers extraordinary sound quality. It will give better sound than most else and being a dedicated design with linear power supply will better an X40, but whether your wife will think it's "worth it" I wouldn't dare say! **NK**

used by manufacturers – especially the filter functions. As ESS point out, the 9018 needs a very good power supply, as well as super high quality external components, board layout etc, if it is to work properly.

You can read more about all this at Twisted Pear audio (<http://www.twistedpearaudio.com>) in their Buffalo II DAC and user manuals, that are clear and succinct about 9018 support. They also offer a kit that would suit budding engineers and university students methinks, if not casual hobbyists.



There was a small amount of high frequency distortion (0.06%) with extended even-order harmonics from Luxman's L-590AX amplifier.



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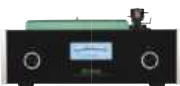
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Sonic Iconic

Leicester-based Icon Audio has updated and improved upon its original, valve-based, headphone amplifier. Paul Rigby reviews the enhanced HP8 Mk II.



Icon Audio's HP8 MkII has been a longstanding favourite for those looking for a quality valve headphone amplifier. The great news is that this successful design has now been upgraded. Utilising the same 12AX7 and 6SN7 valves (despite the deceptively different glass casing shape), the chassis has been enlarged (excluding buttons and sockets) to 160mm x 275mm x 160mm from the original 155mm x 255mm x 140mm while the weight has increased from 5kg to 7kg. The increase in chassis size provides more room for component layout, helping to lower noise, while half a dozen circuit design improvements also bring potential sonic benefits. The new power supply transformer is also larger with a tweaked design, hence the extra weight. Another reason for that is the slab of copper

that sits on top of the chassis adding aesthetic and damping benefits while the rear adds a pair of inputs, providing additional connectivity options.

This is an all-analogue unit with no on-board digital conversion. Valves drive an output transformer with three switched settings: High, Medium and Low output. Our measurements show output was extremely high by transistor headphone amplifier standards: the HP8 MkII easily drives any 'phones. Beside the output level is a volume control. In between are a power switch and a 1/4in headphone jack.

The earlier original design was also confusingly called the HP8 Mk II (henceforth referred to here as the 'old' design; coke bottle-shaped valves identify the newer, upgraded design).

SOUND QUALITY

I began with the jazz vocal of Dakota Staton and the original issue of her Capitol LP, 'Round Midnight'. Our

tests flagged up the HP8 MkII's high gain and output and I can confirm this as my hard-to-drive Sennheiser HD800s were easily handled by the Icon even at the Medium (M) setting via the Output selector on the front of the chassis.

Sonically, the differences between the new/old HP8 products were evident from the start and the cause was initially down to instrumental separation.

Before Staton launched into her performance, both the strings and clarinets alternated during the introduction. The original HP8 MkII presented each instrument as singular entities whereas the new HP8 told me that there was, indeed, a group of violins and a group of clarinets present during this sequence. In addition, the playful piano accompaniment exhibited air and space while the occasional harp excerpt provided a rich and full presentation.

As for the vocal? Staton had a clean, calm delivery on the new HP8, enhanced by a delightful, subtle reverb. A reduction in noise also benefited the sound. For example, there was noticeable sibilance during the performance which could only really be properly corrected during mastering yet during the line "Supertime I'm feeling sad" the measure and ferocity of that sibilance was vastly reduced to more acceptable levels.

Playing the 10" disc of Rootmasters' self-titled 10" EP and the rather bizarrely titled tracks 'Elephant Puddle' and 'Book of Hours [Autolump]', I was struck by the open and airy nature of the synth sweeps while the vocal samples had a new accuracy and improvement in diction, as opposed to the slight smearing from the older unit.

Bass, although not etched, honed and punchy in solid-state fashion, was still deep and massive in terms of size and weight. There was a distinct

gravity to the bass on this track that acted both as a foundation to the guitars roaming above it, and also a driving force behind the rhythm.

I was most impressed by the dynamic extension within the upper midrange frequencies and the treble. This enhanced clarity not only provided added detail but also gave the entire track a breezy sense of freedom. I never felt that the performers were being held back or restricted in any way.

On a more orchestral level, I turned to the original soundtrack of the spaghetti western film 'Django' by Luis Bacalov from 1966 and the relatively brief mood piece 'Town

caverns, adding to the eerie nature of the presentation of this instrument. Strings offered a more naturalistic flow, a 'sighing' effect that almost indicated a feeling of emotional loss.

CONCLUSION

The added mechanical features are useful and welcome but the HP8 really scores in terms of its enhanced sound quality over and above the original design. The lower noise floor increases both clarity and transparency and opens up the entire midband to increase both emotion and tonal realism, while giving the soundstage a relaxed air, allowing music to flow in a natural manner.



The 'coke bottle' shaped valves utilised in the new iteration of the HP8 MkII

A Signature Edition of this headphone amplifier, with upgraded output capacitors and valves is also available for an additional £155.



Internally, you can see the unit's output transformers at right. It is hard wired too – there is no circuit board.

SYSTEM USED

- Origin Live Sovereign turntable
- Origin Live Enterprise 12" arm
- Transfiguration Proteus cartridge
- Leema Essentials CD player
- Icon Audio PS3 phonostage
- Aesthetix Calypso pre-amp
- Icon Audio HP8 Mk.II (original release)
- Vertex AQ & Atlas cabling
- Sennheiser HD800 headphones
- Kimber Axios headphone cable

of Silence' which features strings, a portentous piano, a plucked guitar and secondary percussion.

Again the difference in sound quality was immediate and quite stark, the plucked guitar exhibiting a large amount of reverb that appeared to carry on for some time while the sinister piano backing now appeared to be emanating from the deepest of

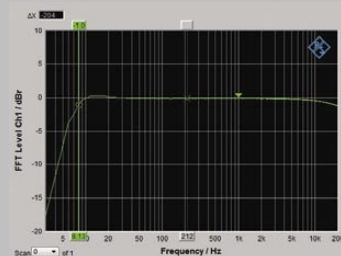


The new edition headphone amplifier adds a pair of inputs to the rear to form a loop.

MEASURED PERFORMANCE

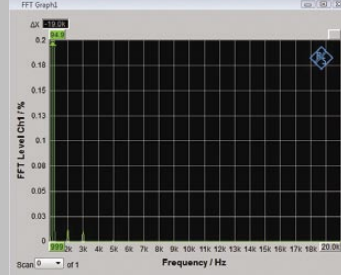
The HP8 MkII has high gain and very high output, as is possible from valves

FREQUENCY RESPONSE



DISTORTION

THD all G	Level RMS	Frequency
CH1: 0.0167 %	1.0063 V	1000.0 Hz
CH2: OFF	OFF	OFF



working through an output transformer. Set to High (H) it was capable of a massive 27V out (1V is very loud) and the gain is x34, or 31dB. Medium (M) gave 15.6V out and gain measured x20, 26dB, whilst Low (L) would be fine for most headphones with its 8.8V maximum output – more than enough for any headphone available – and x11 or 21dB gain. A small 100mV input would give 1.1V out - very loud.

Frequency response extended from 8Hz to 18kHz at all three gain settings. Noise was low at -90dB and so was distortion too, measuring 0.01%.

The HP8 MkII has sufficient gain and output to cope with all situations and all headphones; it measured very well all round. **NK**

Output (H/M/L)	27/16/9V
Frequency response	8Hz-18kHz
Separation	88dB
Noise	-90dB
Distortion	0.01%
Gain (H/M/L)	31/26/21dB

ICON AUDIO HP8 MKII HEADPHONE AMPLIFIER STANDARD EDITION £699



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VERDICT

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- dynamic extension
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- cooler running

AGAINST:

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VERDICT 



Space music

Martin Pipe explores Exogal's new Comet 'computer DAC' from the USA.

Exogal? A new one to me, but this relative (2013) audio newcomer is staffed by ex-Wadia employees. As a result, this Minnesota-based firm has pedigree.

Exogal's first product, designed and made in the US, is the Comet DAC/headphone amp. This 'true balanced design' is here featured in deluxe 'Plus' form, with off-board linear power supply. Due imminently is the Ion, a companion digital amplifier specced at 125W per channel into 8 ohms. It connects to the Comet via a proprietary 'Exonet' interface, which uses HDMI-type cables. Exonet is not the same thing as HDMI so don't be tempted to connect a Blu-ray player via such means.

The Comet is billed in the manual as a 'computer DAC' and to this end is equipped with an asynchronous USB port capable of conveying DSD64/128 (courtesy of DSD-over-PCM) and PCM all the way up to 384kHz/32-bit. Windows drivers can be downloaded from Exogal's website. It can however also be used as a DAC with more conventional digital sources thanks to the inclusion of optical, coaxial (here,

BNC) and AES/EBU inputs.

A line-level analogue source can be plugged into a pair of phono sockets. Why? You might want to apply the Comet's 100-step (each is 0.5dB) volume control to your non-digital sources. It's achieved digitally at 32-bit resolution; the analogue input is converted into digital (at 96kHz/24-bit, thanks to an ADC built into the integral PCM9211 S/PDIF receiver chip). Two muting levels are provided, too – quiet (-10dB) and completely-silent. Thanks to all this you can connect the Comet directly to a power amp or active speakers.

The Comet also has a second USB port (for charging smart devices) and Bluetooth too. There are even Exogal apps for Android and iOS; the Comet can be coaxed into displaying a QR weblink code on its front panel screen!

If you're expecting to stream music from your smartphone to your audio system via the Comet, though, you're going to be sorely disappointed. This is because Exogal is using Bluetooth purely for control purposes. Don't then forget to plug in the stubby little Bluetooth aerial, or remote-control range will

be extremely limited! The supplied handset might have a head-mounted LED that blinks when a button is pressed but the control work is done purely by radio – good news if the Comet is stashed away in a cupboard.

Not that you'd want to, because the Comet's machined casework looks gorgeous. Furthermore, it's solidly-built and precision-engineered. The design is not beyond criticism, though. That tiny front panel display, a curious silvery affair, is difficult to read. There's no backlight, it's very reflective and not an awful lot of information is offered.

Furthermore, the complete absence of any controls on the unit means the remote (or that app!) is essential.

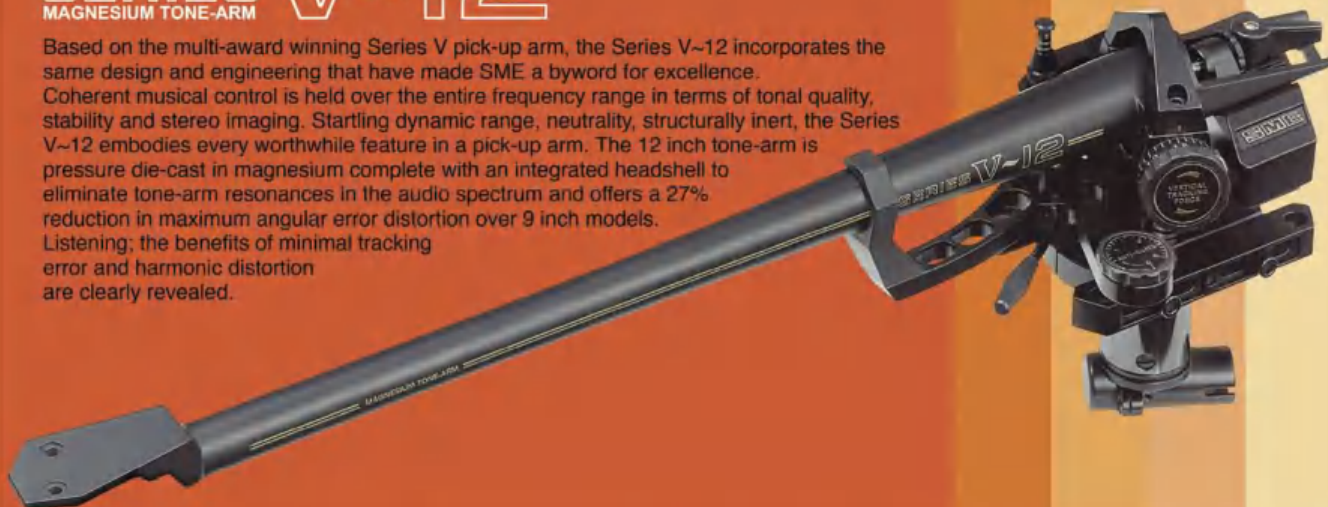
Exogal also tell us that 'proprietary upsampling and filtering technology' is employed, but there are no pre-defined filter characteristics for users to choose from. Inside the unit lurks a neat but busy circuit board containing not only the aforementioned PCM9211 but a SRC4192 sample rate converter, powerful Altera FPGAs, XMOS USB interface, Bluegiga Bluetooth chip, multiple TI/Burr-Brown DACs



SERIES V~12

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in your cables can spoil your pleasure of music

Black Rhodium Cables with Vibration Stabilisers

Will reduce vibration distortion in your music

The Graham Nalty Vibration Stabiliser minimizes mechanical vibrations in your cables by mass damping. It is extremely effective in reducing audible distortion and bringing greater realism to your music.



" Greater spaciousness around each instrument that helps me to appreciate that the orchestra is composed of a number of individual instruments "

HI-FI CHOICE



DISCOVER BLACK RHODIUM CABLES

Go to www.blackrhodium.co.uk and download our new High End Cable Brochure or visit your nearest Black Rhodium Dealer now.

and no fewer than eight LME49600 buffers (two of which drive your headphones).

The main output is available simultaneously on unbalanced phono and balanced XLR outputs.

SOUND QUALITY

Once again my trusty Arcam A49 integrated amplifier and Quadral Aurum Wotan VIII speakers were pressed into service. My key listening sources were a Windows 7 PC and Cambridge CXN streamer, playing losslessly-compressed (FLAC) CD rips and hi-res content stored both locally and on a NAS.

Let's start with the PC side of things, which – certainly for Windows users – requires you to download and install an XMOS driver from Exogal's website.

Considering that the Comet is billed as a 'computer DAC', I'm surprised that Exogal's website lacks information on configuring Windows software for DSD over PCM.

However, I was able to adapt the info provided by Unison Research for its Unico CD Due (reviewed elsewhere this issue).

First up was a DSD of Keith Greening and Dayan Kai's 'Looking For A Home'. This is a minimal recording, featuring acoustic guitars and vocals. And the Comet did

justice to the impressive detailing of this stunningly-beautiful release. Vocal breaths, together with string noises and twangs, could be picked out. It all sounded wonderfully clean and natural, a definite sense of acoustic space and presence being apparent.

If there's a criticism of the Comet, it's that you don't get the upper-treble bite that one expects from modern recordings.

This was particularly noticeable with the electronic percussion of a selection of classic house-music cuts. But it has its advantages. Some favourite albums (Supertramp's 'Breakfast in America' for example) are a little 'top-heavy'; the Comet addresses the balance. It will be a good match for bright-sounding amps and 'speakers.

As the line input is digitised and goes through the DAC, it's also subject to this moderate treble 'dulling'; this too may be of value to some.

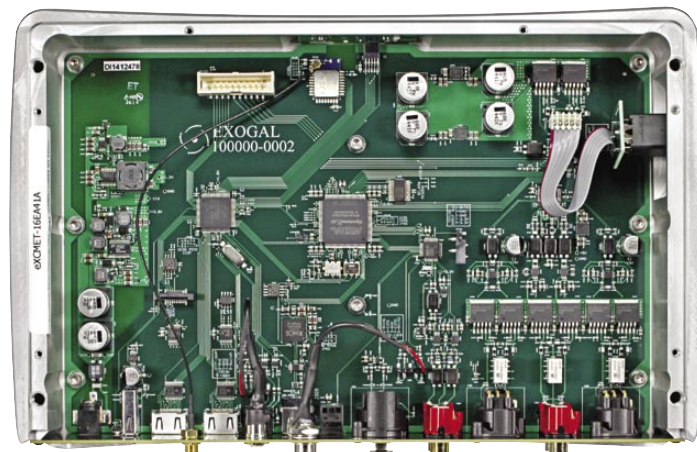
Interestingly, these aspects of the Comet's performance were improved with the optional power supply.

This brought more heft and

overall presence to the sound meaning instruments took on greater tonal accuracy.

CONCLUSION

The Comet is a well-built and good-sounding product, combining ease of use with good-quality digital to analogue conversion. It has some minor issues that limit it I feel, such as the display and limited upper treble, but such matters aside this is still a good – and certainly a complex – product.



A busy but neat internal PCB with a lot of sophisticated silicon evident. Among the chips are a PCM9211 SPDIF interface SRC4192 sample-rate converter, Altera FPGA, XMOS USB interface and multiple TI/Burr-Brown DACs.

MEASURED PERFORMANCE

The Exogal Comet has an audio response limit of 14kHz via all inputs and outputs – even with 192kHz sample rate digital that has a theoretical upper limit of 96kHz. This suggests the designer has imposed his own unconventional view on what is best for sound quality: such a response will impose a uniformity and cleanliness, without obvious dullness, upon all digital. It does also remove rubbish from poorly recorded, harsh sounding CDs and, on balance, may be heard as beneficial. But a darker, less airy tone is also the result of bandwidth limiting – especially this extreme. The optical input worked to 176.4kHz sample rate, but would not handle 192kHz.

Even the analogue input (to output) has been limited to 14kHz; I can think of no other amplifier or preamplifier so restricted. However, VHF/FM radios reach 14kHz and pass muster so – arguably – it is subjectively acceptable.

Dynamic range measured a respectable 115dB via the balanced XLR output – not class leading where

123dB is possible. That puts the Exogal around 8dB behind the competition and 10dB behind Audiolab's £850 M-DAC+, for example.

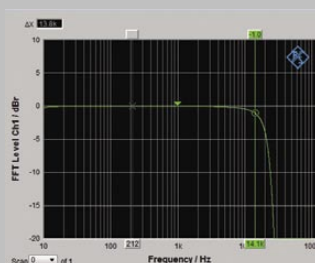
Output measured 2.7V from Phono sockets, 2.6V from balanced XLR and 1.7V from headphone.

From analogue input to output the signal was attenuated, from 1V to 0.41V, or -8dB. Again, this is unusual; 0 - x3 gain is common.

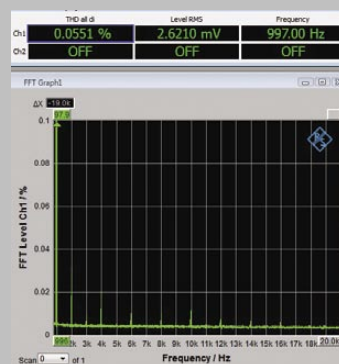
The Exogal Comet's bandwidth limiting is peculiar and general results idiosyncratic. Performance wasn't poor, but neither was it good at the price. **NK**

Frequency response (-1dB)	4Hz-14kHz
CD	
Distortion	
0dB	0.02%
-60dB	0.06%
Separation (1kHz)	98dB
Noise (IEC A)	114dB
Dynamic range	115dB
Output	2.6V

FREQUENCY RESPONSE



DISTORTION



EXOGAL COMET, £2,100 (£2650 WITH 'PLUS' PSU UPGRADE)



GOOD - worth auditioning

VERDICT

Although not perfect, the Comet is worth auditioning.

FOR

- detailed, clean and good dynamics
- can drive power amplifiers directly
- some interesting features

AGAINST

- lacking upper-range bite
- more could be made of the hardware
- no controls on the unit

Kog Audio
+44 (0)24 7722 0650
www.kogaudio.com



WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

TURNTABLES

AVID INGENIUM £800
Great bass response and upper midrange detail allied to clarity makes this a must-hear at its price-point.



CLEARAUDIO INNOVATION £6400
Expensive, but offers great results from a finely honed and beautifully finished belt drive turntable, with servo control from the platter to keep a grip on tempo like few others. Can be fitted with a Clearaudio tangential arm, or any conventional design. Awesome.



INSPIRE MONARCH £4,350
A rebuilt from the ground up Technics Direct Drive, having blistering pace and dynamics allied with smoothness, sophistication and purity of tone. A true reference.



LINN LP12SE £3,600
The UK's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel sub-chassis and Radikal DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

MICHELL GYRO DEC £1700
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



PRO-JECT ESSENTIAL DIGITAL £300
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LP to your laptop.



REGA RP3 £550
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding RB303 tonearm, suitable for MM and MC cartridges. A standard at the price point.

TIMESTEP EV0 £2100
The famous Technics SL-1210 MkII Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



TONEARMS

ORIGIN LIVE ENCOUNTER MK3C £1,745
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

HADCOCK GH-242 EXPORT £810
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

ORIGIN LIVE ONYX £450
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



REGA RB303 £300
A one piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC. Reference quality for peanuts.

SME 312S £1,600
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



SME 309 £1500
A one-piece tapered 9in arm finished like a camera and slick to use. Superlative SME quality and sound at affordable price.

SME V £3000
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets.

CARTRIDGES

AUDIO TECHNICA AT-OC9 MLIII MC £420
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



AUDIO TECHNICA AT-F3/III MC £150
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

BENZ MICRO ACE SL MC £595
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

BENZ MICRO WOOD SL MC £945
Highly finessed Swiss moving coil that plays music with riflebolt precision.

DENON DL-103 £180
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value.



LYRA TITAN I MC £3,500
Breathtaking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



ORTOFON 2M MONO SE MM £80
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



ORTOFON 2M BLACK MM £400
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

ORTOFON CADENZA BRONZE MC £1,400
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



ORTOFON CADENZA BLACK MC £1,800
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

ORTOFON A95 MC £3,750
Fast and extremely detailed, this is an MC cartridge that sets standards.

REGA CARBON MM £35
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



GOLDRING 1012GX MM £250
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



SHURE M97XE £80
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor.

VAN DEN HUL DDT-II SPECIAL MC £995
Long-established cartridge from Holland with an open and dynamic sound.

PHONO PREAMPS

CAMBRIDGE AUDIO 651P £200
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

ICON AUDIO PS3 MKII £1,200
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



IFI IPHONO £350
Multi EQ phonostage from British manufacturer that punches well above its weight. Substantial bass and open midband.



LEEMA ACOUSTICS ELEMENTS ULTRA £1,199
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money.



PRO-JECT TUBE BOX DS £425
Compact MM and MC phonostage with valve output circuit and a big sound.



QUAD QC24P £995
MM and MC, oodles of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

TIMESTEP T-01MC £995
New, minimalist phonostage that sonically punches well above its weight.

PREAMPLIFIERS

ICON AUDIO LA-4 MKIII £1,300
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



MF AUDIO CLASSIC SILVER £4,500
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

MING DA MD7-SE £1,520
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



INTEGRATED AMPLIFIERS

ARIAND PRO845SE £1,499
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet forcefully dynamic at the same time.



AUDIO RESEARCH VSI60 £3,500
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



CAMBRIDGE AUDIO AZUR 651A £350
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

CREEK EVOLUTION 100A £1,500
Superb build and smooth confident sound make this powerful amplifier a benchmark.



CYRUS 8DAC £1,400
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

EXPOSURE 1010 £495
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



ICON AUDIO STEREO 60 MKIII £1,700
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



NAIM NAIT 5Si £925
Naim's fabled entry-level integrated amplifier is updated to Si status. Demos Naim's superbly muscular sound at entry level.

SUGDEN A21SE £2,480
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



POWER AMPLIFIERS

AUDIO RESEARCH VS175 £7,498
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

AUDIO RESEARCH VS115 £5,000
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

ICON AUDIO MB845 MKII £5,500
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



ICON AUDIO MB81 £10,000
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

MCINTOSH MC-152 £4,995
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



QUAD ELITE QMP MONOBLOCKS £2400 PR
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

QUAD II-EIGHTY MONOBLOCKS £6,000 PR
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



LOUDSPEAKER FLOORSTANDER

B&W 803 D3 £12,500
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

CASTLE AVON V £1,600
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



EMINENT TECHNOLOGY LFT-8B £2,500
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

EPOS K2 £1,000
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

FOCAL ARIA 926 £1,400
Simple, clean, neutral sound – easy going but well engineered and affordable.

MARTIN LOGAN SUMMIT X £16,698
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



MARTIN LOGAN ELECTROMOTION £2,500
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



QUADRAL CHROMIUM STYLE 8 £1,700
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

QUADRAL ORKAN VIII AKTIVS £6,200
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



Q ACOUSTICS 2050i £480
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

SPENDOR SP100 R2 £6,495
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



SPENDOR A3 £1,300
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

TANNOY DEFINITION DC10 Ti £6,000
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



TANNOY KENSINGTON £9,950
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



LOUDSPEAKERS STANDMOUNT

ACOUSTIC ENERGY NEO 1 V2 £225
Civilised sounding speaker with fast and tuneful bass.

ACOUSTIC ENERGY AE1 CLASSIC £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



ELAC BS243 £1,000
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



EMINENT TECHNOLOGY LFT-16A £1,200
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

WHARFEDALE DIAMOND 220 £200
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



KEF LS50 £800
Supremely musical mini-monitors which sound much bigger than they look.



MARTIN LOGAN MOTION 35 £1,300
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



PMC TWENTY.21 £1,575
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



Q ACOUSTICS 2020i £165
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

WHARFEDALE DENTON £500
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



HEADPHONE AMPLIFIERS

CREEK OBH11 £150
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

CHORD MOJO £399
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



EPIPHANY EHP-02 £99
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



ICON AUDIO HP8 MKII £650
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



FIDELITY AUDIO HPA 100 £350
Great little headphone amplifier with a lively yet refined and open sound.

MUSIC FIRST PHONE BOX £276
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



OPPO HA-2 £250
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.

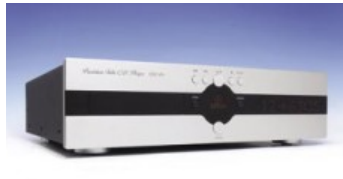


CD PLAYERS

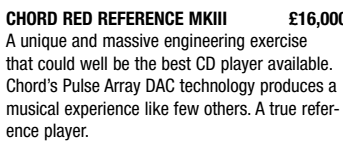
AUDIOLAB 8200CDQ £949
Inspired CD player and DAC with price-performance ratio like no other. Capable of matching designs costing much more.



CANOR CD2+ £3,100
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



CAMBRIDGE AUDIO AZUR 651C £410
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.



ESOTERIC K-03 £9,495
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



EXPOSURE 101 £395
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.

ELECTROCOMPANET EMP-1/S £4,650

Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



OPPO BDP-105D £1200

Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



REGA APOLLO-R £550

Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.



ROKSAN KANDY K2 £900

A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.



TUNERS

CAMBRIDGE AUDIO AZUR 651T £299

Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



CREEK DESTINY 2 £550

Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



MAGNUM DYNALAB MD-90T £1,900

Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



DACS

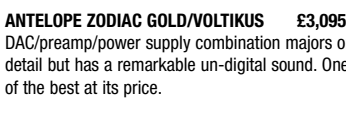
AUDIOLAB M-DAC £600

Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



AUDIOLAB Q-DAC £250

Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.



ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095

DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



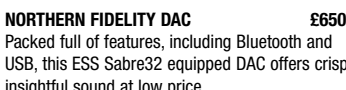
CHORD 2QUTE HD £990

Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



DCS DEBUSSY £8,000

DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.



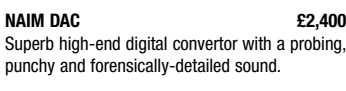
NORTHERN FIDELITY DAC £650

Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



METRUM OCTAVE £729

Unique two-box digital-to-analogue converter with great sound at a great price. Cuts upper treble, though.



NAIM DAC £2,400

Superb high-end digital converter with a probing, punchy and forensically-detailed sound.



TEAC UD-501 £699

Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



RESONESSENCE INVICTA MIRUS £4,499

One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



NETWORK PLAYERS

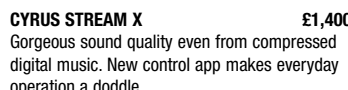
CHORD DSX100 £7,500

Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



CAMBRIDGE AUDIO NP30 £399

Budget offering from Cambridge offers a great introduction to network streaming.



CYRUS STREAM X £1,400

Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



ENTOTEM PLATO £2999.00

A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



NAIM NDX £2,995

Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

NAIM ND5XS £2,175

Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

NAIM NAC-N172 XS £1,650
A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



PRO-JECT STREAM BOX RS £1,095
Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

QUAD PLATINUM DMP £2,500
Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



DIGITAL SOURCES

ASTELL&KERN AK100 MKII £569
Portable high-definition digital player with superb sound quality. Punchy and fast.



FiiO X3 £150
Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

LOTOTO PAW GOLD £1,500
Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



NAIM HDX £4,405
Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

NAIM UNITILITE £1,995
A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



PORTABLE SPEAKERS

BAYAN SOUNDBOOK £149.99
Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



IRIVER IBA-50 £69
Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

CABLES

BLACK RHODIUM TWIST £71/3M
Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



MAINS CABLES R US NO.27 £95
Offers a sprightly pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



CHORD SIGNATURE REFERENCE £900
Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



TELLURIUM Q BLACK 280/3M
A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

TELLURIUM Q SILVER DIAMOND £804/M
An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



HEADPHONES

AUDEZE LCD-3 £1,725
A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



B&W P3 £170
Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

JAYS V-JAYS £49
Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



NOBLE K10 INC. FITTING £1,279
Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



PHILIPS FIDELIO X2 £260
Aimed firmly at the upper end of the market, these X1 updates are super-accurate 'phones that match the best. Hear them before anything else.



ONKYO ES-HF300 £180
Detailed and fast sound with good bass and finely-etched treble. Have great presence without colouration.

OPPO PM-1 £950
Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.

SENNHEISER HD700 £599
Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.

YAMAHA HPH-MT220 £150
Purposeful for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.

ProAc Response DB-1 loudspeaker



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Kennerton Class

Distinctive design, superb build and a rich sound make the new Kennerton Magisters a rewarding listen, says Jon Myles.

In the world of higher-end headphones it takes something a little different to truly stand out from the crowd. The likes of Sonorous do it with gold-plated earcups while at the rarefied end of the spectrum Sennheiser has its mega-bucks valve-powered Orpheus set-up.

Pulling off the same trick at a more realistic price point is a somewhat harder task, however. So all credit to Kennerton in the design of its Magister over-ear 'phones which look truly distinctive.

The reason? The ear cups are carved from solid wood - and not just any old wood but something called Bog Oak. No, me neither - but apparently it comes from oak trunks which have lain at the bottom of deep lakes for thousands of years and having had no exposure to air, becoming as strong as rock.

Add in a headband handcrafted from lamb skin and earcup cushions fashioned from soft calfskin and the Magister looks more expensive than its £695 price tag would suggest.

Inside the earcups is a proprietary 42mm driver featuring a mylar diaphragm which is further strengthened by a titanium coating.

A thick, braided cable plugs into the left and right earcups and, gratifyingly, is a handy 3 metres long which makes listening from across the room viable.

SOUND QUALITY

First of all these headphones are big but the soft headband means they

never feel too heavy over long listening sessions once adjusted properly.

And I found the Magisters did encourage long listening sessions, mainly because they have an impressive soundstage for a closed-back design.

Miles Davis's 'Porgy & Bess' sees the trumpet hang in the air seemingly rather beyond the limits of the earcups. The upper registers here aren't too sharp but nor are they too muted as to rob the sound of bite. Instead it has all the atmosphere this album trades on.

Which is where the Magisters come into their own. They have a basic musicality and ease of flow to their performance which is beguiling.

The bass line on The Clash's 'Guns Of Brixton' is forceful, with bounce and depth. Yes, there's some warmth in the midband when the rest of the track cuts in, but not so much as to muddy the sound. Instead it sounds rather natural.

Lovers of absolute detail and outright extension may not quite take to them as they do roll off at the frequency extremes. My usual Sennheiser HD 800s, for example, have a sharper, more defined sound.



KENNERTON MAGISTER £695



OUTSTANDING - amongst the best

VERDICT

Comfortable fit and a fluid sound make the Kennerton Magisters a joy to listen to. Well worth hearing.

FOR

- build
- musicality
- rhythmic ability

AGAINST

- big

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But they also cost £300 more and don't have the overall sense of ease of the Kennertons.

The beauty of the Magisters is that they put musical communication at the forefront of their sound which is why I never once thought about what was missing but more just how enjoyable they were.

CONCLUSION

A well-judged sound allied to quality build and comfort make the Kennerton Magisters a rewarding listen. Other headphones can better them for detail - but few are quite as enjoyable in the long term.



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Munich 2016

The High-End Show in Munich is the premier European showcase for the hi-fi industry. Noel Keyword takes in all the delights on offer.

This year's High End show in Munich, southern Germany, was graced by sparkling sunshine as Europe bathed in unexpected Spring warmth at the start of May. High End is one of the largest and certainly best run shows on the planet, so it fills four halls and countless atriums with now more than 500 exhibitors. This makes it a treasure trove of both weird and wonderful hi-fi from around the world, as our report shows.



Winding audio transformers is an obscure art that requires concentration and dexterity – and Lucy Gastall of Bespoke Audio (www.thebespokeaudiocompany.com) is an expert at this and was on their stand to show how she does it.



Audio Valve of Germany (www.audiovalve.info) were showing their beautifully built and finished Solaris DAC with internal valve amplifier.



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SHOW REPORT



Hegel (www.hegel.com) were showing their new entry-level CDP2A Mk2 CD player with in-house designed transport mechanism and balanced audio circuits, fronted by a simple, clean looking fascia. You even get balanced XLR outputs in addition to phono sockets.



Stromtank (www.stromtank.com) is a unit of awesome dimensions. This power conditioner can give up to 8 hours of uninterrupted listening without connection to the mains, working from an internal battery that is charged when connected.



There are so many ways to build a turntable it seems and here is another that was a surprise, the *atmo sfera* platter-less turntable from **Audio Deva** (www.audiodeva.com). The show demonstrator was gold-plated and studded by a precious stone at centre. A menu of alternative stones – and prices! – was part of the display – you can see them in the background.



Loudspeaker drive units cone materials, from paper through to aluminium and Kevlar commonly come from **Dr Kurt Muller** of Germany – they are the place most go. Their stand did not look so enticing to the buying public but they mean a lot to loudspeaker manufacturers.



Lab 12 of Greece (www.lab12.gr) had on display a beautifully finished valve amplifier, DAC and this impressive mains monitoring and conditioning device. It could sequentially display in a bright green LED readout mains condition, including voltage, current, frequency, distortion, noise in a spectrum analysis, dc offset and more, as well as correct such errors and supply a clean output.



KL Audio (www.klaudio.com) of the USA were showing a finely-crafted and mechanically complex articulated arm – note how the headshell is at an angle to the arm in this shot, but it is at a tangent to the record groove, as the green laser beam shows. Garrard once used a similar arrangement in their Zero-100.



Zellaton's supremo grabbed me in a busy corridor and insisted I see – and hear – these amazing loud-speakers, the Statements – proportioned for the bigger home. See www.zellaton.com.



This was an eye catching stand: Vacuum Glow of Russia had a boutique display of nixie tube devices arranged on designer packing cases. Turns out they were clocks! See www.vacuum-glow.com if a nixie tube clock takes your fancy.



Luxman have returned to their roots, 31 years after producing their last valve amplifier, proudly announcing the MQ300 that uses 300B tubes in Single-Ended arrangement to produce a pure 8 Watts of Class A power per channel. Go to www.luxman.co.jp for this one and press the translate button.



Dream or nightmare? Snakes of huge Zen Sati cables wound around the rear of a system on show at cable distributor mark-johansen (www.mark-johansen.com). It made for an arresting sight all the same.



... and finally the amazing Silbatone room, a must see that graces the High End show every year. In their own words "our exhibit will feature rare Western Electric units from the Stone Age of audio electronics, before the advent of electrical recording! Hear WWI era VT-1 and VT-2 triodes, thrill to the sounds of the Western Electric 11A horns from 1924".

Silbatone of South Korea (www.silbatoneacoustics.com) are "extreme" Western Electric cinema equipment enthusiasts and transport this vast exhibit to Munich every year – and it sounds awesome! Fantastic projection and a smooth and easy naturalness of tone, plus totally believable dynamic contrasts. They play every type of music, from Jazz to Deep Purple – and their very large room remains filled with astonished listeners. One year the whole room stood and clapped after hearing Fire on the Water.

The man standing is President Manho Oh who, rumour has it, is associated with a Korean car company – and this is his hobby.



Dali's new Opticon 2 standmount loudspeakers are rather special, says Jon Myles.

Stand and deliver

If you are looking to spend £650 on a pair of loudspeakers then there are no end of options available. You could plump for a set of floorstanders with multiple drive units and a hefty bass response if you have

the room to fit them in. Alternatively, you can spend the same sort of money on a smaller model which may not look quite as impressive but may be sonically better and rather more suited to your own listening environment.

Which is exactly where the likes of Dali's new Opticon 2 come in. In size they are a traditional small standmount measuring 351mm x 195mm x 297mm (H/W/D) with a single pair of 'speaker terminals at the back above which sits a small

reflex port. Nothing too unusual there in essence.

Pop off the grilles, though, and take a look at the drive units and things become more interesting. Both the mid/bass and tweeter are in-house designed. The former utilises a mix of paper and wood fibre that is said to ensure very low surface resonance while the latter is a large 28mm soft dome unit enclosed in a metallic housing.

It looks distinctive and rather different to the average standmount - a quality that is confirmed by a firm rap on the cabinets which are substantial and well-damped. Dali uses its own Danish-based cabinet manufacturer for these, so perhaps that's not too surprising. Our review sample came in a light walnut finish but black ash and white matt satin vinyl versions are also available.

SOUND QUALITY

The Opticon 2s need careful positioning and a bit of care to get them at their best. I initially tried them well away from a rear wall and toed-in. It didn't work all that well, having a slightly soft sound and lack of bass. However, experimentation showed just how potent they can be. They are balanced for small and medium-sized rooms and are best being placed around 35cm or 50cm from a rear wall for decent low-end response.

Then they become well balanced. Mainly because they combine a rich midrange with a nicely judged treble that is neither too sharp nor lacks anything in detail. The Opticon 2s also sound rather larger than their size would suggest - presenting a wide and expansive soundstage.

Paired with a Creek Evolution 100 A integrated amplifier via Tellurium Q Silver Diamond cables the classical/modern fusion of David Chesky's 'Area 31' had presence and drama. The timpani parts especially rolled into the room with exceptional force.

Switching to the low-end workout of James Blake's 'Limit To Your Love' the Dali's again showed they can handle the lower registers well. No, you don't get the absolute impact of the very bottom octaves that a big floorstander will give you but neither do the Dalis leave you feeling you are missing much. Instead they beguile with a nice, rich presentation.

Listening to Bruce Springsteen's 'Land Of Hope And Dreams' from

the 'Wrecking Ball' CD saw an excellent sense of timing, the leading edge of the guitar notes having fine tonal quality.

If there's a criticism to be made it's that when pushed really hard the Dalis can tend to become a little grating with that mid/bass unit struggling to handle big orchestral crescendoes. But that's only when you are playing them really loud in a big room.

Use them as they are intended in smaller spaces, however, and the sound is never less than refined and enjoyable.

The two drive units are well integrated and the tweeter is especially sophisticated bringing a nice air and presence to female vocals. Sinead O'Connor's voice on 'Mandinka' was dripping with emotion and hung high and wide of the edges of the loudspeakers. I've heard more expensive loudspeakers that fail to convey the drama of this track by stripping it of its power. The Opticon 2s, however, handled it with aplomb.

In the final analysis I could hanker for a little more low-end heft or the sharper treble of a ribbon tweeter perhaps - but that would be doing the Dali Opticon 2s a massive

disservice because for their size and price they do everything extremely well.

Pair them with a good amplifier and position them carefully and they will reward with a sumptuous sound that encourages long listening sessions.

CONCLUSION

If you are looking for a domestically-friendly standmount in the £650 bracket then the Dali Opticon 2s should be at the head of your list. They combine superb build quality with excellent bass and treble and a sure-footed sense of timing. There's absolutely nothing to dislike.



The rear panel features a large reflex port to extend bass response plus a single pair of loudspeaker binding posts.

MEASURED PERFORMANCE

Frequency response of the Opticon 2 measured flat across the audio band, our third-octave, pink noise analysis shows. There is a slight plateau lift in treble level from the tweeter, just enough to ensure that treble is obvious, but the speaker is not bright. Moving off-axis lowered this just enough to give a flat tonal balance. With no crossover suckout and no treble

peak, the Opticon 2 will sound detailed, but not sharp in its treble.

The bass midrange unit runs smoothly down to 80Hz before rolling away, being contoured for near wall placement. The port has very broad output, showing that it offers effective damping.

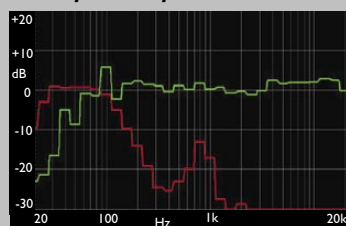
Port output extends down to 30Hz and the port is quite large so, being +4dB up in SPL at 80Hz, it outputs a fair amount of acoustic power. As a result the Opticon 2 should have well controlled bass of good quality and level, with some subsonic content.

Sensitivity was high at 88dB from one nominal Watt (2.8V) of input. Impedance measured exactly 6 Ohm using pink noise test signal to represent music. The impedance curve is reasonably smooth and non-reactive, so the Opticon 2 is an easy enough load, needing around 60 Watts or so to go very loud.

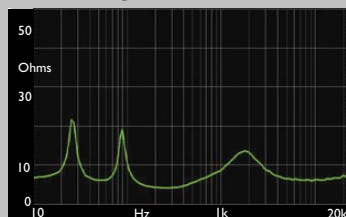
The Opticon 2 measured well in all areas. It will have low coloration, firm bass of good quality, an even tonal balance characterised by slight brightness on-axis, but perfect tonal balance off-axis. **NK**

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



IMPEDANCE



DALI OPTICON 2
£649



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A well-engineered standmount loudspeaker that punches well above its weight in terms of sound quality. Highly recommended.

FOR

- big sound
- great looking
- excellent treble

AGAINST

- nothing at the price

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Blue Aura's new V40 amplifier combines the warm sound of valves with the convenience of Bluetooth connectivity. Jon Myles is captivated.

Glowing Aura

Bluetooth connectivity is becoming a popular feature on an increasing number of hi-fi components. Portable loudspeakers, digital audio players, headphones, one-box music systems, amplifiers and even pre-amps from a variety of manufacturers now feature it as a major selling point.

It isn't hard to see why. Sound quality has improved markedly since the early days of the technology - and with aptX it approaches that of CD. And the ability to stream direct

from a laptop, mobile 'phone, tablet or desktop computer is hard to beat in terms of convenience.

Last year Cambridgeshire-based Blue Aura even extended the concept to a pair of slim floorstanding Bluetooth loudspeakers in the shape of their £599 X40 model - which proved so good they garnered a Five Globes rating in our June 2015 edition.

Now the company has come up with something equally as innovative with the Blackline V40 - a hybrid valve/transistor amplifier priced at £449 and featuring an in-built DAC,

Bluetooth connectivity plus USB and analogue RCA inputs.

It's a deliciously elegant design. Small and svelte at 148mm x 264mm x 215mm (H/W/D) and weighing in at just 3.5kg this won't demand much space on your rack, shelf or desktop.

But it will draw your eye to it, thanks to the input valves at the front. These consist of two 12AU7/ECC82 tubes plus a 6e2 magic-eye indicator valve to show volume level (more of which later).

Behind sit two small transformers for the signal and power amplifying circuits while internally the V40



Two 12AU7/ECC82 input valves plus a 6e2 magic-eye indicator valve provide a lovely glowing show - and sound rather good as well. Grab handles also make the Blue Aura easy to manoeuvre - although it is not particularly heavy.

design employs a bridged class A/B integrated circuit for the output - which taken together helps explain its small proportions.

The front fascia has two rotary dials for volume and source select, and these controls are replicated on a credit card-sized remote control. Inputs on the rear consist of a single set of unbalanced RCAs, a micro-USB for connection to a computer, 3.5mm mini-jack plus a socket for attaching the (supplied) Bluetooth antenna. There's also a sub-woofer out option plus the speaker connections which accept both spades and banana plugs.

Blue Aura claims a power output of 30 Watts per channel but we measured significantly less - at 10 Watts into 4 Ohms and 15 Watts into 8 Ohms (see Measured Performance for full details). So this isn't a massively powerful unit - but should have enough to drive most moderately efficient loudspeakers.

And while it may be small its design makes it look significantly more expensive than the price tag would suggest - with nice touches such a metallic top plate, grab handles and a curved Perspex valve cover adding an air of quality to the whole package.

The 6e2 magic-eye valve is also lovely, although its volume control indicator is rather erratic - never looking completely accurate.

SOUND QUALITY

For first listening I connected the V40 to a pair of Quadral Aurum Megan VIII standmounts. These are fairly neutral, natural-sounding loudspeakers which are adept at revealing the nature of source components.

And they immediately showed the Blue Aura has a wonderfully rich, bouncy and infectious nature to its sound.

On ESG's 'You're No Good' from their 'A South Bronx Story' CD the bass was wonderfully propulsive while vocals had a warmth and vibrancy to them. It's the sort of sound that simply sets your feet tapping from the off.

Switching to Lady GaGa's 'Monster' I got the same impression. The electronic intro is deep with just the right amount of echo to it and when the percussion track cuts in, it does it with force. GaGa's vocals were also distinct and clear with no sign of edge or harshness. To put it simply, the little V40 knows how to play a tune and its sense of warmth

soundstage does start to collapse in on itself while a slight edge creeps into the sound. But, that's being critical, because for its price the V40 does an admirable job.

Moving on to Bluetooth with Patti Smith's 'Free Money' played via an iPhone 6 Plus the guitar notes were crisp, but more importantly the Blue Aura doesn't miss a beat as the pace of the track shifts markedly forward halfway through. Some amplifiers can miss the drama of this change of tempo but the V40 tracks it well.

If there's any disappointment with the unit it comes from the USB input which is restricted to 16bit/48kHz maximum so high-resolution files are not an option. That's a shame as I have a feeling the overall sound of

"The Blue Aura has a wonderfully rich, bouncy and infectious nature to its sound... it simply knows how to play a tune"

complements the Quadral's slightly dry character to make a potent system.

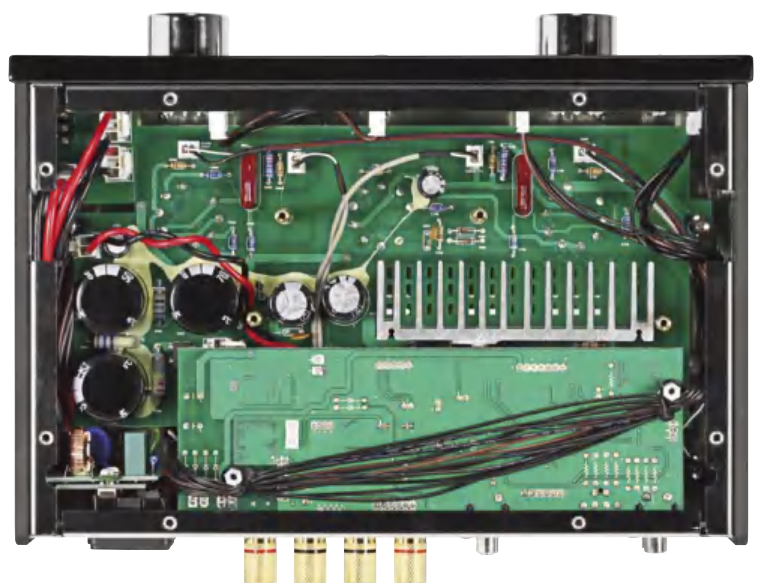
Indeed, very potent on Acoustic Ladyland's 'Last Chance Disco' where there was some sure-footed assurance to the drums/bass/saxophone combination.

What I would have liked here, ideally however, was just a little more power. Turning the volume up the

the V40 is more than good enough to show the benefits of higher bit-rate files.

Then again, that's not really the point of the Blue Aura. It doesn't claim to be a cutting-edge hi-fi DAC.

But what it does do is combine valve warmth with decent solid-state output in a compact chassis that includes Bluetooth connectivity - and all for the price of just £449.



Underneath, the Blue Aura has neat internal wiring, demonstrating good overall quality of construction.



RCA inputs plus a Bluetooth aerial, USB in for computer audio and a 3.5mm auxiliary socket give the Blue Aura a decent range of connectivity. There's also a sub-woofer out for those who require it.

Pair it with the right loudspeakers and you have a bargain combination on your hands.

Which is exactly what I found when listening to the Blue Aura through a pair of the excellent £299 Tannoy Eclipse 3 floorstanders (see review Hi-Fi World June 2016).

Here is quite a potent combination. At a total cost of £750 you have a lovely little valve amplifier and a pair of budget but superb speakers that work very well together.

Pairing these together I couldn't help but think that here is what hi-fi can deliver at a reasonable price. The

the loudspeakers while drums had slam.

It's not perfect in terms of absolute detail and see-through clarity - but, boy, is it enjoyable and something that makes you forget the absolute hi-fi necessities and concentrate on the enjoyment.



CONCLUSION

The new Blue Aura V40 is a potent package. It has a lovely valve warmth combined with good dynamic punch and the added versatility of Bluetooth input. Pair it with good loudspeakers and it will deliver a really satisfying performance.

saxophone on David Bowie's 'Drive In Saturday' just sounded fulsome and driven, the guitar sprang from

MEASURED PERFORMANCE

The Blue Aura V40 amplifier produced 10 Watts into 8 Ohms and 15 Watts into 4 Ohms, from what is a solid-state amplifier fronted by preamp valves. The EM-84 (6e2) magic eye indicator, a lovely touch, does not fully close at max volume however.

Distortion levels were well under control, measuring 0.1% in the midband and around 0.2% at high frequencies, inevitably crossover with extended harmonic structure as our analysis shows, but this is a fair result all the

same, especially at the price. Budget Class D amplifiers can be gruesome in this test, producing 1% distortion or more, but the V40 avoids this problem, by avoiding Class D and using A/B.

Input sensitivity at the RCA socket input measured 0.9V – relatively insensitive. However, modern sources such as digital players commonly produce 1-2V so it is enough, if not for old tuners etc that produced 0.3V.

Noise was low at -95dB and frequency response wide, but sharply rolled off below 20Hz by a distinctive high performance subsonic filter very deliberately engineered in it appears. It will prevent overload from warps when playing LP from an external phono stage.

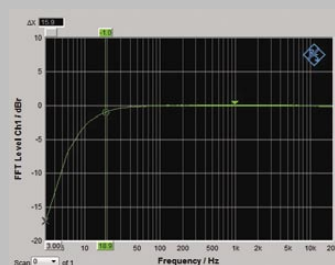
The USB DAC is decidedly budget, offering 44.1kHz and 48kHz sample rate conversion only, from 16bit alone when used in conjunction with a MacBook Pro. Dynamic range measured a mediocre 94dB, -8dB below the 102dB possible for CD, and distortion was 0.8% at -60dB where 0.2% is usual from CD.

The Blue Aura V40 avoids the sins of cheap Class D to give a good hi-fi performance. Only its USB input is a tad challenged by today's 24bit standards.

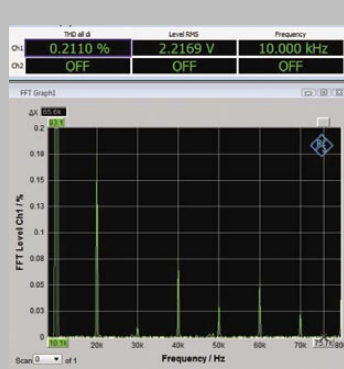
NK

Power	10watts
Frequency response	20Hz-80kHz
Separation	98dB
Noise	-95dB
Distortion	0.2%
Sensitivity	900mV

FREQUENCY RESPONSE



DISTORTION



Behind the input valves sit small transformers for the signal and power amplifying circuits.

**BLUE AURA
BLACKLINE V40
£449**

OUTSTANDING - amongst the best.

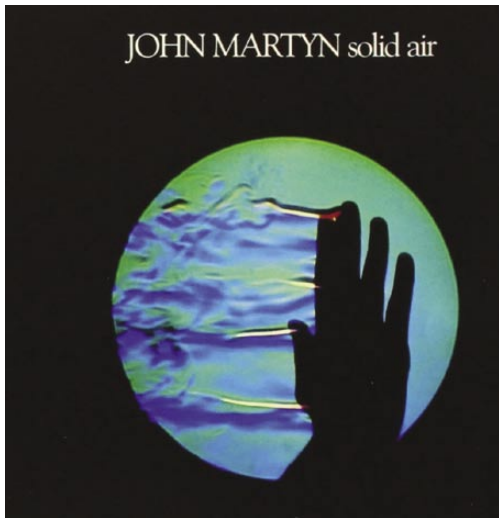
VALUE - keenly priced.

VERDICT
A superb little amplifier that allies eye-catching design to versatile connectivity and toe-tapping sound.

FOR
- valve input stage
- compact chassis
- rich, warm sound
- Bluetooth
- low price

AGAINST
- No high-res via USB

Blue Aura
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www.blueaura.co.uk



JOHN MARTYN

Solid Air
Island

The reason for the reissue of this classic album isn't so much the album itself but it has been chosen, as it were, to illustrate the half-speed mastering process, a labour-intensive technique that literally requires you to master the record at half speed.

I'm sure the world's leading exponent of this process, Miles Showell, must have been driven (half) mad at having to listen to seemingly drunken, drawling vocals all day but the result is not only brilliant, it has produced the best sounding version of this album by far.

Not only that, this album is one of the better mastered albums of recent times (along with its other recently released half speed mastered issues that include cuts from The Rolling Stones, The Police and Simple Minds).

Such is the dynamic breadth of this master and the sense

of lucidity as well as the quiet pressing, you sometimes shock yourself if you've inadvertently upped the gain to maximise the detail.

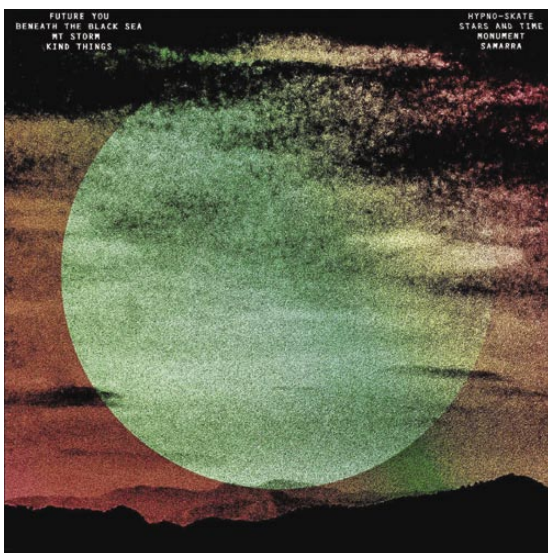
I found that, even upping my pre-amp's volume into the stratosphere, the music never actually sounded 'loud' such was the sense of space and clarity until, say, a guitar hit a crescendo and then I thought, "Bloody hell, I'm going to splinter my windows here!"

On this album, Martyn's vocal delivery is clear, concise, focused and emotive while his acoustic guitar work is dynamic, alive and spontaneous as he proudly shows on the album's title track, a pean to his good friend, Nick Drake.

His own percussive additions on the body of the guitar are sharp and nuanced while string plucks are rich in texture.

This 1973 release was a defining moment in British folk. This release is a defining moment in the Martyn cannon.

AUDIOPHILE VINYL



LNZNDRF

Title: LNZNDRF
Label: 4AD

OK, imagine you're standing in a space, toting a guitar, OK? Got that? You are with a few friends and they have drums, bass... You know the sort of thing. Then someone shouts a word. And it's a bit random, "Blueberry!" "Eh?" "Blueberry! Let's go! Play" "What? Blueberry? What are you on about?" And off they go. Playing music.

So what's it all about? This album offers an idea – any idea – drops it in a creative pool and the group...just...plays to the ripples that emerge from it. This is fractured post rock, melodic free rock, improv-style rock that bounces from one idea to another like a beat-driven pinball machine. The first track, the instrumental 'Future You', is full of that. Even the second track 'Beneath The Black Sea',

which has a vocal track with a verse/chorus structure, is not quite as structured as you might think despite the band leaning towards Can's Jaki Liebezit drumming technique in their vocal delivery.

Now I must admit that I like this stuff – but then I enjoy krautrock so I would. There is a lot of 'driving' on this LP but I'm not sure it's a pursuit, an escape or just living in the moment. Maybe all three.

That's not to say that this clear vinyl edition album is a high-tempo speed fest. Far from it. There are colour tones within each track but the energy is maintained at a high level, almost as if they're afraid to slow down in case they lose 'the moment'.

And that's what happens when members of the band National meets a member of the band Beirut. It's nice. Very nice. More please.

Is it just me or does Bonamassa's vocal style resemble that of The Who's Roger Daltrey?

There is the same vocal compression resident during crescendos.

That this is a blues album is, apart from the title, evident from the sleeve art which shows a pair of ageing, hard-working hands, lined and etched by time and it seems to carry on directly from the Bonamassa album 'Different Shades of Blue'.

That's not just down to the pace and feel of the albums as a pair but because they also include the Nashville songwriters who helped to provide extra creative focus on his prior outing.

There is no real space or time for too much light and shade on this release because the hard, energetic, rock songs ally themselves more to the blues rock of AC/DC than, for example, Mose Allison.

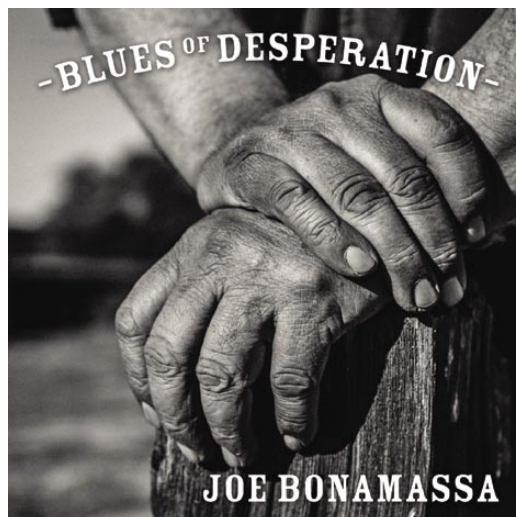
On the rare occurrence

that Bonamassa takes his foot off the pedal you are rewarded with atmosphere and a rich, deep chocolate production that reminds me of Chris Rea at his best. A sense of slinky, esoterica, erotica, sexy Americana, of noir femme fatales and chrome bedecked cars the length of a football pitch. This is what the track 'Drive' is all about.

There are eyebrow-raising outings here, though, including 'Livin' Easy' which suggests that Bonamassa can put his guitar down and tackle a vocal adventure that is worthy of further investigation.

Finally, in audiophile terms, there is nothing wrong with the mastering but I fail to understand why labels put so much play on their mastering. Instead pack it in 180gm of vinyl, gatefold it and then package it with raw paper inners. Attention to detail, people. Attention to detail.

This is a singer that is always worthy of investigation but expect to pan handle for the gold nuggets.



JOE BONAMASSA

Blues of Desperation
Provogue

AUDIOPHILE VINYL

This collection of ambient sounds was originally released as a 3LP set in 1988 but this new release adds a fourth disc with an additional 40 minutes of music, direct from the original sessions, for the first time on vinyl. The four LPs are packed in soft-lined inner sleeves and outer sleeves featuring eye-twisting patterns. All four sleeves are then fixed in a rigid, gloss laminated box sleeve. This edition also includes a gloss laminated sleeve complete with original art.

The music itself, according to Dirter, includes music "designed for ritual ceremonies" and I can well believe that.

Each album is labelled simply as I, II, III & IV and so I played the discs out of sync, just to be awkward, and picked on III as a starter to be confronted by a slowly modulating drone that reminded me, partly, of a dream

sequence from a 1960s film.

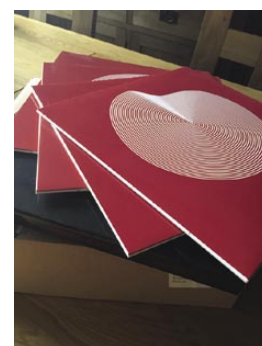
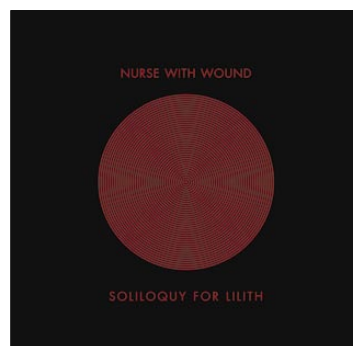
Before I progress, a quick word from an audiophile angle and praise to Dennis Blackham (of Skye Mastering), the mastering engineer of this project. I have a lot of respect for Blackham and he has come up trumps here.

Turning to IV and, to be honest, I was reminded of the end credits of Gerry Anderson's cult TV programme 'UFO', the increasing, otherworldly, alienesque drone of that permeates that sequence is here too, although NWW adds finer details and pauses.

Continuing my contrary choice of discs I played 'I' and found it rather sheepish and shy, to begin with. Almost like a bear emerging from hibernation.

What NWW offer is here is not so much an album of music but a sonic work of art.

This is a cyclical work. This is all about the journey. **PR**



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Sinfonia Anniversary, with Gold Lion valves (pictured), also available.

"The top Martin Logan hybrid electrostatic is as good as it gets"



Noel Keywood

I am a deep electrostatic loudspeaker fan, ever since living with a pair of Braun electrostatics, way back in the 1970s I recall.

I also recall whilst using them, looking out onto an unlovely North London street full of rubbish due to another strike. Anyone remember "sunny Jim" Callaghan and 1978's Winter of Discontent? Well, this apart, I was content – and deeply intrigued – by the Brauns.

And I was even more content to hear the new Martin Logan Renaissance we review this month.

Electrostatics raise issues such as the meaning of life. Or in other words, why bother if you don't have a pair! I should not say this as it makes me seem partial and biased – but box loudspeakers make one sort of sound and electrostatics make another, quite different one.

Leaving us all to ponder on which is right – and the whole notion of accuracy in loudspeakers. If conventional box loudspeakers can be labelled "monitor" quality and all that, where does this put the electrostatic with its entirely different take on things? Which is right and which is wrong?

I won't go into a great long discussion on this because it becomes too technical and leads nowhere. At the end of the day you either accept the way an electrostatic presents music or you don't – and you must listen to decide for yourself.

I can live with box speakers and electrostatics but this is down to acclimatisation and religion switching – easy if you are agnostic.

All the same, people naturally enough ask me what is the best loudspeaker, and for me the top Martin Logan hybrid electrostatics, with their large XStat panel is as good as it gets.

Electrostatics are very much reviewers loudspeakers in that they are deeply analytical.

This can be a drawback if you play – typically – old CDs with strong treble and oodles of lovely 16bit distortion. Do this and a big XStat panel will brutally reveal it. Part of the reason is that the XStat radiates over a large area, both forwards and backwards, so it is delivering massively more treble power than a tiny dome firing only forward.

In a hard, reflective room especially, the result can be challenging. But play a clean 24bit recording that lacks digital nastiness and you are made aware of pure treble.

Vinyl comes out nicely, modern stylus tip shapes and pressings are especially suitable: an XStat panel just lets you know how good vinyl can be from a decent turntable.

This isn't the main reason why people don't easily or quickly take to electrostatics though.

If there's a major stumbling point, it is the lack of body to their sound and, of course, absence of powerful bass: one reviewer said bass "floats out of an electrostatic" and that's a good enough way of putting it when describing a full range panel like the famous Quad ESL-57, of which the Braun I used long ago was a German variant (see http://www.quad-musik.de/html/braun_le1.html).

You can get an electrostatic to produce bass but to avoid "drum head resonances" you must use lots of small panels; this avoids the problem whilst delivering bass power.

Quad's ESL-57 used two bass panels and just about managed, whilst Kingsound's Prince is the most impressive full range electrostatic I have heard when it came to bass reproduction. It uses multiple, stacked bass units – a clever solution.

Martin Logan go the hybrid route

to get a domestically acceptable electrostatic with good bass, and a small footprint as a bonus. Bass comes from a closed-box bass cabinet – as usual.

They are faced with the difficult task of acoustically matching an open-back (dipole) electrostatic panel with a closed (monopole) bass cabinet. Subjectively you get two different loudspeakers, as you do physically.

There are many ways of ameliorating this, smoothing the transition from one to another subjectively. Leaving any listener to decide for themselves whether the technology works or not. Violinist Rafael Todes and I frequently discuss this – 'experts' are just as undecided as everyone else!

I'm happy enough to accept this change in character for the strengths an electrostatic panel has to offer. And they are simple to explain: you get airy clarity, finely detailed treble and deep insight into any musical performance, plus precision imaging. Music flows out freely, uncoloured and unimpeded from the panel. The box bass is simply what we are otherwise used to. Ho-hum.

The Braun electrostatic I used long ago opened up a different world. I'd never heard a loudspeaker without a box. But I'm thankful for the experience: it is a great way to listen to music, very different to what we are all used to.

I'm equally thankful Martin Logan have developed their XStat panel. It is a modern day marvel in my view, supremely clever in using insulated open stators that make it a see-through and hear-through electrostatic.

It's a great alternative to cones in boxes and well worth hearing. If you do hear them at a dealer please write in to tell me and all our readers what you think about their sound. ●

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"The human voice can produce startlingly complex harmonic results"



Paul Rigby

I've said it before in this column and I'll say it again, I do like the combination and amalgamation of a number of voices that emerge as a harmony. There is something quite magical about the fact that a number of disparate personalities can act as a contributing piece of a sonic jigsaw that builds into a single wall of perfect sound. It's a symbol of perfect human co-operation.

For fans of hi-fi, this collection of voices, these 'human speakers' are actually a natural facet of music to turn towards. You often have the full range of frequencies on offer and the best organic cross-over modules that have ever seen the light of day, the human voice box.

While the nature of the human voice can produce startlingly complex harmonic results, harmony has been heard in a wide range of combinations.

Sometimes it is the very core of the performance (e.g. Crosby, Stills & Nash and The Andrews Sisters) and sometimes it is only brought into an arrangement when required but is not a mainstay of the creative art (e.g. The Beatles and Grateful Dead). There are occasions, though, when harmony, even though a crucial part of an entire musical genre, is subject to quite specific and direct rules.

Take Doo Wop whose harmonies are very much in view but they are corralled somewhat, tending to run underneath a lead singer. Here, the group harmony does not usually lead throughout but it may occasionally alternate with a lead tenor in this capacity.

Hence, Doo Wop utilises harmony as a tool to get the message across in a very specific way.

So important was the notion of harmony to the Doo Wop genre that, over the course of the evolution of Doo Wop, there was a constant

'play' at work with harmonies always under examination and experimentation.

Some groups, for example, used 'blow harmonies', which sounded like "ha-oo" which was a quick expellation of air out of the mouth that replaced humming for background vocals.

In other cases progressive entrances were very effectual. Dion and the Belmonts were very good at this. In fact, you can hear them do their thing on Ace's CD 'Dion/Dion & the Belmonts' (acerecords.co.uk). The hit single 'I Wonder Why' clearly shows this progressive technique in full flow.

The lead singer on many Doo Wop tracks was usually a tenor. Such singers varied in tone and quality of course and some found the technique easier to accomplish than others: Frankie Lymon (and his Teenagers) had no issues but then he was a child so he really shouldn't have.

Others had a slightly manufactured tone to their tenor delivery such as The Regents with 'Runaround' (you can hear them on Ace's 'The Golden Age of American Rock'n'Roll Special Doo Wop Edition').

Slightly more softer and easier on the ear were The Passions with a track such as 'Just To Be With You' while the truly spectacular tenor performance could be heard via the likes of the Jive Five on a track like 'My True Story' (you can find this example on Ace's 'Doo Wop Shop' CD)

Possibly more intriguingly was when the traditional structure of Doo Wop was flouted and manipulated. For example, when the bass stepped out of the crowd and took the lead.

The Eternals' 'Rockin' in the Jungle' (also on the 'Doo Wop Shop'

CD) had the bass as a major part of the harmony, the main feature as it were, right from the off as well as supplying lead excerpts throughout.

One of the most distinctive elements of the entire Doo Wop genre and the detail that sets it apart from all other harmony variants was the use of the nonsense lyric.

This was an interesting inclusion and has been derided as evidence of the genre's shallow nature but, if you think about it, the nonsense lyric forces you to remember a suite of consecutive harmonic modulations, helping to retain a consistency in terms of vocal backing from performance to performance. Without the nonsense lyrics, backing vocals would be far more freeform and random: no good for the potential hit single at all.

Hence, you shouldn't be surprised to hear a brief 'Fay down ah wanna dip-a-zip-a-dip-a' emerging from the inky blackness of the 7" grooves or even 'Dull ow de moun' chicky hubba lubba' and as for 'Hell fried cuck-a-lucka wanna jubba'? Well, let's not even go there!

There are plenty of songs that fit this bill such as the backing harmonies on The Cupids 'Brenda', portions of The Preludes Five's 'Starlight' and in the background vocals of The Velours' 'Can I come Over Tonight (you can hear them on Ace's 'The Golden Age of American Rock'n'Roll Special Doo Wop Edition Volume 2').

The fact that harmony groups are so varied and wide ranging in style and approach says a lot for the power but also the variety, malleability, potential, complexity and the multiplicity of the human voice.

You can throw as much computer power as you like into a studio but the ol' analogue voice still reigns supreme and sounds ever so good. ●

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“Tannoy will not be the first company to shift its production to the Far East”



Jon Myles

We live in a global economy – so the latest changes concerning iconic British hi-fi brands Tannoy and B&W probably shouldn't come as too much of a surprise.

But that cannot disguise the sense of shock the two company's recent announcements engendered within the UK hi-fi community.

First Tannoy – acquired last year by the giant pro-audio Music Group – announced it was to shut its Coatbridge facility in Scotland with the loss of 70 jobs and transfer manufacturing to a new, purpose-built, three million square foot plant in China.

A few days later the venerable B&W revealed it had been bought by Silicon Valley start-up company Eva Automation for an undisclosed sum.

In the case of Tannoy, there had been significant speculation regarding its future since the buy-out by the group behind the Behringer brand. Music Group already has a significant research and development facility in Manchester while Tannoy's latest, and very impressive, Eclipse 3 floorstanding loudspeaker (see review *Hi-Fi World* June 2016) is already manufactured in China.

However, the sale of B&W came as more of a surprise – mainly because its buyer is a company which has only been around since 2014, employs just 40 people and has yet to produce a product

Go onto its website and you'll find little information apart from a mission statement that says “We are re-imagining the audio/video experience by making products that will change how people interact and think about the home. We are passionate about home entertainment and creating easier and better ways for people to use the products they

love. At the heart of it, we are a team of idea makers and problem solvers who are focused on user experience, design and innovation”.

Having said that, company co-founder Gideon Yu is the former chief financial officer of both Facebook and YouTube, co-owner of the San Francisco 49ers American football team. He also studied industrial engineering and engineering management at Stanford University and has an MBA from Harvard Business School. So you tend to think he knows what he's doing.

As, undoubtedly, does Music Group's head Uli Behringer. After all you don't found and run a multinational company employing upwards of 3,500 people and shipping more than 2.5 million products unless you are a pretty shrewd businessman.

However one cannot but help feel sad about the closure of Tannoy's Coatbridge plant, the subsequent loss of jobs and the end of the company's loudspeaker manufacturing in the UK. After all, Tannoy is an iconic name across the world and has long been associated as a key member of the British hi-fi industry since it was founded by Guy Fountain 90 years ago as the Tulsemere Manufacturing Company.

It rose to fame supplying PA systems to the military during World War II and then to Butlins and Pontins holiday camps after the war.

Now, of course, it is best known for its domestic hi-fi loudspeakers – especially the pioneering development of the Dual Concentric drive units which place the tweeter in the throat of the mid/bass unit so it acts as a point source. The company's Prestige range – such as the big Westminster and Canterbury GRs – are also renowned for their traditional-looking cabinets and are big sellers in the Far East due to their standard of construction and British heritage.

One can only imagine how this will be affected by the proposed move of production to China. Of course Tannoy will not be the first – and probably won't be the last – company to shift its production to the Far East. The likes of Audiolab, Quad and Wharfedale – under the auspices of the giant IAG group – have all done the same with considerable success.

Even Naim uses overseas manufacturing facilities for its new Mu-so and Mu-so QB one-box music systems as it was the only way to produce the required volume of units at a reasonable price.

And then, there's also the juggernaut that is Apple. It may boast that its iPhones, iPads, laptops etc are all designed in California but most are manufactured in China and that certainly hasn't hurt to company's success.

So while the impending closure of Tannoy's Coatbridge plant is a cause of sadness and a blow to the staff and the local economy in that part of Scotland, it doesn't mean the end of the brand as a mainstay of the British hi-fi industry. Research and development and marketing will still stay here – moving to Music Group's purpose-built Innovation Centre in Manchester.

As for B&W the future is rather less clear. It's presumed Eva Automation has bought the company to leverage its loudspeaker expertise for use in a series of new home entertainment products. What, exactly, these will be is open to speculation however and will remain that way until the first fruits of the partnership break cover, which we are told will be sometime next year.

Until then, it's a case of watch this space. But with both Tannoy and B&W's rich hi-fi heritage we can only hope the latest developments in their history prove to be a success. ●

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Paul Miller, Hi-Fi News, March 2015

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"This turntable might leave a buyer wondering why there's so much fuss surrounding vinyl"



Martin Pipe

My local Sainsbury's now hosts a narrow rack of LPs – or, as the branding puts it, a 'record store'. The choice of vinyl there is rather on the safe side and a cynical browser might say that it's an attempt to grab cash (specifically, £15 or more a throw) from a relatively-wealthy generation who bought the LPs as teenagers.

Let's see now. Led Zep's II and IV? Check. Bowie's Hunky Dory and Ziggy Stardust? Well, whaddyaknow! But have they left out Hotel California, Pink Moon, Rumours or Sgt. Pepper? Of course not. My biggest shock was not seeing Dark Side of the Moon. Licensing issues, or maybe they had sold out...

And for moderately-younger music consumers (well, those in their well-heeled property-owning 40s now) there's Nirvana's Nevermind, The Smiths' The Queen is Dead, the first Specials album, Bob Marley's Legend compilation, AC/DC's Back In Black, the Foo Fighters greatest-hits double and The Stone Roses debut.

The only newer material I could find was Adele's latest offering and the Guardians of the Galaxy movie soundtrack. That said, the latter is a compilation of classic oldies like The Jacksons' 'I Want You Back', 10cc's 'I'm Not In Love' and Norman Greenbaum's 'Spirit in the Sky'.

But what if you don't have a record player? Sainsbury's one-stop vinyl solution has that tracked too. In the bowels of the rack lurks supplies of something called a Crosley Cruiser.

This £80 product is billed as a '3-speed portable turntable'. It looks fashionably retro, being built into a suitcase and is evidently pitched as a 21st-century Dansette. It's stereo, though, the tiny front-facing speakers being placed on either side of its

carrying handle (there's also a line output on the back). On its plasticky tonearm is that abomination of things, a ceramic cartridge. It will plough your records at the best part of ten grams; compare this to the one or two grams of a hi-fi turntable. And higher tracking weights means more record wear.

In the same way that the uncomfortable ride of a cheap supermarket 'bicycle-shaped-object' could put a potential cyclist off for good, this turntable might leave the average buyer wondering why there's so much fuss surrounding vinyl. Streaming music, an iPhone or a personal CD player heard through modish Beats headphones will trounce it; CDs are longer-lasting and cheaper too. For £80, I could put together something far better from second-hand components acquired at car-boot sales or audiojumbles.

The other day, for instance, I bought a Pioneer PL12D – a 1970s budget staple – from a boot-sale stall. It had been chucked into a packing crate, with some clothes, yellowing newspapers and a low-end Technics cassette deck. This PL12D was in fair shape, and the stylus of the Hitachi (magnetic!) cartridge was undamaged. No drive belt, but they're cheap enough. I paid a quid for the thing.

Elsewhere that day, a 20-year-old Cambridge budget integrated amp was being disposed of for a tenner – and, although not ideal, I came across a £5 pair of Dynatron music-centre speakers that would have certainly done a turn. So, an entire system for less than a quarter of the price of that Crosley.

And there was good news on the software front too. At this particular boot sale, there's a regular record-trader. Some of his stock came from the record library of my local and once-independent radio station – which is now part of the faceless and

musically-safe Heart conglomerate, the musical output of which can in my view be replaced by a collection of 'greatest hits' CDs.

In its heyday, though, Essex Radio was known for its specialist evening soul and funk coverage, reflecting the strong local interest in such genres; Essex, specifically Canvey Island, was after all the home of the famous Goldmine club (Essex Radio's own 'soul night specials' took place at another venue). And who can forget Essex-born musical talents like the Kursaal Flyers, Humble Pie, Dr. Feelgood, and anarchic punks Crass?

'Heart Essex', one presumes; I haven't even heard Milk and Alcohol – Dr. Feelgood's biggest hit – on the station although that's not to say they haven't played it. Popular '80s Essex artists like Depeche Mode and Alison Moyet are a bit more likely, but almost certainly via some kind of computerised playout system rather than vinyl.

But Essex Radio's loss is the boot-sale punter's gain. The records are likely to be well looked after. I recall, from a visit to its Southend studio many years ago, that they used Technics SP10s – and, like most stations at that time, they would have owned a Keith Monks-type cleaner. Rather than upwards of £15, though, these were going for £1 a shot. And I've come across rarities like Cat Steven's Izitso and New Musik's Warp at this stall – as well as radio-station promos.

But perhaps I'm getting ahead of myself. According to a recent BBC/ICM pool, a whopping 48% of record-buying respondents had yet to play that month's purchases. And 7% don't even have a turntable. The lure of a physical artifact is what drives these consumers. But I doubt that 'no-fi' playback equipment is going to help mass-market vinyl's cause. ●



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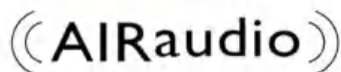
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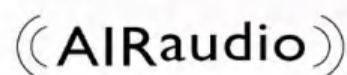
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The disc slips...

Martin Pipe concludes his examination of the Minidisc format.

All Minidisc decks – as with digital recorders – supported SCMS (Serial Copy Management System) to prevent second-generation digital recording (i.e. ‘copies of copies’). As most were recording tracks from their CDs via optical or coaxial, this wasn’t an issue. Attempting to copy a Minidisc compilation to another digital recorder would have given you blank refusal accompanied by a ‘copy prohibit’ or ‘no copy’ message, though.

SCMS strippers (like the M-Audio CO3) were available, and in any case I was able to transfer such material to a computer equipped with a digital audio input without much trouble.

Rather more useful was the sampling-rate converter built into most Minidisc decks. The format worked at CD’s 16-bit resolution and 44.1kHz sampling rate and such circuitry allowed you to record from 48kHz-sampled sources like DAT and DAB. Some decks (including my 2000-vintage MDS-JB940) would

even convert 24-bit sources – albeit ones with a maximum sampling rate of 48kHz.

Over the format’s life, many new features and refinements were added. In addition to lower-bitrate recording modes of ever-improving quality we saw improved DACs and ADCs. Then 18-bit and 24-bit DACs were specified for some models. My MDS-JB940, featured in some of the accompanying photos, was among them; it even had a switchable digital filter that enabled you to fine-tune the sound!

We take such functionality for

granted now but this was clever stuff for a £400 unit primarily intended to play and record Minidiscs. The DACs fitted to later Minidisc decks were actually quite capable by the standards of the time although today’s converters are more musical.

It is easy to use a Minidisc as a DAC (or, for that matter, an ADC). Simply press ‘record’, without a disc present. ‘AD-DA’ appears on the display. Anything on the analogue inputs will be converted to 16-bit/44.1kHz digital, and any attached digital sources will be converted to analogue. For me at least, it transformed listening to CDs with cheap DVD-player transports, and computers equipped with digital output back in 2001.

Talking of which, a major introduction that year was computer-based USB transfer – a function christened ‘NetMD’ by Sony and intended to bring Minidisc into the MP3 age. You had to use Sony’s SonicStage software to convert MP3 (or, better still, CDs; the software had an integrated ‘ripper’, complete with online-database identification of albums and tracks) into ATRAC files.

The interface wasn’t dissimilar



Minidisc’s last stand was 2004’s HiMD, which used then-impressive 1GB media to store lots of ATRAC-compressed audio or, if quality was important, uncompressed 16-bit/44.1kHz PCM (just over 90 minutes per disc).



The MDS-JB940, circa 2000-2001. It's packed with features, including LP recording, Type-S DSP, a choice of playback digital filters, Scale Factor Edit (changing of recording level after the event) and a superb range of connections.

to a primitive version of iTunes, albeit initially without a shopping function (integration with Sony's 'Connect Store' was however added in later versions). These ATRAC files could then be copied across the USB link and dumped onto Minidisc. Unfortunately, you couldn't go the

Court and Edgware Roads for them! – and also expensive at over £5 a shot. It was just as well that HiMD decks could also 'format' normal Minidiscs for use as low-capacity HiMDs; you could get half an hour or thereabouts of PCM recording from each.

By 2006, though, it was too late for Minidisc. Tellingly, there were only two mass-market HiMD backers – Sony and Onkyo. The Apple iPod and various MP3 players were by this time grabbing market share from the Minidisc format; evidently, the ability to record was unimportant to the average consumer.

Some users remained loyal to Minidisc, claiming better sound quality and battery life. And until affordable pocket-size solid-state recorders became available, there was nothing to touch Minidisc for field recording and bootlegging

concerts. It certainly managed to hold on for longer than most people realise.

Minidisc portables may have been discontinued by Sony in 2011 but it took until early 2014 for Sony to announce that manufacture of Minidisc products would finally end in May of that year. Even today, though, you'll find audiophiles and music junkies who are reluctant to let go of their Minidiscs.

Minidisc machines have proved themselves to be remarkably reliable over time. They seem to go on forever; eventually a laser, motor or some other mechanical or electro-mechanical part (notably the loading mechanism) will fail. Acceptance of pre-recorded software but not normal (MO) Minidiscs points to a laser going 'low'; this is because the reflectivity of the former is significantly higher.

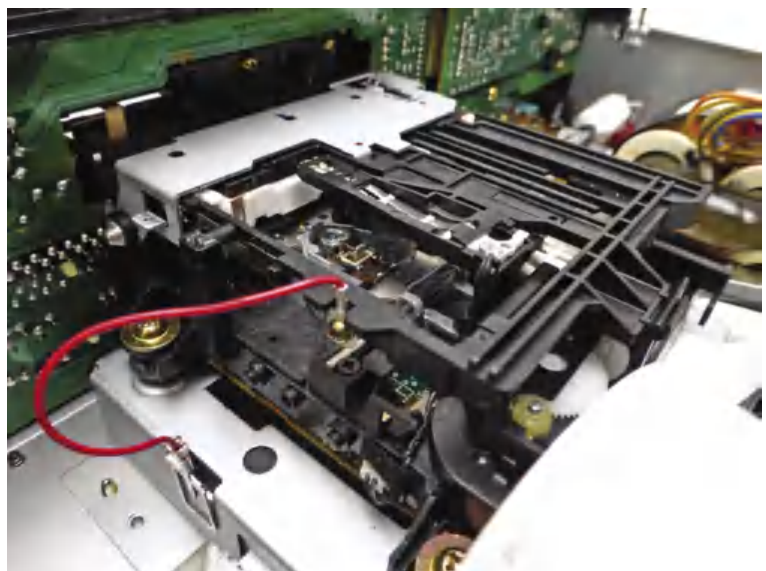


Here we have a typical 'off-the-shelf' bootlegging combo – a Sony MZ-N10 ('10th Anniversary Minidisc', circa 2003) and Sony ECM-MS907 'one-point' stereo microphone employing a 'mid-side' capsule configuration.

other way and transfer Minidisc recordings (even ones from a mike or line source!) to your PC.

That was finally added with the final chapter in the Minidisc technology story. HiMD, which used a backwards-incompatible 1GB disc of identical size, was introduced in 2004. In addition to various ATRAC modes, you could choose lossless PCM. HiMD was mostly a portable format, only a handful of homedecks being sold. It nevertheless worked very well and for a time the smallest PCM recorders you could buy were HiMD models.

The HiMD discs were however difficult to get hold of – I can remember trawling the Tottenham



This is the MDS-JB940's mechanism – very reliable, like those most Minidisc decks, despite the complexity. You can see the laser, which is superficially similar to that fitted to a CD player. Above this is the MO 'over-write head' assembly.



Most of the MDS-JB940 electronics is surface mounted. Service and instructional literature for the MDS-JB940 (and many other units) is freely-available from the excellent <http://www.minidisc.org/> website

Laser failure is surprisingly uncommon, though; the suspension of the laser within the optical block, rather than the laser itself, would deteriorate in the earliest machines to give ominous symptoms. Aside from that, it's the usual suspects – aging electrolytic capacitors, battery leakage (in the case of portables) and fading fluorescent displays. If a machine has been well looked after, chances are it will work. Pretty good for a consumer electronics product of such complexity that may be over 15 years old.

I've come across numerous Minidisc decks being given away or selling for next to nothing, and nearly all of them were working or had a minor fault (for example, loading-microswitch misalignment is common on some mid-period Sony models).

My MDS-JB940 cost £25 at an Audiojumble; this MDLP machine was top-of-the range when launched. The MDS-JE480 was a later machine based around Sony's Type-S DSP; it sold well and is very cheap second-hand. I've come across them for a tenner. The same codec chip is fitted to the more desirable MDS-JB940 model - which has better analogue electronics and connectivity (including NetMD USB support).

Sony often used the same firmware to serve a complete range, and deliberately disabled certain features on entry-level machines. Through hidden menus, you could freely add some of the features hitherto higher-end models - among them digital pitch control, disc settings memories and fancy playback modes.

Sony reckons the archival life

of Minidisc is at least 30 years. For my part recordings I made nearly 20 years ago with a 1996-vintage MDS-JA3ES (an early top-of-the-range homedeck, and the first to be pitched at audiophiles) still play perfectly well. I used this in conjunction with a timer to record radio programmes in my absence, among them concerts and Radio 4 comedies from FM and later DAB sources.

For this, Minidisc excelled; there was far less quality degradation (certainly with DAB, then carried at high bitrate) relative to the cassettes I was then reliant on. It also helped that blank Minidisc availability was never a problem; discs could be bought in supermarkets, record shops, high-street chains and hi-fi stores as well as the growing number of online retailers. And today?

When supplies of unused Minidiscs run out there are millions of used ones that can be reused - if you don't want an 'instant record collection' for the giveaway prices typically asked! Sony's claim was that a Minidisc could be re-recorded a million times...

Today, Minidisc can still hold its own. I'm impressed at how much of a digital CD transfer's space, rhythm and detail emerges intact - despite ATRAC's data reduction ratio of 5:1 (or higher!). Even symphonic and chamber works fare better than one would expect, the depth and soundstaging of a good recording being largely retained. The caveat is that a decent external converter is used for playback; enormous strides in DAC technology have taken place over the past fifteen years or so. Comparing the MDS-JB940's

proprietary DAC with that of a Chord Hugo TT (admittedly an item that sells for four times that of the Minidisc deck!) reveals the result of such development, while at the same time proving that the basic Minidisc format is inherently capable.

I'm not aware of any Minidisc deck that included Sony's revolutionary SBM (Super Bit Mapping) ADC, as fitted to some of its CD recorder and DAT decks. That said, the converters of higher-end models do paint a more than acceptable picture of the music, and one that stands up to repeated fatigue-free listening. Rapid changes in 'music on the move' may have rendered Minidisc obsolete, but this 1990s icon is fondly-remembered - and may still have something to offer today.



Most mainstream consumer audio products employ switch-mode power supplies. Not so the MDS-JB940 or, for that matter, Sony's entry-level MDS-JE480. Both use a transformer-based 'linear' supply which, although more expensive to implement, tends to be quieter, more reliable and better-sounding.

We do not sell these products. It is for your information only.

WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

TURNTABLES

EAT FORTE 2009 £12,500
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



FUNK FIRM VECTOR II 2009 £860
Innovative engineering gives a nimble, pacey and musical sound that's one of the best at the price.

REGA P2 2008 £300
Excellent value for money engineering, easy set up and fine sound.

MICINTOSH MT10 2008 £8,995
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

REGA P3-24 2008 £405
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

ACOUSTIC SOLID ONE 2007 £4,050
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

AVID VOLVERE SEQUEL 2007 £4,600
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

MICHELL GYRODEC SE 2005 £1,115
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

MARANTZ TT-15S1 2005 £1,299
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound plug and play package at this price point.

MICHELL TECNODEC 2003 £579
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



MICHELL ORBE 1995 £2,500
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

SME MODEL 10A 1995 £4,700
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

LINN AXIS 1987 £253
Cut-price version of the Sondek with LVX arm. Elegant and decently performing package. Later version with Akito tonearm better.

TECHNICS SL-P1200 1987 £800
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

ROKSAN XERXES 1984 £550
Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

DUAL CS505 1982 £75
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

MICHELL GYRODEC 1981 £599
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

TOWNSHEND ROCK 1979 £ N/A
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

MARANTZ TT1000 1978 £ N/A
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



REGA PLANAR 3 1978 £79
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

SONY PS-B80 1978 £800
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

TRIO LO-7D 1978 £600
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

ADC ACCUTRAC 4000 1976 £300
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

PIONEER PLC-590 1976 £600
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

PIONEER PL12D 1973 £36
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



TECHNICS SP10 1973 £400
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

LINN SONDEK LP12 1973 £86
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.

ARISTON RD11S 1972 £94
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

GOLDRING Lenco GL75 1970 £15.6S
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

GARRARD 301/401 1953 £19
Tremendously strong and articulate with only a veiled treble to let it down.



THORENS TD124 1959 £ N/A
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass

TONEARMS

REGA RB251 2009 £136
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.

HELIUS OMEGA 2008 £1,595
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

AUDIO ORIGAMI PU7 2007 £1,300
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.



GRAHAM PHANTOM 2006 £3,160
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

TRI-PLANAR PRECISION 2006 £3,600
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

MICHELL TECNOARM A 2003 £442
Clever reworking of the Rega theme, using blasting, drilling and rewiring!

SME 309 1989 £767
Mid-price SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

NAIM ARO 1987 £1,425
Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

SME SERIES V 1987 £2,390
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

NAIM ARO 1986 £875
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



ALPHASON HR100S 1981 £150
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

SME SERIES III 1979 £113
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

TECHNICS EPA-501 1979 £ N/A
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

LINN ITTOK LVII 1978 £253
Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

AUDIO TECHNICA AT 1120 1978 £75
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

HADCOCK GH228 1976 £46
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.

ACOS LUSTRE GST-1 1975 £46
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

SME 3009 1959 £18
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

PHONO STAGES

CREEK OBH-8 SE 1996 £180
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

MICHELL ISO 1988 £ N/A
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



LINN LINNK 1984 £149
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

INTEGRATED AMPLIFIERS

NAIM NAIT XS 2009 £1,250
With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

MUSICAL FIDELITY PRIMO 2009 £7,900
Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

SUGDEN A21A S2 2008 £1,469
Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

CREEK OBH-22 2008 £350
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

CAMBRIDGE 840A V2 2007 £750
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

SUGDEN IA4 2007 £3,650
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

NUFORCE P-9 2007 £2,200
Impressive two box preamp with superb resolution and an engaging sound.

MELODY PURE BLACK 101D 2007 £3,295
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterclass.

AUDIOLAB 8000S 2006 £400
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound.

MCINTOSH MA6800 1995 £3735
Effortlessly sweet, strong and powerful with seminal styling to match.

DELTEC 1987 £1900
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

EXPOSURE VII/VIII 1985 £625
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



AUDIOLAB 8000A 1985 £495
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

VTL MINIMAL/50W MONOBLOCK 1985 £1,300
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

MUSICAL FIDELITY A1 1985 £350
Beguiling Class A integrated with exquisite styling. Questionable reliability.

MISSION CYRUS 2 1984 £299
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



NAIM NAIT 1984 £350
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

CREEK CAS4040 1983 £150
More musical than any budget amp before it; CAS4140 loses tone controls, gains grip

MYST TMA3 1983 £300
Madcap eighties minimalism, but a strong and tight performer all the same.

ROTEL RA-820BX 1983 £139
Lively and clean budget integrated that arguably started the move to minimalism.

NAD 3020 1979 £69
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

ROGERS A75 1978 £220
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

A&R A60 1977 £115
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



SUGDEN C51/P51 1976 £130
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

SUGDEN A21 1969 £ N/A
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

ROGERS CADET III 1965 £34
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

CHAPMAN 305 1960 £40
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

POWER AMPLIFIERS

ELECTROCOMPANIET NEMO 2009 £4,995 (EACH)

Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

NUFORCE REFERENCE 9SE V2 2006 £1,750
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

QUAD II-80 2005 £6,000 PER PAIR

Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



QUAD 909 2001 £900
Current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same.

NAIM NAP 500 2000 £17,950
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

MARANTZ MODEL 9 1997 £8000
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

MICHELL ALECTO 1997 £1989
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



MUSICAL FIDELITY XA200 1996 £1000
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

PIONEER M-73 1988 £1,200
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

KRELL KMA100 II 1987 £5,750
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

RADFORD STA25 RENAISSANCE 1986 £977
This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

QUAD 405 1978 £115
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

LECSON AP1 1973 £ N/A
Madcap cylindrical styling alluded to its "tower of power" pretensions, but it wasn't. Poor build, but decently clean sounding when working.

QUAD 303 1968 £55
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

LEAK STEREO 20 1958 £31
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



LEAK STEREO 60 1958 £N/A
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

QUAD II 1952 £22
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly



LEAK POINT ONE, TL10, TL12.1, TL12 PLUS 1949 £28
Early classics that are getting expensive. Overhauling is de rigeur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

PRE AMPLIFIERS

AUDIOLAB 8000C 1991 £499
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



CROFT MICRO 1986 £150
Budget valve pre-amp with exceptionally transparent performance.

CONRAD JOHNSON MOTIV MC-8 1986 £2,500
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

AUDIO RESEARCH SP-8 1982 £1,400
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

LINN LK-1 1986 £499
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

NAIM NAC 32.5 1978 £ N/A
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl! but a tad forward for digital.

LECSON AC-1 1973 £ N/A
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

QUAD 33 1968 £43
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



LEAK POINT ONE STEREO 1958 £ N/A
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fi!

QUAD 22 1958 £25
The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for anacrophiles only.

LOUDSPEAKERS

WHARFEDALE DIAMOND 10.3 2010 £290
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



YAMAHA SOAVO 1.1 2009 £3,000
Musical, transparent with impressive dynamics and cohesion. Excellent build and finish.

USHER BE-10 2009 £10,500
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



SPENDOR A5 2009 £1,695
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

MONITOR AUDIO PL100 2008 £2,300
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.



MARTIN LOGAN SOURCE 2008 £1,600
Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

PMC OB11 2008 £2,950
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

ISOPHON GALILEO 2007 £2,100
Big standmounters that really grip the music and offer quite startling dynamics and grip.

ONE THING AUDIO ESL57 2007 £1,450
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

MOWGAN AUDIO MABON 2007 £3,995
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

B&O BEOLAB 9 2007 £5,000
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



ISOPHON CASSIANO 2007 £12,900
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

B&W 686 2007 £299
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

QUAD ESL-2905 2006 £5,995
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

B&W 801D 2006 £10,500
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



REVOLVER CYGNIS 2006 £5,999
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

USHER BE-718 2007 £1,600
Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

USHER S-520 2006 £350
Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

ACOUSTIC ENERGY AE1 CLASSIC 2006 £845
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



MISSION X-SPACE 1999 £499
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

MISSION 752 1995 £495
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

TANNOY WESTMINSTER 1985 £4500
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



CELESTION SL6 1984 £350
Smallest two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

HEYBROOK HB1 1982 £130
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic



QUAD ESL63 1980 £1200
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

MISSION 770 1980 £375
Back in its day, it was an innovative product and one of the first of the polypropylene designs. warm, smooth, clean and powerful sound,

ACOUSTIC RESEARCH AR18S 1978 £125
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

YAMAHA NS1000 1977 £532
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



JR 149 1977 £120
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/ B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging,

KEF R105 1977 £785
Three way Bextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

SPENDOR BC1 1976 £240
 Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



IMF TLS80 1976 £550
 Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

HH ELECTRONICS TPA-50D AMPLIFIERS 1973 £110
 Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

BBC LS3/5A 1972 £88
 Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence.

LEAK SANDWICH 1961 £39 EACH
 Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

QUAD ESL57 1956 £45 EACH
 Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.

SYSTEMS

MERIDIAN SOOLOOS 2.1 2010 £6,990
 Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.



NAIM UNITIQUITE 2010 £995
 Great little half width one-box system with truly impressive sound allied to a wealth of source options.

ARCAM SOLO MINI 2008 £650
 Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

MERIDIAN F80 2007 £1,500
 Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.

SHANLING MC-30 2007 £650
 Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



AURA NOTE PREMIER 2007 £1,500
 Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



MARANTZ 'LEGEND' 2007 £22,000
 The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.

ARCAM SOLO NEO 2006 £1,100
 Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

PEACHTREE AUDIO IDECCO £1,000
 Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



TUNERS

ARCAM FMJ T32 2009 £600
 Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



MAGNUM DYNALAB MD-100T 2006 £1,895
 One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

MYRYAD MXT4000 2005 £1,000
 Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.

NAIM NAT03 1993 £595
 The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

CREEK CAS3140 1985 £199
 Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

QUAD FM4 1983 £240
 Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



NAD 4040 1979 £79
 Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.

MARANTZ ST-8 1978 £353
 Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

YAMAHA CT7000 1977 £444
 Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

SONY ST-5950 1977 £222
 One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.



ROGERS T75 1977 £125
 Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.

SANSUI TU-9900 1976 £300
 A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.



TECHNICS ST-8080 1976 £180
 Superb FM stage makes for a clean and smooth listen.

REVOX B760 1975 £520
 The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

SEQUERRA MODEL 1 1973 £1300
 Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.

LEAK TROUGHLINE 1956 £25
 Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.

HEADPHONE AMPLIFIERS

GRAHAM SLEE NOVO 2009 £255
Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



MUSICAL FIDELITY X-CAN V8 2008 £350
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

CD PLAYER/RECORDERS

MUSICAL FIDELITY TRIVISTA 2002 £4000
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

MARANTZ SA-1 2000 £5,000
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



SONY MDS-JE555ES 2000 £900
The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

PIONEER PDR-555RW 1999 £480
For a moment, this was the CD recorder to have. Clean and detailed.

MARANTZ DR-17 1999 £1100
Probably the best sounding CD recorder made; built like a brick with a true audiophile sound and HDCD compatibility.



CAMBRIDGE AUDIO CD4SE 1998 £200
A touch soft in the treble and tonally light, but outstanding in every other respect.

SONY TCD-8 DATMAN 1996 £599
Super clean sound makes this an amazing portable, but fragile.

LINN KARIK III 1995 £1775
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

NAIM CDS 1990 £ N/A
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

MARANTZ CD73 1983 £700
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



MERIDIAN 207 1988 £995
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

SONY CDP-R1/DAS-R1 1987 £3,000
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

CAMBRIDGE AUDIO CD1 1986 £1500
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



MERIDIAN MCD 1984 £600
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.

SONY CDP-701ES 1984 £890
Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperbook-sized remote control.

YAMAHA CD-X1 1983 £340
Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

SONY CDP-101 1982 £800
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



ANALOGUE RECORDERS

AIWA XD-009 1989 £600
Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

NAKAMICHI CR-7E 1987 £800
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



SONY WM-D6C 1985 £290
Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.

PIONEER CTF-950 1978 £400
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

YAMAHA TC-800GL 1977 £179
Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

SONY TC-377 1972 £N/A
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

REVOX A77 1968 £145
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

COMPACT DISC TRANSPORTS

ESOTERIC P0 1997 £8,000
The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

TEAC VRDS-T1 1994 £600
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

KENWOOD 9010 1986 £600
The first discrete Jap transport was beautifully done and responds well to re-clocking.

DACs

DCS ELGAR 1997 £8500
Extremely open and natural performer, albeit extremely pricey - superb.

DPA LITTLE BIT 3 1996 £299
Rich, clean, rhythmic and punchy sound transforms budget CD players.

CAMBRIDGE AUDIO DAC MAGIC 1995 £99
Good value upgrade for budget CD players with extensive facilities and detailed sonics.

PINK TRIANGLE DACAPO 1993 £ N/A
Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard.

QED DIGIT 1991 £90
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

CABLES

MISSING LINK CRYO REFERENCE 2008 £495/0.5M
High end' interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

TECHLINK WIRES XS 2007 £20
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

VDH ULTIMATE THE FIRST 2004 £250
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



WIREWORLD OASIS 5 2003 £99/M
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

TCI CONSTRICTOR 13A-6 BLOCK 2003 £120
Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

vinyl section

contents

JULY 2016

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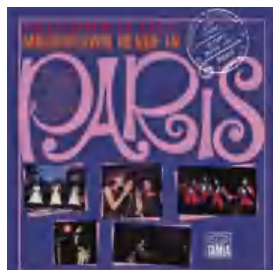
ORACLE PARIS MKV TURNTABLE 87

Noel Keywood takes a listen to a stylish new belt-driven turntable from renowned manufacturer Oracle.

VAN DEN HUL MC-ONE SPECIAL CARTRIDGE 91

Paul Rigby takes a shine to Van Den Hul's hand-built moving coil cartridge.

news



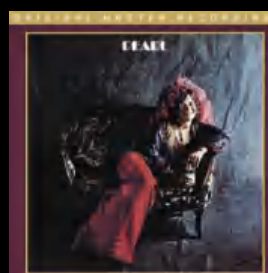
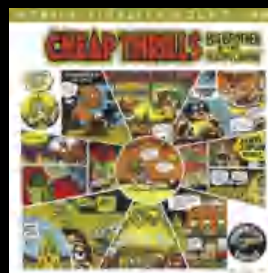
MOTORTOWN REVUE LIVE IN PARIS

Features performances from Motown/Tamla legends The Supremes, The Miracles, Stevie Wonder, Martha And The Vandellas and Earl Van Dyke. Originally released on the Tamla Motown label in the US in 1965 and in the UK in February 1966, this live album was taken from the Paris stint of the 1965 Motortown Revue European tour. This three-LP box set includes the entire show and twelve previously unreleased live tracks.

JANIS ON MOFI

Two rather special Janis Joplin releases on Mobile Fidelity (www.mofi.com). 'Cheap Thrills', with Big Brother & The Holding Company was Joplin's eagerly awaited 1968 major label debut combining psychedelic, blues and folk and Robert Crum's iconic sleeve art while 'Pearl' (1971) was her 'post addiction, cleaned up' collection of top-quality songs complete with her powerhouse, aching vocal delivery.

Both LPs are Joplin masterpieces and both editions were pressed at RTI and run at 45rpm. The higher speed and wider grooves enhance the sound quality.

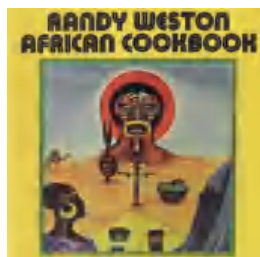


SPANISH TRIO

Three from Munster (munster-records.com). From the Vampi Soul imprint is 'Czech Up! Vol.1: Chain of Fools'. An eclectic double album collection of freak-beat, fuzz soul, disco and jazz funk from 1966-1978. Raw, slightly left-field and totally groovy.

'Algo Salvaje, Vol.2: Untamed 60s Beat and Garage Nuggets from Spain'. Another raw, much more aggressive and inventive selection this time with some wacky (but brilliant) arrangements.

Also look out for Cartijo's '1969-1971 The Ansonia Years' (Vampi Soul). This Puerto Rican bomba and plana music percussionist strikes a mean beat.



PURE PLEASURE

New from the UK, audiophile vinyl outfit Pure Pleasure, (purepleasurerecords.com) is pianist Randy Weston's 'African Cookbook' (1972), despite the performances emanating from 1964. Features tenor, Booker Ervin on this excellent set of bop and African rhythms.

Onto tenor sax man Ben Webster now and 'The Warm Moods' (1961) offering uniquely, well, warm-toned ballads that produce unanticipated allure and charm to many of the featured songs.

Finally, Paul Robeson 'At The Carnegie Hall' (1958) shows that the great man, even at 60 years of age, back after 11 years of blacklisting, could move an audience with his performance. His only modern-era and stereo recording.

ABBEY ROAD HALF-SPEED MASTERS

Apart from the John Martyn half-speed master LP reviewed elsewhere, Miles Showell's brilliantly reissued productions also include The Police's 'Ghost in the Machine' (1981), Simple Minds' 'New Gold Dream' (1982), Cream's 'Disreali Gears' (1987), Free's 'Fire and Water' (1970) and The Rolling Stones' 'Exile on Main St' (1972). Each release arrives with a very presentable, gold-stamped certificate from Showell explaining, to some extent, the mastering process, while each sleeve is complete with an Obi-strip-type addition. Each disc sounds excellent. In fact, each disc in the above list is now the 'go to', best vinyl version of each album out there. They're that good.



TARANTINO & MORRICONE

Ennio Morricone is back with Quentin Tarantino's soundtrack for 'The Hateful Eight' film (Third Man; www.thirdmanrecords.com) including two discs, a three-panel gatefold sleeve, spot varnish all over it, two fold-out posters and a twelve-page booklet.



DR WHO

Featuring both 'Dr Who & The Daleks' plus 'Daleks' Invasion Earth 2150 A.D.' (Silva Screen; www.silvascreenmusic.com), this double album has been pressed on yellow vinyl, presented in a gatefold sleeve and limited to 1,500 copies. Malcolm Lockyer and Bill McGuffie, respectively, own the compositional credits while Barry Gray supplied electronic sounds. Includes single cuts, the original poster artwork and production notes.



BERNARD HERMANN

The original motion picture soundtrack for Twisted Nerve (with that whistling score that Tarantino grabbed for 'Kill Bill Vol.1') has been released in full. The blood-splattered vinyl pressing runs at 45rpm, includes a replica three-track 7", a large poster, certificate and a hi-res/MP3 download option. It's a helluva package but then it is a helluva soundtrack.

...AND FINALLY

Pressed on a green disc, so bright you could nail it to your bike and use it as a road safety accessory, Liima's 'ii' (4AD, www.4ad.com) offers post rock/electronica vibes overlain by a thick gloss and Aha-type vocals.

LNZNDRF's self-titled 4AD album is experimental but retains enough post-rock and krautrock groundings to groove and contains a host of fresh ideas. Brilliantly implemented.

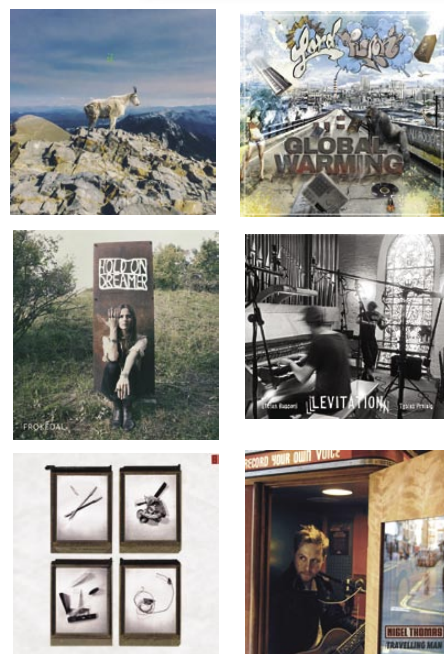
Lord Funk's 'Global Warming' (Celluloid; www.celluloidrecords.net) offers retro 70s disco synth and 80s funk that is not just derivative but downright lazy.

'Hold On Dreamer' is the new album from Frokedal (Name; www.namemusic.no), a pastoral, folkie kind of pop with modern electro backing that is uplifting but there's nothing unusual here.

Stefan Rusconi & Tobias Preisig's 'Levitation' (Qilin; www.qilinrecords.com) utilises the church organ and violin to create almost Steve Reich-like modulated repetitions. Organic ambience.

Taking prepared piano amongst the organic backing, Hauschka's 'Room To Expand (Expanded)' (Fat Cat, www.130701.com) is a gorgeous take on classical ambience, full of innovative rhythmic creations and startling sonic inserts.

Ex-The Foxes frontman Nigel Thomas' 'Travelling Man' (nigelsongs.com) offers singer-songwriting that, I reckon, will appeal to Paul Heaton fans (he of The Beautiful South). Same tonal range, similar creative direction.



Paris style



The stylish Paris Mk V vinyl spinner from Oracle comes under the scrutiny of Noel Keywood.

Here's a good looking turntable from Oracle, of Canada, designed for entry level vinyl spinners. Oracle have a reputation for their high-end Delphi turntable – price £8600 – so the Paris Mk V has a good background. Here's a slice of the high-end then – or so we might hope – at an affordable price of £2995 for the package.

The Paris Mk V aims to look good. It has a sleek white plinth, with rounded edges and a deep-gloss white finish. Add in a machined-accurate gentle slope to the right front – a nice piece of visual asymmetry – and you get an elegant final result, almost as eye catching as Roksan's clear acrylic Radius 7 we reviewed last month.

Like the Radius and most budget turntables, the Oracle uses belt drive. It has an on-board a.c. synchronous motor driving the platter through a compliant belt. There are two speeds, 33 and 45 rpm, easily selected by push-buttons set into a circular black panel at rear left of the plinth. Push a button – they have a soft action – and blue numerals, 33 or 45, light to show speed selected. So you won't

be guessing whether you have the right speed or not. And you don't have to physically move a belt either.

Power is supplied to the motor from an external power supply unit. There is a standard wall wart style supply, or a Turbo supply built into a substantial black metal case of 210mm x 184mm x 70mm dimensions. It connects to the mains through an IEC mains power socket, and to the turntable through a 140cm long lead terminated in a 5pin, 180degree DIN plug. This plugs into a socket on the rear of the turntable plinth. There is no power switch on the supply unit, so you must leave it on or switch off at the wall socket – hardly convenient. However, the turntable can be stopped by pressing either of the selected speed buttons; mains power does not have to be turned off, so the unlovely Turbo power supply we used can be hidden out of view.

Oracle fit a Pro-Ject 9CC wrapped carbon fibre

tapered arm. However, they have modified it with a lateral damping bath, something I haven't seen or used for a long, long time, since running an SME with a similar bath and range of damping 'paddles'. The idea is (or was) to damp down the arm's low frequency subsonic resonance, where its mass acts in



The calibrated rear counterweight screws forward to apply tracking force. A small weight on a thread applies bias force.

conjunction with cartridge cantilever hinge compliance, at around 12Hz. Tubular metal arms also ring and such a bath damped down tube resonances too, subtly cleaning the sound.

However, the Pro-Ject arm is a step ahead in structural terms, doesn't ring strongly so less needs this aid. Oracle feel that a damping bath improves sound quality all the same, saying the sound balance is light if undamped, and dull if over damped. A screw must be turned up or down to set the required amount of damping, according to taste. I used the turntable as set up and did not feel the bath made a lot of difference,



Pro-ject's 9CC wrapped carbon fibre arm is rigid and resonant free. The headshell is integral to the structure; it doesn't remove. The finger lift is flat and difficult to hold, but there is a damped lift/lower platform.



Beneath the platter lies a single-diameter pulley and belt drive to the underlying hub. Speed change is electronic, not mechanical.

"I sat back and revelled in the gorgeous sense of stage depth that came from this system"

but it offers subtle improvement.

Damping bath apart, the 9CC arm is a reasonably simple affair. The finger lift I find difficult to use since it is flat and slips from between my fingers easily; there is also too little room betwixt the lift and the record to slip a finger under easily. I hand cue so all this is of consequence to me and I would not choose to use a 9CC as a result. But most people use a lift/lower lever and here the Pro-Ject arm works well enough. Our arm lifted too high until I adjusted the lift platform down a little, which you can do with a 9CC – it has a full range of adjustment and is an enthusiast's arm in this sense.

The cartridge weight range is 6gms - 10gms, although Pro-ject do

have optional counter-weights to extend this. At 6.8gms the BenzMicro Glider moving coil cartridge (£800) fitted to our review sample needed the weight screwed right forward to dial in the recommended 1.9gms maximum tracking force.

There is an anti-skate weight and arm height and cartridge azimuth can both be adjusted. Project say the arm is rigid and has high quality ABEC 7 spec ball race bearings. Although the arm isn't as slickly finished as some, it is inexpensive and sounds good I've have

found in past use.

Finally, a Delrin screw-on disc clamp is supplied as standard but the clear acrylic dust cover we had is an optional extra. There is no platter mat.

Long ago, a Lux PD300 vacuum deck demonstrated to me that a vinyl LP must sit flat on the platter and be supported for best sound – and a disc clamp helps do this, so it's a useful extra on the Paris.

I ran the Paris MkV with an Icon Audio PS3 valve phono stage that is accurate, has supremely low noise and could get the best from the superb Glider MC cartridge and the rest of the turntable.

SOUND QUALITY

And what lovely results I got. The Glider is super smooth in its sound, silky and deep through the Icon Audio PS3 phono stage. With tracks built upon the metronomic beat of a synthesiser, like Alison Goldfrap's *Satin Chic*, the Paris MkV came across as stable and assured in its



The damping bath Oracle fit can be seen at right. A paddle is held by an arm clamp, and moves through a thick viscous fluid.

timing; it held the beat with tenacious grip and gave transients a good, clear start, where belt drives often sound a little diffuse – not something I take to much as a Garrard 401 user. As *Satin Chic* faded out and Ms Goldfrap's dreamy *Time Out From The World* drifted into our listening room from the Quadral Aurum Megan VIII loudspeakers driven by a Creek Evolution 100A amplifier, I sat back and revelled in the gorgeous

more convincing – and here the Paris MkV proved adept in providing a very full picture of what was going on across a wide range of tracks.

The plaintive tone but gritty vocal of Zutons lead singer David McCabe delivering the starkly instrumented *Someone Watching Over Me* came from the Megan Vllls with a firm sense of power yet tight timing, his voice springing out from a dark background. With its Delrin disc



Rear mounted speed control buttons select 33rpm or 45rpm. Press once for On, and once for Off.

piano and how, when Pauline Vardi really attacked the keyboard, the cartridge and turntable didn't sound strained in any way, maintaining and projecting the power of this piece and her playing. And no, I didn't hear and wow, but I have suspicions about this recording in any case, sensing unstable analogue tape speed and tend not to use it as an absolute guide.

CONCLUSION

The Oracle Paris MkV worked well, having stable speed and a less vague or 'watery' sense of pitch than most belt drives as a result. With a good chassis and clean, resonant free Project 9CC arm, fitted with damping bath, it provided a fine platform for the impressive Benz Micro Glider cartridge that was fitted to our review deck. As such, the turntable, arm and cartridge as a package, provide a fine sound.



The Benz Micro Glider moving coil cartridge fitted to our review turntable gave fabulous results all round, sounding superb.

sense of stage depth that came from this system, and well as firm, deep bass where notes seemingly had structure and complexity, rather than being an amorphous allusion to a bass line. Our brains do such a good job at filling in missing information to construct a meaningful picture that when, all of a sudden, this becomes less necessary, the whole becomes

clamp and well damped arm the Paris MkV gives LP a solid quality, with dynamics firmly delivered. It's has a tight yet strong delivery, one with a good sense of life to it – and I was totally entertained.

I did put on Chopin's Opus 48 No1 to check for wow (Fisher Fidelity Standard test disc) but I was more taken with the dynamics of the

MEASURED PERFORMANCE

Basic speed accuracy of the Paris MkV measured just -0.1% below 33rpm, a negligible error. Speed is adjustable in any case.

Speed stability was superb for a belt drive, with minimal variation at basic rotational frequency of 0.55Hz (33rpm) as our analysis shows and this resulted in a very low wow figure of 0.1% unweighted, an excellent result. This was consistent over time as well, there were few irregular jerks above this value so even on sustained piano notes the Paris will sound assured in terms of pitch.

The Pro-ject wrapped carbon fibre arm had a basic bending mode at 225Hz, but it was well damped our analysis of arm vibration, made with a Bruel&Kjaer accelerometer, shows.

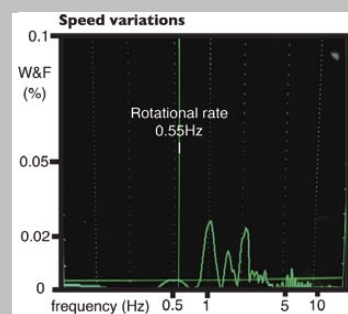
The BenzMicro Glider moving coil (MC) cartridge fitted had the same smooth response of previous Benz MC cartridges we have measured, running

flat to 10kHz with just the slightest roll down to -2dB at 20kHz. Free of treble lift or peaking, it will sound very smooth and tonally balanced. Better still, tracing loss from the stylus was minimal, output dropping just -1dB on inner grooves, so the Glider's sound will be consistent right across an LP, from start to finish. Allied with superb tracking at 300Hz and 1kHz, where even top torture tracks were cleared, the Glider fitted to our review turntable will sound assured even on loud vocal transients.

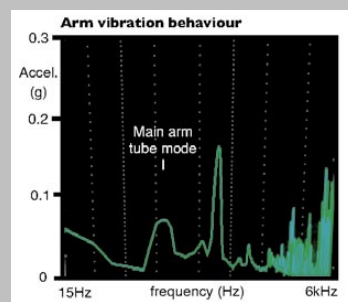
The Oracle Paris MkV turntable and arm, with BenzMicro Glider MC cartridge measured well all round. **NK**

Speed	-0.2%
Wow	0.1%
Flutter	0.04%
Total W&F weighted	0.1%
Arm modes	225Hz / 750Hz

WOW & FLUTTER



ARM VIBRATION



ORACLE PARIS MK V INC. TURBO PSU & LID £4,250

WITH BENZ MICRO GLIDER MC £4,995



EXCELLENT - extremely capable

VERDICT
An attractive looking turntable with good sound quality. Dust cover and platter mat are extra.

FOR
- screw record clamp
- good looking
- good arm
- good sound

AGAINST
- fiddly to use
- dust cover is extra
- price

NuNu Distribution
+44 (0)203 5442338
www.nunudistribution.co.uk

URL For Sale

www.HighEndAudio.com

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The One I Want

Paul Rigby reviews the Van den Hul MC – ONE Special cartridge, hand built and a close to perfection, he thinks.

There's something almost personal about the MC - ONE Special in terms of its packaging and how it is presented. Opening its gold-embossed, wooden box container, you will find a hand-written specification list from Arjon Van den Hul, who built it, under the lid: I felt like a kid receiving a secret message. The details, in this case, included a relatively light tracking force of between 1.35g-1.5g, as is the anti-skate of 0.4g-0.6g.

The hand-written specifications only go to reinforce the fact that the cartridge, presented under a clear plastic protection layer, has been hand-built. Protected by a clear plastic stylus guard and accompanied by a small array of accessories that includes two Allen screws (plus a small bubble level for azimuth adjustments), this 'Special' variety features a boron cantilever and - most excitingly - silver wire coils. Not the usual copper variety I'm used to seeing at this price point. They are contained within a relatively heavy (8.2g) aluminium chassis.

Finally, experienced Van den Hul fans will also be aware of the older, more basic, MC-ONE cartridge. As the company itself says, the Special adds, "...a thicker frontpole and an

extra small magnet...". the hope is to enhance resolution and output voltage in the process.

SOUND QUALITY

Running the cartridge at a tracking force of 1.5g, I began with the jazz vocal of her Capitol LP 'Round Midnight'. Before I settled down to listen I had to run straight back to my reference system. Our tests showed that this design enjoys a high output and, boy, did that register as down went the volume on my phono amp and pre-amp to normal listening levels.

Back to the listening position and, as Staton sang her little heart out, I felt disquiet. She didn't so much sing as bark at me while her many crescendos sounded forward and bright. Brass instruments were the worst. The more they played, the more my head shrank into my shoulders, too busy wincing than listening.

The problem was mistracking and the issue was easy to solve. As our tests confirmed, increasing the tracking force to 2g, from the



The stylus sits far back beneath the body, making cueing difficult.

maximum recommended figure of 1.5g, completely changed the personality of the sound. Now Staton sounded focused, calm and steady in her delivery. Her crescendos were emotive, upper midband brass had a fine textural quality and cymbal-infused treble sounded fragile instead of harsh. It was almost like hearing a different cartridge design.

So, for a third time, I sat to review the MC-ONE Special and was much happier this time with Staton's performance which blended a smooth delivery, especially during the introductory appearances of both the strings and clarinets, with an emotional presentation. I felt that the Special encouraged the latter. It seemed to place a spotlight upon the vocal, reaching into the mix to extract a vulnerable side to the Staton delivery. The Special brought



Giuseppe Pinto (www.pinto.it) is the creator of ON from Naples in Italy and also the retro turntables seen here, complete with valves poking through the top plate – definitely novel. Lurking beneath the stand you can see a Revox B77 MkII open reel tape recorder and Revox B710 cassette deck.



There were crowds trying to get a shot of this turntable and its plinth, the Apolyt from Acoustical Systems of Germany (www.arche-headshell.de). It had to be German because at 50kgs for the platter alone transporting it any further would take prodigious effort. They say the platter is made of Delrin, three alloys, stainless steel and tungsten, by the way. That will impress the missus – perhaps!



Radstone (radstone.com) were demoing what they claimed was 24bit Bluetooth technology, in what they term aptX HD, so presumably it is aptX – used to compress 16bit audio – in improved form, able to compress 24bit and still meet Bluetooth data rate requirement, improving audio quality to hi-res standards.



Kuzma of Slovenia (www.kuzma.si) are renowned for their exotic tonearms and turntables. They had a large stand at the show and on it was Air Line, a solidly built parallel tracking tonearm running on an air bearing. Parallel tracking eliminates geometric tracking distortion and the air bearing eliminates friction.



The Audio Valve Luminaire headphone amplifier: it even has an output for Stax electrostatic phones.



There were plenty of retro record playing systems on show and La Boîte Concept (www.laboiteconcept.com) was one with their 1950s invocation of traditional audio.

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the spaghetti western film 'Django' by Luis Bacalov from 1966 and played the inner groove positioned track 'Espera y Ataque'. Here the flute was accurate without any blooming, the piercing string effects were just that without any sense of brightness getting in the way and the percussion was crisp and accurate without any smearing.

The fixing lugs are threaded, so supplied non-magnetic stainless steel screws make for easy attachment.

my ears closer to her, making her vocal a more intimate and engaging performance.

Turning to a slice of dub from Rootmasters and 'Elephant Puddle', I was impressed both by the instrumental separation - how the bass was separated from the rocking guitar sounds and the air and space between the two - and the bass itself which exhibited a smooth presentation but with plenty of mass and weight while the upper bass response offered enough punch to please any high-energy fan.

On a more orchestral level, I turned to the original soundtrack of

The smooth and easy going performance was admirable for an inner groove track of this sort.

CONCLUSION

Of course, unlike more expensive designs like the Transfiguration Proteus, for example, you don't get those extra percentage points of insight but what the Special does offer is a blend of value for money

SYSTEM USED

Origin Live Sovereign turntable
Origin Live Enterprise 12" arm
Koetsu Black cartridge
Icon Audio PS3 phono stage
Aesthetix Calypso pre-amp
Icon Audio MB 845 Mk.II monoblocks
Quad ESL-57 speakers with One Thing mods
Vertex AQ & Atlas cabling

and emotional insight that, in some ways, actually gives you a better sense of musicality.

That is, the MC-ONE Special plugs you into the heart of the performance. Yes, there is plenty of detail on offer here for audiophiles but, in many ways, that benefit is less important.

It's as if the Special connects you into the soul of the music which, to many music fans out there, is far more important. If you do plump for this cartridge, though, ignore that recommended tracking force figure and go for 2g instead!



The MC One Special has a solid Boron cantilever.

MEASURED PERFORMANCE

At the low tracking force of 1.5gms handwritten inside the case lid, tracking of the MC-ONE Special was relatively poor, the cartridge clearing 45µm on CBS STR-112 test disc where 63µm is usual and 90µm often achieved by high performance products.

Increasing tracking force to 2gms improved this considerably, allowing the MC-ONE Special to clear 63µm - a good if not exceptional result. It also gave steadier output during all tests. The MC-ONE tracking force spec is too low for best results.

Distortion was a little higher than usual, measuring 1.3% on a 45µm lateral cut but this dropped to 1% with higher tracking force. Lateral distortion measured 5.5%, mainly due to a vertical tracking angle of 28 degrees, a little higher than the optimum 22 degrees quoted.

Frequency response was smooth across the audio band our analysis shows, with a slow roll off at high frequencies - just enough to ensure a very smooth sound. Inner groove racing loss increased this by a few dB above 10kHz (red trace) so the MC-ONE will sound mild on inner grooves.

Output from the MC ONE was high, measuring 0.67mV at 3.54cms/sec rms, or nearly 1mV at 5cms/sec, so it does not need volume to be turned right up, and hiss will be not be apparent. Super low noise phono stages are not essential.

The Van den Hul MC-ONE Special tracks poorly at the recommended downforce of 1.5gms; it needs 2gms to perform normally. Otherwise, it measures well, combining relatively high output with a smooth sound. **NK**

Tracking force (quoted)	1.5gms
Weight	8.2gms
Vertical tracking angle	28degrees
Frequency response	20Hz - 20kHz
Channel separation	27dB
Tracking ability (300Hz)	
lateral	45µm
vertical	45µm
lateral (1kHz)	16cms/sec.
Distortion (45µm)	
lateral	1.3%
vertical	5.5%
Output (5cms/sec rms)	0.95mV

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Black Rhodium	42
Black Rhodium	72
Classe	14
Decent Audio	IBC
EnjoyTheMusic.Com	90
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Ian Harrison	92
Icona Audio	32
Inspire Hi-Fi	54
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Music First	68
Nu Nu Distribution	66
SCV Distribution	72
SME	42
Sound Cinergy	92
Sound Hi-Fi	68
Sounds Fowndations	40
South Wales Hi-Fi	92
TelluriumQ	24
The Chord Company	IFC
The Right Note	92

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SAXON

DOGS OF WAR

DEMON



"The album begins with a thunderous title track, a stamp exactly on what is to come on the rest of the songs"

After a fallow period, the nineties saw a resurgence in fortunes for the British heavy metal band Saxon with the release of 'Solid Ball of Rock' (1991) and 'Forever Free' (1992) but the fans were not convinced just yet. Especially when the band took three years off before releasing this album, 'Dogs of War', and it suffered another independent label change

According to lead singer and co-founder, Biff Byford, "It was a strange album and it was Graham Oliver's last. He didn't tour on that album. It was a move back to a British heavy sound, not so much a European angle. 'Solid Ball of Rock' was a very big album. Then we did 'Forever Free' and the record company fell out with the producer. They didn't want him to do that album. Then we were thrown into Vienna with a new producer who wasn't really interested (there for the money, I suppose). Hence, 'Forever Free' wasn't where I wanted the band to be. 'Dogs of War' did that. It was an important album".

The band returned to the same studio in which they recorded 'Solid Ball of Rock'. There was a sense of returning to a happy place and time.

"I also took control of the band at this point, co-produced it and became more hands-on. I chose the songs that I thought would be great for the project. The other guys just went with it. We were going through problems with Graham anyway and it was a transitional period. It mixes metal and heavy rock: that was our unique trademark".

As an interesting aside, Byford believes that Oliver's guitar work was stripped from the 'Dogs of War' original masters by the label after he left the band. But Byford extended a hand of peace to Oliver by adding, "He would like to put out a 'Dogs of War' with his guitar solos back on. I don't have a problem with that, actually. If he wants to get together, he can do it".

Although Byford did add, "...if he pays for it".

The album begins with a thunderous title track, a stamp on exactly what is to come on the rest of the songs.

"A result of keeping in control of the band

and not using any 'great' producers any more. When you're writing an album, all kinds of ideas are bouncing around and somebody - usually the producer - somebody has to make a decision on the songs. Early on I did this. I wanted a return to anthem writing. That track is a 'live' track. In the past, we always had one eye on radio but here? We didn't care".

And that is what the album, as a whole, projects. Byford admits that this mindset allowed the band to write in a "bigger" way, freeing up the possibilities.

"We also moved back to a more biker thing with the track 'Big Twin Rolling (Coming Home)'. 'Don't Worry' and 'The Great White Buffalo' that continued that theme".

The album is not one-paced, though. There is plenty of variety here including the varied tempo approach to 'Demolition Alley'. As Byford says "We wanted our albums to entertain and we wanted all of our songs to have something about them".

The album now appears in the new, limited-edition, remastered, nine LP box set 'Eagles and Dragons' which covers the band's nineties/noughties period (1991 to 2009, in fact). Created because the band took control of most of the album rights at the same time from SPV.

Additional rarities were offered by Byford to Demon but they were rejected for this set. It is hoped that a future project will include them.

In sonic terms, 'Dogs of War' does a good job of representing this box set as a whole with a broad and packed soundstage that, although offering plenty of energy, is never muddled or compressed.

Demon has done a good job in how it has presented the power and drive of both percussion and guitar but has found time and space for delicacies such as the treble-infused cymbals which offer a clear and distinct metallic ringing on the far right speaker while Biff's own lead vocals are never submerged into the background mix.

There's a great balance here which has Biff as part of the group, a jigsaw piece in the broad mix but, at the same time, spotlights his vocals which are clear and articulate. A bit of a triumph then. **PR**



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