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OCTOBER 2013

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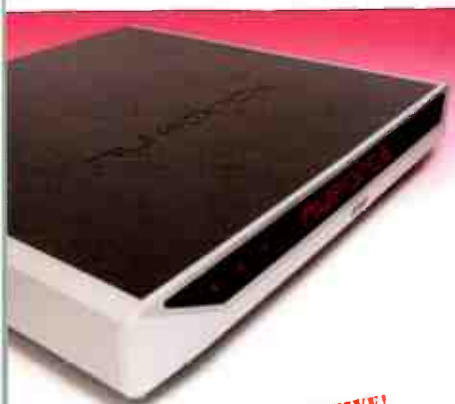
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# welcome

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Jon Myles, Martin Pipe



Valve amplifiers come in all flavours and Audio Research amplifiers are some of the most extreme. Far away from what most people expect a valve amplifier to sound like, they're a shock to many. I remember an experienced audiophile friend weaned on transistors hearing one and buying it immediately. "How come it sounds so dynamic?" he asked me. Audio Research move their magic forward with the VS175 I review this month on p10.

The Audiolab M-DAC is another great product. It's a recent design not afraid to get down and dirty with digital. There are filters galore to tailor its sound, so you can tune it for widest frequency response, or best impulse response (I always prefer the latter). But Audiolab give you XD and DD options – how's that! Even more complexity to keep the most fastidious audiophile happy. Combined with a high resolution volume control this is great way to drive a power amplifier from quality digital sources. I used it and loved its smoothness – you can read what Jon Myles thought on p28.

How do you record in digital nowadays? Digital recorders have gone the way of the Dodo it seems. They have in hi-fi, but not in the studio market. Olympus recently released two new budget hand held digital recorders that can record voice, music and even LP, in high resolution 24/96 digital, meaning better than CD. They may be just what you need – see p52.

As always we have a balance between the expensive, the budget, the complex and the simple in this issue that I hope you enjoy.

And finally, Hi-Fi World will be at the National Audio Show, Whittlebury Hall, Northamptonshire, September 21st-22nd. Come over and see us! It will be fun as always and I always love to hear from you, with your wonderful systems and experiences.

**Noel Keywood**  
Editor



## testing (see [www.hi-fiworld.co.uk](http://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.

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.



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## verdicts

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worth auditioning  
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keenly priced

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Distributed by Seymour Distribution Ltd 86 Newman Street London, W1T 3EX Tel: +44 (0) 20 7396 8000 Printed by Benhamgoodhead Print Limited Tel: +44 (0) 1869 363 333  
Our Agents in Malaysia Millennium Hi-Fi & AV Simon Chang Showroom & office, 500-1-3 First Floor Wisma Indah (Shen Court), Jalan Tun Razak 50400 Kuala Lumpur, Malaysia  
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email:news@hi-fiworld.co.uk

# news

## MCINTOSH MA5200 INTEGRATED AMPLIFIER

McIntosh has launched a new integrated amplifier. The MA5200 offers D/A decoding at up to 32bit/192kHz while the three-strong digital input suite in the McIntosh Digital Engine includes an assignable coaxial and optical input plus a dedicated asynchronous USB 2.0 input (operating at up to 32bit).

The MA5200 has nine inputs in total: four line-level; one balanced; three digital plus a MM phono input. Also included, is McIntosh's new internal High Drive headphone amplifier that offers increased gain and output power. Offering a 100W output, the solid-state MA5200 has been engineered into a compact 150mm-tall chassis. The MA5200 also benefits from a Home Theatre Pass Through feature, for integration into existing multichannel home cinema systems.

The MA5200 retains McIntosh's 1950s styling and comes complete with the iconic glass-fronted fascia, retro controls and blue power meters. Further features include McIntosh's Power Guard technology: a waveform comparison circuit that continuously monitors both input and output signals, dynamically adjusting them when necessary, in order to avoid potentially damaging clipping. Price is £4,995. Tel: 01202 911886 or click on [www.jordanacoustics.co.uk](http://www.jordanacoustics.co.uk)



## MERIDIAN DIRECTOR & UPDATES

Meridian has announced the introduction of the Director DAC, which can be used with a wide selection of traditional components as well as high-resolution USB-based sources. Director features technology drawn from Meridian's Reference 800 Series, offering up to 24bit/192kHz and the full range of Meridian resolution enhancement technologies such as upsampling and apodizing. Connections include USB, Optical and Coax S/PDIF.

Meridian has also announced that its streaming systems are fully compatible with selected products from QNAP a NAS (network attached storage). At the same time, Meridian is offering a plug-in for dBpoweramp's Music Converter and CD Ripper to allow you to import your music collection. It can be controlled from iPad, iPhone, the free Core Control App or a dedicated touch panel, such as Meridian's Control 15, with its 17-inch touchscreen (shown here). For more information click on [www.meridian-audiostreaming](http://www.meridian-audiostreaming)

## CYRUS AUDIO SIGNATURE SERIES

The four-strong Signature Series range, which shares many of the performance-enhancing modifications seen in the limited-edition Anniversary System, will be available in specially selected Cyrus Audio dealers throughout the UK.

The Signature Series comprises the following: DAC X Signature (DAC); DAC XP Signature (DAC/preamp); Mono X 200 and 300 Signature (mono power amps).

Prices are: DAC X Signature (DAC) £1,750; DAC XP Signature (DAC/preamp) £2,750; Mono X 200/300 Signature (mono power amps) £1,950; £2,750. Call 01480 435577 or click on [www.cyrusaudio.com](http://www.cyrusaudio.com).





## BLACK RHODIUM PRELUDE +

The original Prelude cable employed a conductive low microphony layer that reduced the triboelectric effect that occurs when friction between the screen and the insulation creates an electrical charge. The new Prelude + uses the same low microphony cable but with additional noise cancelling technology. It includes silver-plated copper conductors, a coaxial construction to screen the conductors carrying the complex music signals, low loss PTFE insulation and hourglass silhouette plugs for ease of insertion and removal from equipment. The Black Rhodium Prelude + is available in several formats.

Prelude + Stereo interconnects, including 'Musiclink' cables will be available at: 0.5m pair terminated with 'hourglass silhouette' RCA plugs for £115 and £130 for a 1m pair. Prelude + Tone arm cables will be available at 0.5m pair terminated with 'hourglass silhouette' RCA plugs at £140.00 and £150 for a 1m pair. Prelude + Digital, sub woofer and musical instrument interconnects will be available at 0.5m terminated with 'hourglass silhouette' RCA plugs are priced at £72.50 with 1.0m terminated with the same plugs priced at £80.00. Longer lengths can be supplied to order with prices pro rata for all cables.

Call 01332 342233 or click on [www.blackrhodium.co.uk](http://www.blackrhodium.co.uk) for more information.

## ICON KT150 UPGRADES

Tung Sol has announced the arrival of the KT150, a large, powerful and refined valve. Used in single-ended, ultralinear and triode designs, the Icon Audio Stereo 60 MkIII integrated amplifier, Stereo 60P MkIII power amplifier and the MB30SE, MB90 MkII and MB150 monoblocks are available with this upgrade. The KT150 is also an upgrade for selected previous Icon Audio KT120/KT88 designs.

Prices include: Stereo 60 MkIII/KT150 - £2599.95, Stereo 60P MkIII/KT150 - £2199.95; MB30SE/KT150 (per pair) - £2099.95, MB90 MkII/KT150 (per pair) - £2899.95, MB150/KT150 (per pair) - £3699.95.

For more information, call 0116 244 0593 or click on [www.iconaudio.com](http://www.iconaudio.com).



## EXPOSURE PHONO AMP

Exposure has announced the release of the 3010s2 phono stage with a dual regulated power supply with regulation optimized for the different sections of the circuit. The input stage is based around interchangeable circuit boards, each being specifically tailored for either MM or MC cartridges. The input is fully configurable to ensure that the cartridge loading and gain is optimally set.

Prices include: 3010s2 Phono stage (MM or MC), £900; 3010s2 plug-in MM board, £220 and 3010s2 plug-in MC board, £220.

Call 01273 423877 or click on [exposurehifi.com](http://exposurehifi.com) for more information.

## TASCAM RECEIVERS

TASCAM has announced two new networking A/V receivers. As a key component of any installation, both the PA-R200 (100W) and PA-R100 (80W) offer full compatibility with all the latest audio and video formats with multiple HDMI inputs (PA-R200 provides eight, with the PA-R100 offering seven) supporting 3D content, HD audio and upscale video to 4K with Marvell's Qdeo. The latest Dolby TrueHD and DTS-HD Master Audio formats are also supported.

The flagship of the range, the THX Select2 Plus certified PA-R200 allows you to select between surround playback and distributed playback of up to three zones, powered or via pre outputs, to deliver audio to different rooms. Also included on the PA-R200's front panel is an MHL-enabled Aux input that supports smart phone content on HDTV.

Both models allow users to choose from sources like Internet radio, network streaming, direct iPod/iPhone playback (including iPhone 5) and connected analogue or digital components. Control integration is available with RS-232C, IR input, Ethernet and programmable 12-volt triggers. Other remote options include the TASCAM AVR Remote app for iPod touch/iPhone and Android Phones, which is available for free.

Both models are also rack mountable. Price for the PA-R200 is £780 and £600 for the PA-R100.

Call 0845 1302511 or click [www.tascam.co.uk](http://www.tascam.co.uk) for more information.





## CHORD ENHANCEMENT

The company's DSX1000 now includes DSD 64 over Ethernet functionality without any increase to the retail price (£7,500). In addition, existing owners can get the upgrade for free via the Internet, with a simple push-button menu option from the unit's display screen.

Call 01980 625700 or click on [www.chord.co.uk](http://www.chord.co.uk) for more information.

## MARANTZ NEW RECEIVERS

The new SR7008 network AV receiver features nine channels and support for Spotify and DTS Neo:X 9.1. The unit includes Marantz's proprietary HDAM audio circuitry, Current Feedback topology and nine fully discrete 200W amplifiers.

The SR7008 comes with various network facilities including Apple's AirPlay technology, Internet radio, Spotify, last.fm online music streaming (where available) and Windows 8/RT compatibility. Thanks to the DLNA standard, you can stream your tunes from your network drives at home, including HD audio (i.e. WAV HD, FLAC HD, Apple lossless) and gapless support for live concert experiences. In addition, the SR7008 has multi-room support to bring different audio and video signals into up to three different zones. It now offers zone output from digital sources (i.e. HDMI, optical, coaxial or network). A Phono MM amplifier is also on board, so is a 11.2 channel pre-out for system expansion possibilities.

Video signals include 6+1 HDMI inputs and 2+1 outputs (dual output for main zone and multi-zone output), all of which support 3D 4k pass-through and 4k video processing. Lower resolution video can be up-scaled to Full-HD or even 4k.

The SR6008 and SR5008 feature the same proprietary high-definition HDAMs, network and format support facilities. The SR5008 incorporates a seven channel discrete power amplifier with 180W per channel. It comes with seven 3D/4k/ARC (Audio Return Channel) compatible HDMI inputs, one of which is located on the front for quick connection of smartphones or camcorders. Lower resolution video can be up-scaled to Full-HD or 4k.

The bigger SR6008 comes with seven channels with 185W of power, a total of seven HDMI inputs and two outputs. InstaPrevue technology makes it

possible to preview all HDMI input sources on the screen via picture-in-picture; the second HDMI port on this receiver allows other people to enjoy audio/video or music entertainment in a separate room while you use the system in the main room.

Price is £699 for the SR5008, £899 for the SR6008 and £1,399 for the SR7008.

Also look out for two new wireless music systems from the Melody series. Both the £499 Melody Media (M-CR610) and £399 Melody Stream (M-CR510) comes with Marantz Wi-Fi network connectivity with the push of a single button. Wi-Fi Sharing or Wi-Fi Protected Setup (WPS) can be selected with a single button-press.

The bigger Melody Media features a 120W amplifier. It plays CDs, comes with FM and DAB radio, as well as the full variety of network content such as thousands of Internet radio stations via vTuner and direct access to Spotify and last.fm. You can also access your own music library on your computer/NAS (Network Attached Storage), support for AirPlay to directly stream music from iTunes and iDevices and a digital input to connect a TV set or set-top-box plus there is a front and a rear USB port for added connectivity convenience.

The Melody Stream is slimmer than the Melody Media. It is dedicated to new digital media, hence it does not offer FM, DAB or CD playback.

Additional information is available via [www.marantz.eu](http://www.marantz.eu).



## HEADPHONE APP

Essency has announced V2.9.1 of Awareness! The Headphone App for iPhones. This 'listening' street safety app was launched to tackle the growing problem of accidents caused by pedestrians wearing headphones. The Headphone App uses the iPhone's headset microphone to automatically feed the outside world into a user's ears, allowing users to listen to their music or movies, yet remain fully world aware. The Real-Time DSP Engine, makes sure this happens instantaneously with no delays or echoes. Price is £5 via the iTunes app store. Click on [www.essency.co.uk](http://www.essency.co.uk) for more information.





## YAMAHA AVENTAGE

The company's new receivers comprise four new models: the RX-A830, RX-A1030, RX-A2030 and RXA3030. The new AVENTAGE line up includes ART Wedge, YPAO-RSC Auto Calibration, SCENE Technology, the CinemaDSP technology and AV Controller APP available for all models for free from the Apple App Store and the Google Play store.

Internal component changes include the use of an ESS SABRE DAC from the RX-A1030 and above. The company is also now using enhanced Yamaha Original Video Processing in the RX-A3030. This technology has been brought up to date with new features such as 4K Upscaling, I/P conversion, Edge Adaptive and Motion Adaptive smoothing and Multi Cadence Detection.

The RX-A1030 and above also offer HDMI Zone switching, with the RX-A1030 able to offer two zones of HDMI content with full HD video and full surround sound simultaneously and the RX-A2030 and RX-A3030 able to offer this as well as analogue sources in the second HDMI Zones.

Other features include: Napster, vTuner, DLNA networking, 192kHz/24bit streaming and playback, App Control, HD upscaling and upconversion, CEC and ARC.

Pricing and availability are as follows: RX-A830, £899.95; RX-A1030, £999.95, RX-A2030, £1499.95 & RX-A3030 £1999.95.

Click on [uk.yamaha.com](http://uk.yamaha.com) for more information.



## MERLIN BLOCKS

The Merlin Tarantula is a six-way RF and EM filtered mains distribution block wired with very low resistance 1.5mm<sup>2</sup> high purity copper wire. Star-wiring ensures each socket has an identical path providing each connected component a cleaner and more stable supply. The IEC input socket allows the mains inlet lead to be easily upgraded. The Tarantula is built into a smart silver-anodized aluminium enclosure designed for either rack or wall mounting.

The Merlin Black Widow is a six-way unfiltered mains distribution block more suited to hi-fi use where excessive filtration can limit dynamics. 1.5mm<sup>2</sup> high purity copper star-wiring provides a much higher quality supply than the brass bars found inside most cheap mains blocks. A numerical display indicates the output voltage and current.

The Tarantula mains distribution block is priced at £50 with the Black Widow mains distribution block priced at £80. Call 020 8241 6499 or click on [merlincables.com](http://merlincables.com) for more information.



## XETAC'S DAC 3

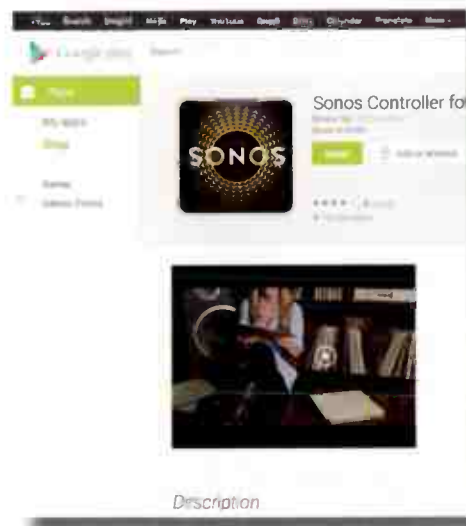
Based on the MAC Mini size platform the XETAC DAC 3 is the first in a series of similarly sized products from the company. The cabinet is made from a solid 25mm thick aluminium plate featuring more than 200 precision mounted components to be inside. Price is €600.

Click on [www.xetac.com](http://www.xetac.com) or contact [info@xetac.com](mailto:info@xetac.com) for more information

## SONOS APP

A new Sonos Controller app for Android has been released, enabling users to play music stored on an Android phone or tablet anywhere they have a Sonos wireless speaker or player. Tracks downloaded directly from the Google Play Store are not immediately available for playback. To play these tracks through Sonos, you must download them from Google Play to a computer and then transfer them to your Android device's Music folder.

For more details, visit [Sonos.com](http://Sonos.com). For Google Music support, visit Sonos Support.



# KT POWER

Fitted with the big, powerful KT120 output valve, Audio Research's new VSi75 amplifier punches hard from its Kinkless Tetrodes. Noel Keywood is KT'd.

**V**alve amps can be soft and mellow, big and lush, thunderous, or they can be Audio Research: think Mack truck. Big, technical, well crafted and – above all – overwhelmingly powerful. That's the VSi75 reviewed here. The soft sound so many attribute to valve amps is a hangover from yesteryear; modern valve amps vary widely in their sound, Audio Research amplifiers being diametrically opposed to valve amps of yesteryear.

Traditionally, Audio Research have favoured the 6550 output valve ('tube' in the USA). It's never been the subtlest or most delicate sounding device, but it is rugged and Audio Research burn them in to reject early failures – as you have

to for a reliable thermionic product. The 6550 will give around 50Watts when run conservatively in fixed bias. Nowadays, people expect more power than this; transistor amps can churn out 100 Watts with ease; valve amps have to get close to appear competitive.

For more power Audio Research have turned to the new KT120 power tube that can handle 50% more power, enabling the VSi75 to deliver 75 Watts from one pair of KT120 tubes.

The KT120 is being used by many manufacturers who see its advantages, and Audio Research have realised most of them in the VSi75. The amplifier is relatively compact, measuring 370mm wide, 410mm deep and 240mm high, and

it is surprisingly light and easily liftable, weighing 16.6kgs (34lbs); for comparison our Quad II-eighty monoblocks together weigh 42kgs. I could carry this amplifier around quite easily, where other thermionic monsters need two of us for a lift.

What you get in outline is an amplifier with five line level inputs of sufficient sensitivity to work with any source, except a few low gain phono stages. There are many high gain phono stages around that will work with the VSi75 though, so this is no big issue. There are no digital inputs, and no phono stage.

Volume is controlled electronically, by pressing up and down buttons on the amplifier, or on the remote control. A big, illuminated green numerical readout shows



volume level, on a scale 0-103, and it's readable from across a room. There's a Mute function and input selection is by push buttons on the amplifier or remote control.

These days, for highest power output, 'fixed bias' is commonly used in valve amps and that's the case with Audio Research models. Unfortunately, as far as the user is concerned this means bias isn't fixed, it has to be adjusted – and that's the case here. Audio Research make bias checking a doddle: tube current is flagged up on the illuminated display at the press of a button.

As you'd hope for an amplifier with this price tag, the VS175 is well made and finished. It hasn't got especially innovative styling, in fact it is quite simple and conservative, but I suspect this reflects the company's main audience: middle America.

The rear panel carries an 8 Ohm loudspeaker output with a 4 Ohm tap on it. A majority of loudspeakers these days use 4 Ohm bass units and are best seen as a 4 Ohm load at low frequencies; this applies to the U.S. as well as everywhere else.

## IN USE

The valves come in a protective foam lined box and the power valves are numbered to match the individual sockets, V1, V2, V3, V4. The 6H30 preamp valves come with rubber damping rings fitted, to lessen microphony.

Switch on was uneventful. A mute circuit keeps things silent until 40 seconds has passed, as the valves warm up. Audio Research say one hour is needed for best results, and that's about right; I'd say 30 minutes minimum.

Bias is preset to suit the power valves. Ours were high at 75mA initially (238V mains input) so were adjusted down to 65mA, as specified. Quiescent current is mains voltage dependent. When it needs adjusting (every few months) a long plastic screwdriver must be used – not so slick at the price. There are ways to make manual bias adjustment easier than this.

Power valves last around 3000 hours. The KT120 costs £30 or thereabouts in the UK but a matched pair will be needed at minimum. To re-valve with matched quads will cost around £120. As big power valves go this is not expensive: check out the price of 300Bs. The KT120 appears to be rugged, and Audio Research burn in their valves to weed out sub-

standards that fail early.

## SOUND QUALITY

Sonically, the KT120 is a distant cousin of the KT88. It has a similarly tidy yet forceful demeanour, yet with the light clarity of solid-state (but without the grain of course).

The KT88 is well judged – sonically balanced shall I say. The KT120 is more distinct in its sonics: it's a KT88 with everything enlarged. The KT120 has a hard edge to it,

and around 50 on its volume control, a setting that suited our system.

The amplifier has a low 4dB of feedback its specs say, and a low damping factor too, explaining the soft bass.

Low electrical damping in a valve amplifier can be ameliorated in the loudspeaker by its acoustic damping, an issue I come across often because I use a low-feedback / low damping factor 300B amplifier at home and have plenty of experience in



transients are fast and hit with force – not what most people expect from a valve, or a valve amp. This sound suits Audio Research though, it's in keeping with their house style. So I'm not surprised to see them finally abandoning 6550s – good 'ol sluggers – in favour of this new bottle.

The amp was run for 40 hours before listening. What I heard from the VS175 was a big, clear and forceful delivery with very strong treble and over-heavy, weakly controlled bass, when hooked up to a pair of Sonus Faber Venere 2.5 loudspeakers. They have been working well for us over some weeks, driven variously by Quad II-eightys (KT88s, 80W) and Quad Elite QMP (transistor) monoblocks, so I started to experiment.

Initially, I increased volume on the VS175 from 53 to 90, where treble rolls off fastest measurement had shown, to warm the sound. Output level of the Audiolab M-DAC was reduced to compensate. This removed high end sting.

So before getting into listening proper I found that the volume setting audibly affects tonal balance – an old problem that used to crop up with analogue volume controls. Audio Research need to fix this. For the most part I reviewed the amplifier at

loudspeaker matching. Loudspeaker choice is an issue.

The VS175 needs sympathetic loudspeakers – and it turned out we had just the thing. Under test and looking good were a pair of Tannoy Precision 6.4s. Fully run in, they were wheeled in and we were suddenly in business: now the VS175 sounded balanced, if still basically well lit in its treble. This is no soft or flabby valve sound; it's the opposite. Audio Research valve amps shock people by overwhelming transistor amplifiers on their own territory and this is just what I heard from the VS175.

Running through standard CD rock tracks like the Eagles 'I Don't Want to Hear any More' the opening drum sequence and accompanying bass line thundered out of the Tannoys, firm and powerful.

This amplifier has clean sounding bass, just as measurement had suggested. I don't quite know how Audio Research manage this from such small output transformers. As I let my Astell&Kern AK120 play through a succession of (re-clocked) CD rips, singers



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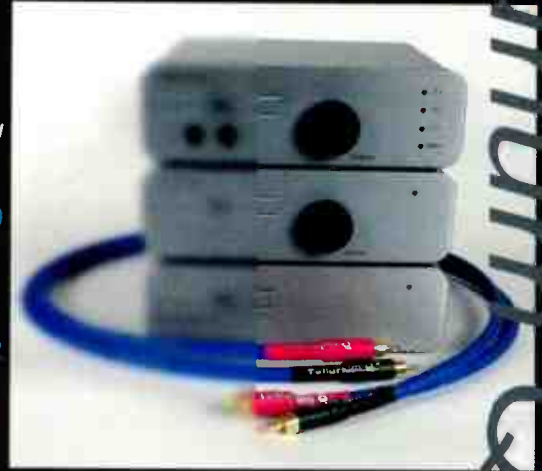
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like Glen Frey were projected with force; a good valve amplifier brings with it dynamics and Audio Research do this in spades. The VS175 kept those famous Eagles harmonies well separated, sounding starkly clear and rigidly timed. This is an amplifier that writes itself up in big, bold strokes; it isn't subtle, it is eye poppingly impressive.

Which brings me to Tom Petty's 'Refugee' in glorious 24/96. With extended bandwidth this track sounded hard and sharp in the treble; cymbal clashes lanced out at me. I had set the M-DAC filter to Optimal Transient XD but still the VS175 was too strenuous up top, causing me to wind volume up to 90 again (and the Audiolab down) to soften its delivery.

Following Tom Petty was Diana Krall singing 'Narrow Daylight' in 24/96 and here the strong opening bass line strode out confidently. Ms Krall was crystal clear and powerfully voiced centre stage. The Audio Research throws music out in big powerful sweeps and keeps an utterly rigid grip upon timing. The metronomic beat of Steely Dan's 'Time Out of Mind' (24/96) came over with machine like precision.

A rim shot that punctuates Gerry Rafferty's 'On a Night Like This' punched out with such a hard edge and solid force it almost hurt. Rafferty was so clear it was hard to believe this song was from an old and somewhat hazy CD, or so I thought. Re-clocked onto my AKI20 and passed through the Audiolab M-DAC and VS175 I was listening to something quite different: the amplifier made cymbal strikes, drum rolls and other transient events come across as ordnance unleashed.

Playing Rimsky Korsakov's 'The Snow Maiden' (24/96) the Minnesota Orchestra occupied a colossal area in front of me; kettle drum strikes shook the listening room and horns blared out with surreal force.

I imagined Audio Research engineers chuckling to themselves over this amplifier. It does what Audio Research are so well known for, but with bells and whistles on! I found myself turning volume right up with clean, high resolution digital and the VS175 and Tannoys just got on with shaking the building around me.

**CONCLUSION**

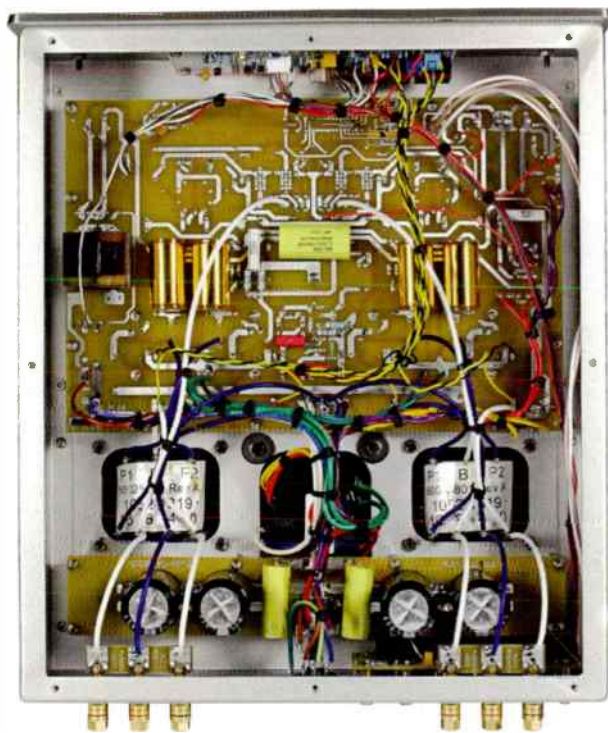
The VS175 delivers brutal power and eye popping dynamics – something valves are capable of but few designers seek to exploit.

This amplifier is astringently clean in its sound, hard and fast and uncompromising. If you want your music to sound exciting, the VS175 can deliver like few others, valve or solid-state.

If you've read the rest of my review though, you will know there are caveats. Treble at times could be fierce with some extended bandwidth 24/96 digital recordings; bright loudspeakers don't suit. And neither will loudspeakers with soggy, under-damped bass.

The Tannoy Precision 6.4s I settled upon using were symbiotic partners, delivering superb bass and clean high volumes. This means the VS175 is speaker sensitive.

I played the VS175 loud and loved it; it offers a visceral experience that makes all else sound anaemic. If you want your music just bigger, bolder and clearer listen to the VS175.



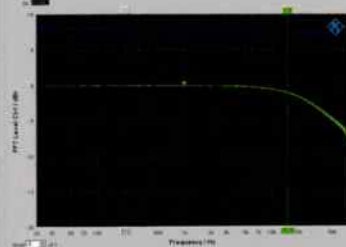
**MEASURED PERFORMANCE**

With a mains voltage of 240V (high for the UK) and measuring at 1% distortion power measured 75 Watts. Audio Research's power figure is a best case result, but achievable. The big KT120s seemed unphased by being pushed hard.

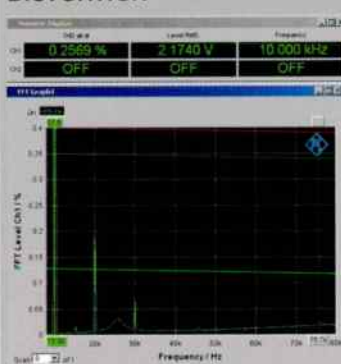
Power into 4 Ohms was 66 Watts; coupling of the 4 Ohm tap wasn't as good as possible. The 4 Ohm tap should give the same power as the (8 Ohm) full winding.

The output transformers pass full bass power at 40Hz and bass distortion was relatively low, below 1% second harmonic up to full output.

**FREQUENCY RESPONSE at 90**



**DISTORTION**



Distortion in the midband hovered around 0.1% and at 10kHz hit just 0.2% (second harmonic), driving a 4 Ohm load at 1 Watt (this is our quoted figure). So distortion levels are low all round and the amplifier delivers clean bass. The only unusual feature was the way second and third harmonic content varied strongly with level.

Damping factor measured a low 1.3. Surprisingly, frequency response alters with volume level setting, running nearly flat to 100kHz at full volume. At half volume (52) the -1dB upper limit was 23kHz and at some settings (e.g. 90) this reduced to 16kHz (shown), so the VS175 will have a soft balance at volume setting 90.

There was also some small amount of noise generated by this control, hence the average -88dB noise figure. Hum was negligible though and gain high enough for silver disc (CD, DVD) level inputs, input sensitivity measuring 600mV. This is on the low side for low gain external phono stages; high gain types are needed.

The VS175 measured well in most areas. It is unusual in its behaviour, quite different from standard topologies, partially explaining why this company's valve amps sound different. **NK**

Power	75watts
Frequency response	2Hz-23kHz
Separation	80dB
Noise	-88dB
Distortion	0.2%
Sensitivity	600mV

**AUDIO RESEARCH VS175 £7,498**



**EXCELLENT - extremely capable.**

**VERDICT**

A powerful, fast sound that makes all else seem weak. Needs careful matching.

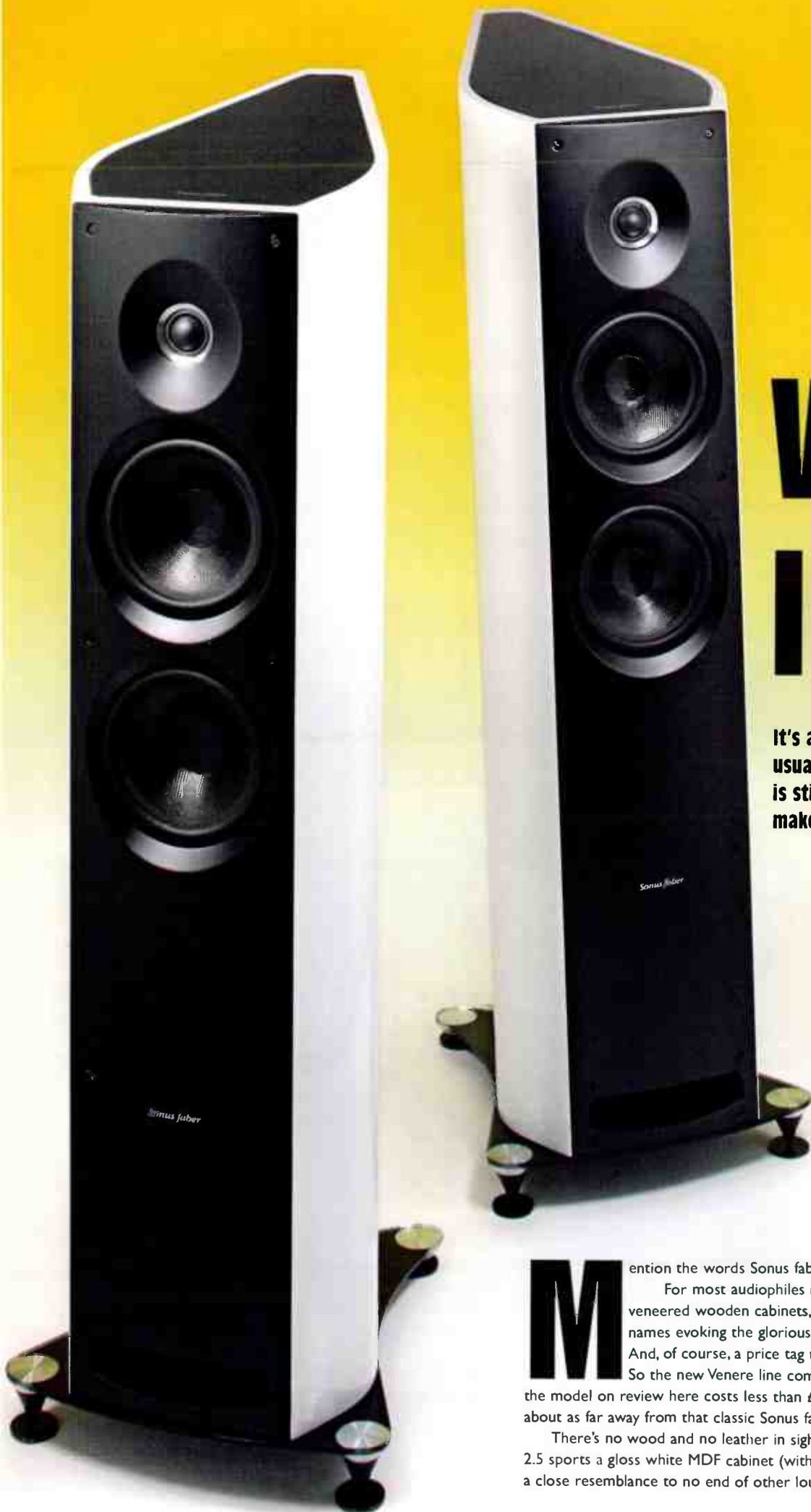
**FOR**

- speed and timing
- clean bass
- ease of use

**AGAINST**

- speaker sensitive
- awkward bias adjustment
- volume affects sound

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# White light

It's a Sonus faber – if not as we usually know them. But Jon Myles is still impressed with the Italian maker's latest loudspeaker.

**M**ention the words Sonus faber and what comes to mind? For most audiophiles it will be beautifully built and veneered wooden cabinets, leather baffles and loudspeaker names evoking the glorious history of Italian craftsmanship. And, of course, a price tag to match. So the new Venere line comes as quite a shock. For a start the model on review here costs less than £2,000 (just) and the cabinet seems about as far away from that classic Sonus faber look as it's possible to imagine. There's no wood and no leather in sight. Instead the Sonus faber Venere 2.5 sports a gloss white MDF cabinet (with black also available) and so bears a close resemblance to no end of other loudspeakers on the market at the

moment. The whole range includes a standmount, front centre for AV and the 2.5 – with a newly-announced Venere 3.0 to come.

Unlike many of Sonus faber's other models, production of the Venere range has been moved to China to help reduce costs – and as we've seen with many loudspeakers that's not necessarily a bad thing.

Taking it all together, it is fairly clear the Venere range is aimed at bringing the Sonus faber brand down to a lower price point – without losing any of its cache.

So what do we have here? As the name suggests the Venere is a 2.5-way speaker in a bass-reflex enclosure.

Unlike some, though, the Sonus fabers eschew a rear-firing port and instead have a slotted, front-mounted port positioned at the base of the baffle.

The drivers are all in-house designed and comprise of tweeter-in-waveguide soft dome with a pair of seven-inch mid/bass transducers.

The first woofer rolls off at around 250Hz while the other crosses over to the tweeter at 2.5kHz. And while the cabinet may not have the glorious wooden look of something like Sonus faber's £79,000 Aida model, it shares some key design elements.

First is the duck-tail top-panel finished in tempered glass with a gracefully etched Sonus faber logo adding subtle detail.

Second are the rounded side panels designed to avoid diffraction artifacts. And then there are the floor plinths with unequal-length footers that ensure the Veneres rest at a slight backward angle to help the time alignment of the drivers.

Off-set speaker binding posts at the rear enable bi-wiring or bi-amping, while magnetically-attached

speaker grilles complete the package.

Okay, so it's not the Aida – but it is still a handsome-looking speaker with a distinctive profile that sets it apart from many of the straight-angled boxes on sale at and above its price-point.

"once it's done you will be hard-pressed to find a better loudspeaker at the price"

But looks are one thing – it's how it sounds that eventually will determine its success.

### SOUND QUALITY

The Venere is a fascinating speaker and easy to fall in love with.

Dynamically lively and tonally well-balanced it also has a vivid mid-range that can give music boundless energy. But it needs careful set-up and ancillary matching.

Plugged in at first to my Naim SuperNait the bass seemed too heavy and ill-controlled. Benjamin Britten's 'Sinfonia de Requiem' by the Oregon Symphony should start with a heart-shaking timpani roll but here it was just a little too muddled. There was nothing intrinsically wrong – but the feeling the Veneres had more to offer.

And true enough, changing the Naim for a NuForce IA-18 integrated with a much higher damping factor made all the difference. Now there was the explosive factor you expect from the Britten piece.

And in fact the Veneres really came on song from here on in and showed there is quality to spare in them.

They have a great combination of deep tuneful bass, a terrific mid-range

allied to an innate musicality.

The Clash's 'Give 'Em Enough Rope' is a heavily over-dubbed and

processed album – and it takes a good loudspeaker to really get to grips with it. The Sonus fabers handled the track with aplomb. 'Safe European Home' veritably thundered out – the bass right, guitar parts easy to delineate and even Joe Strummer's

vocals easy to make out. It's rare to hear that combination but it was there in spades.

Led Zeppelin's 'Dazed And Confused' had massive bass power on John Paul Jones's intro notes – in fact so much it was easy to think these are transmission-line loaded speakers.

Put the Venere 2.5s with an amplifier that suits and they can be rather exceptional. Because what these speakers do very well is produce clean, clear and articulate bass. That doesn't necessarily mean it has to blow your socks off – but just be there when the music demands it. Massive Attack's 'Safe From Harm' through the NuForce/Sonus faber combination was a revelation via its remastered 24/96 download.

Shara Nelson's vocals were true and clear, the bass underpinning it so as not to overwhelm but just provide a backing for what's happening in the higher registers.

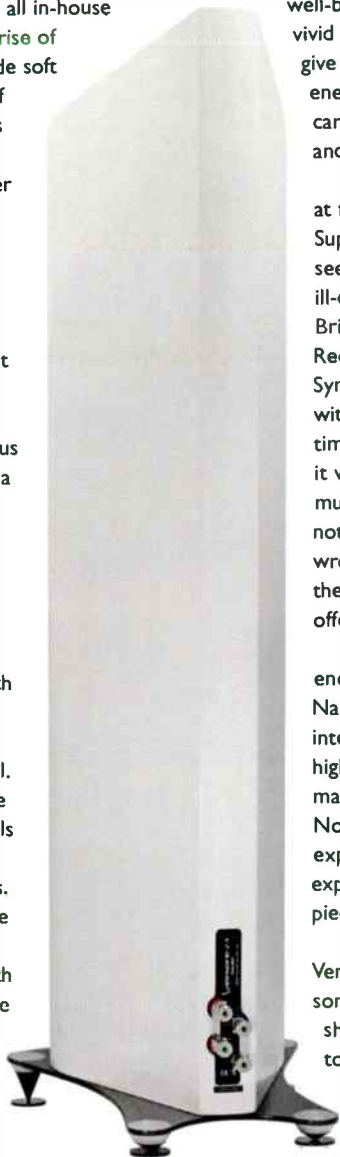
Alternatively, try a few Dub Fever tracks and they will knock you back with some force the Veneres seemingly going down to sub-sonic level. Overall, it's a great combination of attributes.

You would expect, ideally, every loudspeaker to do this nowadays – but it doesn't always happen and when it does it's a joy to hear.

Where the Venere wins is its ability to reproduce various kinds of music from acoustic jazz quartets through to indie rock and then a full-scale orchestra.

It possesses a rather lovely integration between the drive units – and a tonality which invites you into trying every recording you have in your collection. Dave Brubeck's 'Time Out' comes across with superb syncopation – the unusual time signatures and band integration working to perfection.

Nirvana's 'Smells Like Teen Spirit' has the grunt and excitement you'd





*icon Audio*



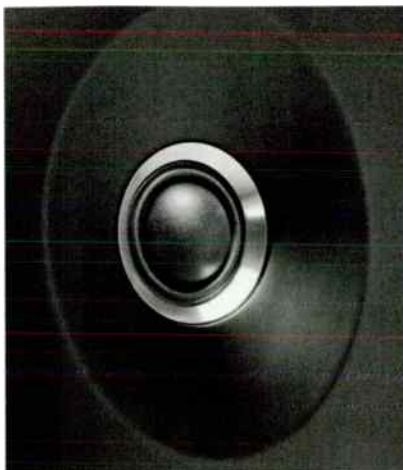
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*NEW Stereo 845  
Integrated Amp*







want – the Veneres retaining all the energy and rough edges of the music while still making it clearly defined.

Listening to Leonard Cohen's 'Darkness' from his 'Old Ideas' collection revealed all the depth of the veteran singer's trademark growl while the female backing chorus floated beautifully in the space behind remaining crystal clear.

Detail reveal was also excellent – playing Johnny Marr's remaster of The Smith's classic 'The Queen Is Dead' revealed many of the little studio overlays which were used to build up the overall atmosphere of the track.

If you were to pick any faults it's perhaps that the speakers can tend to over-exuberance at times. Nothing too serious – but the Veneres give the impression they are always looking to grab hold of the music and propel it along. That can manifest as perhaps a slightly forward treble or occasional extra thump in the bass on some tracks.

It means that in the absolute sense it is not totally tonally accurate – but it has a balance that many listeners may actually prefer.

Toeing them in a little more to fire directly at the listener helped lessen that treble edge to an extent. Careful positioning in the room also tames the bass. Although they have front-firing ports, get them too close to a rear wall and they will start to sound boomy. Use well away from side walls is also a prerequisite.

And, as said above, this loudspeaker really does need an amplifier which can take a grip on it. It didn't take to Naim. But it sang with the NuForce and – interestingly – it worked well with an Arcam FMJ A19 which added a touch of warmth to the overall sound. All of which suggests a high(ish) damping factor is important to get the best from the Veneres.

But get all those elements

correct and you are in for a treat. The Veneres manage to drive a room with power and authority yet remain sophisticated and as good with grungy rock music as they are with the force of a full-scale orchestra.

## CONCLUSION

The Venere range is obviously designed to lower the price of entry into the Sonus faber brand.

To that end the new Venere 2.5 may not have the physical 'wow' factor of some of its more costly brethren – but that doesn't mean it can't hold its head high on the sonic front. It's a superbly-engineered and great-sounding loudspeaker.

Bass goes deep and low but is

always well-behaved, while there's bags of detail in the mid-range. Importantly, the Veneres always sound as they are eager to make music.

While fairly neutrally balanced they avoid tipping over into dullness but keep a terrier-like grip on the music.

Yes, careful amplifier matching is important and the more time taken on room positioning the better. But that's the way it should be with a loudspeaker. And once it's done you will be hard-pressed to find a better loudspeaker at the price.

Extremely impressive and a must audition for anyone looking to spend £2,000 or more on a pair of floorstanding loudspeakers.

## MEASURED PERFORMANCE

Frequency response of this loudspeaker was basically flat, albeit with some deviations, unlike earlier Sonus Fabers we have measured, that had rising treble. So the Venere 2.5 appears to have been balanced for a less bright, more neutral and accurate sound.

The bass mid-range unit crosses over to the tweeter at 3kHz the impedance curve shows, and there is a slow roll down in midrange output up to this frequency. Then the tweeter comes into play and extends output upward to 20kHz, in reasonable basic balance with the rest of the loudspeaker, if with some peaking at 9kHz that may well add a little hiss or sting. However, a dip around 6kHz is an unusual blemish that looks like a phase suckout against a back plate. This phenomenon, plus the crossover dip, combine to reduce upper midrange energy and this will bring a softness, or slight mildness to the sound, reducing

detail a tad. The softening was common enough years ago and makes for easy listening, but it isn't either necessary or accurate by current standards.

Further down the frequency range low frequency output rises a little, enough to avoid the Venere sounding dry and light in the bass, but it is well controlled. The floor port works very well, operating over a wide frequency band from 150Hz down to 25Hz; it is non-resonant and applies resistive damping to the bass units and this is one of the Venere's strengths. This looks much like a transmission line in what it can achieve: the amplifier load is less reactive than usual, acoustic damping strong and bass quality likely to be rather better than the norm as a result. With strong yet even subsonic output the Venere 2.5 has well controlled bass that goes deep.

A decay analysis showed the Venere is low in coloration across much of the audio band. It only looks a little hot around 100Hz and lower, showing energy returns out of the cabinet, through the bass unit, blurring bass a little. This is likely to bulk-out bass a little, adding fullness and some boxy quality.

Sensitivity was high at 89dB Sound Pressure Level from one nominal Watt of input (2.8V) so the speakers need little power to go loud, 40 Watts or more being sufficient. Impedance measured 6 Ohms overall, but this is a 4 Ohm loudspeaker at low frequencies. It is an easy load, with little reactance, due to well engineered bass loading.

The Venere 2.5 measured well in most areas. It should play bass notes evenly, with good quality and its overall tonal balance is even. There is an upper midrange dip though, plus a treble peak and both may be audible. **NK**

### FREQUENCY RESPONSE

Green - driver output

Red - port output



### IMPEDANCE



## SONUS FABER VENERE 2.5 £1,998



**OUTSTANDING - amongst the best**

### VERDICT

Great bass, a superbly neutral mid-band and musical authority to spare. Highly recommended.

### FOR

- clean, deep bass
- crystal-clear mid-band
- detail retrieval

### AGAINST

- can be slightly over-exuberant

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## LETTER OF THE MONTH PRIZE



**KEF Q100 LOUDSPEAKERS**

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Answers by: **NK** - Noel Keywood; **PR** - Paul Rigby; **TB** - Tony Bolton; **MP** - Martin Pipe; **HB** - Haden Boardman; **RT** - Rafael Todes; **RA** - Rod Alexander; **JM** - Jon Myles.

For more advice see Letters from earlier issues at [www.hi-fiworld.co.uk/letters](http://www.hi-fiworld.co.uk/letters)

A pair of KEF Q100 loudspeakers are on their way to **TERRY CATLIN**, Letter of the Month winner in our September 2013 issue.

## Letter of the Month

### DEATH DELAYED

I am most definitely with Alan Cobb (July Letters) in the debate over whether CD (and more relevantly perhaps SACD) will keep going in some shape or form in the same way that vinyl still enjoys a niche market after all these years.

An important non-technical factor that cannot be ignored by even the most zealous technocrat is the value and satisfaction in the feel and physical presence of owning a collection of something. Surely, despite its phenomenal convenience, no one is advocating that the book will be entirely superseded by the ebook reader. Noel is, as ever, as plausible with technology and innovation as he is provocative. But he has overlooked one key facet of any collection, albeit books, film or music – and that is the pleasure and desirability of having a library in its physical state.

There was some correspondence in Gramophone decades ago about how anyone could justify, let alone appreciate vast collections of LPs, sometimes into their 1000s. The answer (which would apply equally to CDs, DVDs and Blu-ray) is that there is enormous satisfaction and reassurance in knowing what is there, to be lifted off a shelf, opened and enjoyed whenever the moment or mood decrees.

As a music student in the 1970s, an organist who had also suddenly discovered the intensity of Mahler and the monumentality of Wagner, I wish



**Meridian Sooloos 2.0 hard disk music player "how do I retrieve my FLAC files from it?" asks Graham Griggs.**

LPs had played backwards then (as in High End Show review, July p55) because I abandoned the medium when I could not bear the wretched end-of-side distortion that most powerful conclusions, more often than not, seemed to generate.

Even the distinctly non-hi-fi compact cassette via a Nakamichi CR-3E seemed briefly more tolerable, although the cross-talk there also drove me to distraction. You may imagine by now how eagerly I embraced the arrival in 1983 of an audio format that was not compromised by physical or mechanical wear, even if the initial sound lacked the richness and depth of

the best of the analogue process.

By now an impecunious teacher, I was still determined to extract the best out of the revolutionary new format via a Meridian MCD player and a legendary A&R Cambridge A60 amplifier, into their much at the time underrated Arcam Two speakers. Sadly, I could never afford the Meridian upgrade to the MCD Pro, although it did demonstrate the potential that lay in the CD format.

Fast-forwarding over some two and a half decades, the Meridian bug was reignited with a fulsome review of their upgraded Sooloos 2.0 hard disk system in your November 2009 magazine, at



*Astell&Kern AK100 portable digital player will play FLAC files up to 24/192 resolution, through headphones or the hi-fi.*

which point I ditched two less focused journals and became a subscriber to *Hi-Fi World*. I acquired a Control 10 and Twinstore before spending nearly two years ripping the 1900 CDs I now possess onto its 1TB hard drive.

With RS AV Solutions guidance and encouragement, I recently upgraded a Meridian G92 player/processor to a G61R processor/preamp, fed by an Arcam BDP 100 and an HD 621 HDMI audio switching processor (another brilliant Meridian innovation that separates audio and visual signals for improved jitter and tighter sync, and which should have been reviewed ages ago). And all this via the truly awesome grip of a Chord Electronic SPM 2400 5.1 channel power amp (incomprehensibly not reviewed either) into a Velodyne sub and Spendor speakers crowned by a pair of top-of-the-range floorstanding STs, thus preserving the highest stereo audio integrity alongside a really dynamic home-cinema set up. I love the synergy of this system and would be interested in your views on it.

Apart from continuing to fine-tune and upgrade cables and mains products (mainly Chord, Ecosse and Russ Andrews), most recently last summer with the latter's BMU 1000 Balanced Mains transformer, the best step up yet in reducing background noise and hash, I think I have reached a sonic plateau that really extracts that last drop of musicality from the humble Sooloos-ripped CD – where this account all began!

One final question: I have been searching for a superior portable music player to supersede my brick-like original iPod and think I may have stumbled upon it via your March review of the Astell&Kern AK100 portable player. Even I balk at the cost of the

mouth-watering AK120 but, as I really only want to use it with my AT noise-cancelling ANC7b headphones, can you please advise how best to transfer the FLAC files from the Sooloos system? If you had not already realised, my computer awareness or interest are not exactly cutting edge. Perhaps this is another reason why I take refuge in the concept of a library where everything physically has its place. Keep up the good work!

**Graham Griggs  
Cambridgeshire**

Hi Graham. Zealous technocrat here! It's interesting how people's sensitivities differ. I have never heard LP being rejected for end-of-side distortion on orchestral climaxes, although it is an acknowledged problem. Usually, ticks and pops, and surface noise audible during low level

passages upset classical listeners. I guess CD was, on balance, better for classical (Rafael Todes, Allegri String Quartet, prefers violin on LP), although I found digital distortion difficult to sit through on early CDs and still unpleasant on fairly modern ones. Violins that sound like band saws is where I give up.

CD can sound good when properly recorded and mastered, but I suspect mediocre ADCs that turn good analogue into poor digital, and heavy handed processing through inadequate studio equipment degrades their sound badly. The idea that "bits are bits" helps support such complacency. CD just isn't for me in the end and moving on to a portable digital player has freed me from its (16bit) shackles!

I understand why so many want a physical collection to browse and enjoy. Personally, that's my LP collection. I'm happy to commit all my CDs to digital storage. I have changed my mind about storage over the last few years, in light of experience.

I have a pile of hard drives awaiting secure disposal and well know how difficult it can be to keep files safe for the future. But drive failure is less of a problem now than 10 years ago and prices have come down of course. It's easy to pop out and buy a drive. There is a problem of cataloguing what's on many working drives and collating it all, or just finding the time to archive it to a 2TB mega-drive.

My forced move to memory card on a video camera, instead of



**A 32GB micro-SD card like the one at left here can store 50 CDs, or 100 FLAC compressed. At £25 that's 25p per CD.**

tape, and the use of memory card on our in-house cameras has changed my view about storage, as have falling memory card prices. A 32GB card now costs £25 or less, cheap enough to be used as long term storage, at least for valuable data – including music. Then there are SSD drives, which have a near infinite read lifetime (like SD cards), so make a lot of sense for long term storage. But I find myself working mostly with SD cards these days and have no criticism to make of them except that their tiny size makes handling and storage an issue.

Your system is imaginative and very unusual. It also sounds very good I am sure. I too use a huge balanced mains transformer, by the way and it works brilliantly. In truth it is system used to make 110V power tools safe and it has been used in the USA to isolate whole recording studios.

Meridian say you can export files from Sooloos to your computer. Once there you can download them to an external player like the Astell&Kern AK100 or 120 portable player over a USB link. **NK**

### SMUG AND CONCEITED

I found Noel Keywood's reply to the letter from Alan Cobb (July issue) rather smug and conceited. I have lost a lot of faith in the hi-fi press and, to a certain extent, the hi-fi trade. We are told that high-end hi-fi is selling well. Not surprising at a time when the gulf between rich and poor is widening. So are we to see the companies who make lower priced equipment abandon their poorer customers and move up the scale? I hope not.

From my experiences many hi-fi stores treat the public as if they were cattle. They may moan about falling sales, and yet neglect doing anything about it. They stay in the cosy confines of their stores and wait for the customers to come to them, rather than going out giving public demos. My dealer has done this and has upped its sales.

NK says in his reply that he looks at his CD collection with 'hostility'. Why? Does he view music in the same way? He and others in the hi-fi world would have everything downloadable, record shops closed and pressing plants shut merely to gain an extra degree of fidelity as they sit smug and comfortable. If this does happen what about the people whose jobs would be lost?



**A Google data centre at Council Bluffs, Iowa, U.S.A. Google has centres like this dotted around the world. "Now we are expected to buy costly digital devices and music from some distant server of which we know nothing" says Cliff Millward.**

*If we do reach the stage where music is only available by download, how safe would it be in storage? I have read about whole libraries being lost because of a computer crash. This is the worry for a great many people because they feel as if they are being forced slowly to accept something which is alien to them. That is non-physical music, however trendily dressed up it may be.*

*Noel goes on about how he has constantly criticised the sound quality of CD since the medium was launched. Bravo to you Noel. CD made music available to a great many people who did not enjoy playing vinyl. One group comes to mind: the blind, who found records fragile. And classical music lovers found a whole new world in their music freed from surface noise. Now we are expected to become technophiles and buy costly digital devices and music from some distant server of which we know nothing, charge what they like, and disappear at any time.*

*Like Alan Cobb I prefer something which I can see and handle. Something which gives me information and illustrations rather than a black box with flashing lights. I have many CDs, the oldest of which is 27 years old and plays perfectly. At the end of the day, music lovers, as opposed to critics, just want to sit down and enjoy music without hassle. CD will not die for a long time. There are too many discs and players about. They might even see Noel Keywood out.*

**Cliff Millward,**  
**Tipton,**  
**West Midlands**

Unfortunately Cliff, record shops are closing down irrespective of what I or other critics say. Jobs are lost, but hopefully they are gained in new industries that replace the old. The world changes and moves on. Where I live, electrical retailers, greengrocers and butchers have closed down, as well as record shops such as Virgin on Oxford Street and Tower on Piccadilly Circus (and now HMV at that location too). UK consumers increasingly buy from big supermarkets and Amazon and expect home delivery; that's progress, whether you like it or not; the internet dominates our lives.

I walk the aisles of the last remaining HMV in Oxford Street and wonder how much longer they can fill such expensive retail space with thousands of CDs selling for peanuts, for which there is little demand. The downstairs classical section is eerily quiet. But Amazon will continue to sell CD for many years yet I'm sure.

As I said in my previous reply, flash memory is robust and affordable, and now a realistic way to store music files safely, off computer. Combined with high resolution digital downloads it offers those who like to hear music, rather than distortion, a way ahead.

Modern portable digital audio players are relatively easy to master; you just copy a file to them from your computer – and that's it. It's easier than faffing around with CDs, their cases and their quaint loading mechanisms, and much easier than using a network player. I'm sure CD



**Portable players commonly appear as 'mass storage' devices (similar to memory sticks) on a computer, when connected via USB. Just swing the music file onto the icon and it's loaded!**

won't die, and as you say it is easier to use than LP, but until you have heard decent digital, you haven't lived.

Offering shop demo is hardly "treating people like cattle". It's a valuable service that our next letter says more about. **NK**

**IN PRAISE OF DEALERS**

I was at the keyboard about to pen a letter to you when I read Dave Swithens' letter in your August issue. He made some of the points that I was about to make. My experience is similar and so reinforces the issues that Mr Swithens raises.

I was invited by Mike at Zouch Audio to bring over some LPs and listen to the Rock 7 that he had just taken delivery of. The music that I chose to take was Laura Mvula, Lambchop and Miles Davis. The Rock 7 was going through a Musical Fidelity phono amp, Chord pre/power and Dali Epicon speakers.

I'd listened to my LPs the evening

before so that the sound was fresh in my mind. Through the demonstration system all three of the records sounded so very different. This is perhaps not surprising as all the elements in the chain were different. I use a Roksan TMS3, Quad 24P Phono, Naim pre/power and Tannoy DC8T speakers, and of course my room is acoustically different as well. The overall cost of both systems would be broadly similar. I like my musical pill to be slightly sugar coated and washed down metaphorically by a full bodied red.

The Rock 7 system was as tight as a drum and slightly dry sounding. Now I'm sure that many, maybe most listeners would be over the moon with the presentation of the music as I was hearing it. Indeed, had I come to it cold as it were, then I think so would I. The point of my letter is that because I have been able to audition my equipment over the years at home, mostly thanks to Zouch, I have been able to tune my system to suit my ear.

Mr Swithens makes the point that the cartridge with the great review didn't suit him best. That has often been my experience. Some years ago Mike asked me if I would take a pair of Quad 2812s home to try. We both knew that I wasn't going to buy them but he had only just become a Quad dealer and he wanted to try them in different environments. They were dire – as dull as ditch water. It was my room and system to blame of course, I'd heard them sounding great in the demo room. But here I was with a piece of very well regarded kit that didn't sound good at all.

OK, big electrostatics are an extreme example but the principal stands: unless you can listen to new equipment at home in your system then

you are taking a big risk. This is where specialist dealers are so important. OK you can buy on the net and you may like the results but unless you've taken advantage of a home audition you could be accepting second best. In my view a properly auditioned budget/mid-price system can give more pleasure than a 'high end' system bought cheap off the net on the evidence of magazine reviews alone. You're taking a big risk which in the long run could cost you more. **David Jarvis**

We totally agree David. It is very important to hear a product before buying it and dealers provide an invaluable service here. **NK**

**BASS CASE**

My system comprises Gyrodec turntable, SME V arm, Dynavector 20X Mk2 cartridge, Musical Fidelity X-Ray CD player, Audio Research SP1 pre amp



**The Living Voice Avatar obx-r 'speakers used by Joe Moore.**

[served 2011], WAD 300B 20W single-ended power amps, Living Voice Avatar obx-r 'speakers on Townshend bases.

All cables are by Kimber and equipment sits on a Hi-Fi Racks rack, room size is 14ft x 10ft.

I'm very happy with the sound of my system and do not want to change any of my equipment if possible but would like the bass to be a little tighter and better defined. Would adding a sub give me what I want and if so which one do you recommend?

**Joe Moore**

Hi Joe. The quick solution to your problem is to add acoustic damping to the ports. As you are probably aware the WAD 300B single-ended

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Zouch Audio Ltd is a privately owned company established in 1995 by Mike Statham and supplies the highest quality hi-fi systems for the best musical experience.

**"Thanks to Zouch, I have been able to tune my system to suit my ear", says David Jarvis.**

# Letters On-Line!

You can now read our Letters on-line, from the last issue back to March 2010. That's a treasure trove of information and advice to our readers, as well as a fascinating catalogue of reader's systems and views. There's mountains of buying information, all just a click away on your computer or i-Pad. Have fun!

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**World Mail** June 2011 issue

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Your experts are -  
DP David Price, editor; NK Noel Keywood, publisher; PR Paul Rigby, reviewer; TB Tony Bolton, reviewer; RT Rafael Todes, reviewer (Allied String Quartet); AS Adam Smith, reviewer; DC Dave Cawley, Sound Hi-Fi, World Design, etc.

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Just go to [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) and click on Letters in the left hand menu list, under the FEATURES category. This will take you to the individual months of issue. To see the full list set the 'Display' drop-down list to 'All'.



**Acoustic foam (open cell) port bungs. At top is a one-piece with a flat that allows some air flow. Below is a roll of foam that allows air flow through the centre. These bungs damp heavy bass and tighten it up. Don't completely block a port with foam as this turns it into a closed box, our measurements show. You must leave some space for air flow, but expose as much foam surface area as possible. A very loose roll of thin foam is ideal. Experiment for best results.**

valve amplifier has low electrical damping so you need to increase the acoustic damping in the system to compensate. This increases total system damping, a point commonly overlooked in the amplifier/loudspeaker interface.

Since the Living Voice Avatar is designed for valve amps and you have external crossovers (top dollar) you'll probably want to stick with 'em. Should you think otherwise, consider Martin Logan electrostatics or perhaps the interesting Sonus Faber Venere 2.5 reviewed in this issue. It has very good bass damping, high sensitivity (89dB) and a neutral sound. Coming up are Tannoy DC10A Alnicos and these two loudspeakers are going to be very interesting with top quality Single-Ended amplifiers like yours. Expensive though. **NK**

### DIRECT DRIVE LUXMAN

With all the second-hand gear out and about, there seems a never ending supply of average, or faulty or somewhat suspect gear for budding experimenters

to play with. However, as a repair man I get to see some of the equipment and just had to say that a recent item that came to me was very interesting. The Luxman PD264 Direct Drive turntable with its original arm is quite an unexpected treat. The platter itself and its motor is at least as good as modern acrylic ones in the deadness stakes, despite it being a standard cast aluminium type thing.

The arm is a unique Luxman item and only suffers from two things that I could find, dodgy cartridge connectivity and a dirty turntable motor switch located to the left of the main arm pillar and tucked into the lift and lower and auto pick up system.

Apart from a good covering of dirt (I think the owners were ex-smokers) when repaired and plugged in it worked a treat, even with the supplied cheapo phono leads. I swapped the plugs as a short-term solution with some Nakamichi ones which allowed the Ortofon 510 to really shine.

I think this could be one of those turntables well worth a visit if you are looking for a potential upgrade project! That will of course raise the prices on eBay by a substantial margin! I'll have to get one quick!

Best wishes

**Dave Tutt**

**Tutt Technology**

**Kent**

**07759105932**

**www.tutt-technology.co.uk**

### WEAPONS GRADE TOSH?

Whenever I read hi-fi magazines I am always astonished at the levels of creativity and pretentiousness the writers of hi-fi articles and adverts have achieved in differentiating the products described.



**"The Luxman PD264 Direct Drive turntable with its original arm is quite an unexpected treat", says Dave Tutt. Here's the one he was working on.**

For example, in the May 2013 edition, your reviewer claimed that a mains power block "offered a newly portentous, almost growling bottom... and a previously noticeable clinical edge to the trumpet was now gone".

I ask what mechanisms were at work to achieve this? Do these products give us access to previously unknown phenomena, yet to be discovered by mainstream science? Or is it that hi-fi users have extra sensory powers that can differentiate changes in sounds not heard by us ordinary mortals?

Or maybe the makers of hi-fi components are so irresponsible as to make their designs (including the mains cable) sensitive to mains borne interference so it can pass through the power supply and degrade the sound of trumpets, bass notes etc?

On the same note, how does a digital cable tease out each filament of detail or be adept at tracking the delicate changes in vocal force? And how does an interconnect cable specifically cause veiled mids?

How do some belt drives slightly slur the leading edge of notes? Is it that the additional displacement of the groove on the record is sufficient to cause enough extra drag to overcome the momentum of the turntable and momentarily slow the speed of rotation and overpower the drive? Maybe speed variations in the cheaper drives are cunningly synchronised with the start of notes.

What does aircraft grade aluminium give the F5 arm that saucepan grade aluminium would not?

Maybe I have missed the point. Perhaps your readers are mainly people like me being entertained by the weapons grade tosh, in the same way that we are by the content of Pseudos



Corner in *Private Eye*. If so, congratulations to your contributors for a job well done.

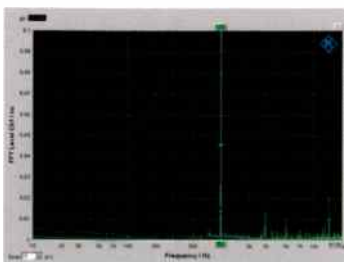
**Andrew Bellchambers**  
Staffordshire

Hi Andrew. The link between a measurable effect and its subjective impact is not easy to establish. To do so we need to know what the ear/brain is sensitive to, as well as how it interprets what it hears – and that is difficult to know.

Then there is the cable-specific issue of sonic differences being perceived where no measurable effects are available to cause them, or so it seems. Let me cover both.

You mention belt drive turntables. They have a clearly measurable limitation, that of wow (speed variation) that is audible, but only with sustained piano notes. Unsurprisingly, those that listen to piano and musical pieces that have sustained notes, within Beethoven's *Moonlight Sonata* for example, complain strongly about wow. Read most reviews and you'll quickly realise that 99% of listeners/reviewers/bloggers don't listen to such music, don't understand the difficulties reproducing it, and pass over the issue altogether.

So we end up with the peculiar situation where wow is an issue, and it isn't an issue! I can measure it and hear it and it is an issue for me. I get my ear bent by others who feel we should say more about it in the magazine too. Peter Comeau, Chief Acoustics Engineer IAG, Rafael Todes, Allegri String Quartet and Dave Cawley of Sound Hi-Fi are all experts on this whose views are not to be



**Digital cables produce jitter: above 35pS from a Maplins optical cable 1m long. Their (analogue) electrical bandwidth, termination accuracy (optical and electrical) and optical properties all affect the amount of jitter produced and its spectrum, suggesting digital cables have a 'a sound'. Oh dear!**



**Alexandra Palace transmitter in North London. Powerful urban transmitters can degrade sound significantly, loudspeaker leads acting as aerials.**

ignored and they all complain about wow.

Speed variation is a continuous, mostly cyclical process, so there need not be any time domain correlation with recorded musical notes. Also, technically, wow frequency modulates music to produce sidebands, although the ear appears to hear the time domain effect. Subjectively, we know it makes the pitch of notes sound 'watery', and slightly indeterminate.

Moving onto cables, we bump into more contentious issues. How can a cable whose lumped parameter electrical model that is satisfactory for audio possibly affect the sound? As you say, by what mechanism?

Well, perhaps the lumped parameter electrical model is not the problem and not the issue. In South London, around the Crystal Palace radio and TV transmitter, loudspeaker leads act as aerials, producing frame rate buzz from the loudspeakers. All this has nothing to do with the cable's basic electrical parameters (R, L & C), except insofar as they affect its behaviour as an aerial. So popular theory may be irrelevant. It is also transient; what we believe to be fact today will look facile tomorrow. Here's an example...

Digital cables have been more resistant to claims about variations in sound quality than analogue cables, but all of a sudden out of the theoretical woodwork comes a mechanism – indeterminacy of the time domain transition being imposed by limited transmission (cable) bandwidth causing jitter, as well as imperfect termination causing reflections. Here's a mechanism by

which digital signals through a cable are degraded.

And, sure enough, all of a sudden we can measure jitter in digital cables at Hi-Fi World with our Rohde & Schwarz UPV audio analyser. Worse, Rafael Todes has clearly identified this jitter in listening tests – so that's the idea of digital cables being perfect out of the window! One minute digital cables are conceptually incapable of affecting sound quality, the next they are guilty and damned.

We are all well aware cables are a very contentious subject, but readers consistently claim to hear substantial differences and, quite frankly, so do I (and most other reviewers).

The mechanisms that cause these effects are little understood, but that doesn't mean they don't exist. Once upon a time digital cables could not affect sound quality; now they are more able to do this than analogue cables.

To paraphrase Donald Rumsfeld: "there are things we know, things we don't know and things we don't know we don't know". **NK**

Hi Andrew. Noel has addressed the turntable and cable issue, so allow me to end with power blocks. For years now, we have been told to focus on the source of our hi-fi to extract maximum data. Experts, worldwide, tell users to spend the largest percentage of their budget on a turntable (or CD player or similar for digital users). In fact, the source signal is your mains supply.

You've heard the 'rubbish in, rubbish out' maxim. If you don't



**Mains cables reduce noise from the mains and improve sound quality, says Paul Rigby.**

address the mains signal before it hits your turntable and/or CD player then you will never recover the lost signal or fully eradicate the distortive noise that enters your chain from this point. Power blocks (and cables, for that matter) can help to tackle distortion, every audiophile's nemesis. It's this distortion: the sub-type, the quantity and how its interacting with your hi-fi and your room, that results in modifications to sound quality or, specifically, that bass and trumpet reference stated in your letter.

If you don't believe me, visit your dealer and ask for a demo and hear the changes for yourself. A well designed and implemented suite of top quality cables, power blocks, plus other isolatory accessories, can transform your entire hi-fi. kind regards. **PR**

**PERFECT RELATIONSHIP**

*I've been looking for a hi-fi system that meets all of my musical needs since the middle 80s and like the perfect relationship I've come to realise it isn't ever going to exist. I didn't realise that though for a long time, so spent lots of money, time and sweat buying and selling, switching this and that, upgrading only to find it often wasn't better – just different. As a consequence though I've listened to a great range of components and systems – some grand and some definitely budget. Strongly, it's not the "grand" ones that gave me the greatest pleasure. I had an original Sugden a21 with some Leak Sandwich 'speakers, a Marantz CD 94 and Thorens deck and it sounded great. I also used the same CD player with a Cyrus 2 driving Celestion Ditton 66s and that was an unexpected match made in heaven. Similarly a pair of Leak TL 12+ power amps (breathed on by Haden*

*Boardman) with a Croft pre amp, a Townshend Rock / Excalibur and Tannoy 12 inch Dual Concentrics was also excellent.*

*Anyway, I ended up over recent years with a decent system, on paper at least, but I really wasn't too happy with the sound but tolerated it. Recently I started to think about some of the components I've liked in the past and started looking around for them. As a consequence of picking up some second hand I've now got a system that maybe shouldn't work but it does. The front end is a Technics 1210 turntable with a Goldring 1042 on the original arm, a Rotel RCD 965bx LE CD player and a Yamaha NS CT810 tuner. All were bargains, especially the tuner. I bought that for £50 in mint condition from Steve's Hi-Fi in St Leonard's which is unfortunately now closed. It came with the original receipt from 1974 and all documentation. Despite that I expected little from it but when I connected it up I immediately put my existing tuner up for sale and the Yamaha has been in situ ever since.*

*When I thought about amplifiers I kept coming back to Exposure. I had*

*a super VIII power amp with VI power supply and VII pre amp many years ago and always regretted replacing them so I looked around for the same amps and found some in great condition. They were maybe a bit over-priced but given the money I've wasted over the years I thought they were worth the investment. They were, they sound great and deserve their classic status. Even the in-built phono stage is as good as my stand alone one from a well reviewed company.*

*Speakers have proven to be a bit of a challenge that continues. Given my hi-fi history I have a few speakers kicking around and tried the system with a pair of Heybrook Quartets which was a surprisingly good match. I've also used some Tannoy 12inch dual concentrics (I used a similar combination with my original Exposures) and that was a good match as well but a bit too much for my very small listening room.*

*All in all, though I am very happy. I have a system that has killed my decades old upgrade bug. I enjoy music more now than ever before – I'm not listening for extraneous detail, I'm not worried about whether the bass has too much bloom or whether the horn section has too much rasp. In fact, I may even stop buying hi-fi mags now! Well maybe not.*

*I will change the Technics arm and I'll probably buy a modern take on the BBC type speaker - maybe Spondors - but that will be it. You never know, I may even adopt the same strategy with relationships - I wonder whatever happened to what's her name?*

*Regards,*

**Geoff Fielding**

**CABLES**

*Please can you answer the following question regarding the appropriate level of money to spend on cables when assembling a hi-fi system. There seem to be two schools of thought as regards to*



**Geoff Fielding went back to his first love, an Exposure Super VIII amplifier, and has been happy ever since.**

an appropriate level of funds to assign to cables. those being :-

1) I spend no more than 10% of the hardware budget on cables. as a result, if you have a system comprising of a CD player, amplifier and speakers each costing £1000, spend no more than £300 on interconnects and speaker cable or you are wasting money that could go on better hardware.

2) There is no limit to how much to spend on cables as better, more expensive designs preserve the signal they are passing along to each hardware component, hence if you want to hear more of what your CD player is reading off a CD, then the use of a better interconnect cable will preserve the signal more faithfully hence allowing a better sound. This rule also therefore applies to better more expensive speaker cable.

Both theories have merit in that



**Paul Rigby says "start with Atlas (above), Tellurium Q and Black Rhodium" when experimenting with cables for your system.**

the 1st 10% rule could be valid if the difference between costlier cables may be so small that indeed it may not be a cost effective way of spending hi-fi upgrade funds. The second 'cost no object' approach however does seem logical as regards to preserving the audio signal. It also makes sense not to upgrade hardware if cheap, inferior cables have been used which only allowed the user to hear a fraction of the performance that their current kit is capable of.

Therefore who is right? Should the 10% rule be more like 50% ?

As a result I would be grateful for any advice regarding this subject and therefore thank you in advance for your reply.

best regards

**Michael Farrow**

Hi Michael. The trouble with 'schools of thought' is that they assume blacks and whites in a market which is overwhelmed with greys. Cables (along with shelving, isolation and mains solutions) are too often deemed an afterthought, largely because they are bereft of switches, flashing lights and moving parts. Yet, they are just as - if not more - important than principle components. If you sort these 'ancillary' areas correctly, you remove a series of very large sonic bottlenecks, reduce distortion and allow your ears to truly hear your hi-fi for the first time.

Allow me to add a third theory, therefore. Pack up your hi-fi, travel down to your nearest dealer, ask him to connect increasingly more expensive cables to your system - start with Atlas, Tellurium Q and Black Rhodium I suggest - and,

a signal but does the sound little favours, probably contributing to the reputation that they seem to have acquired for being a bit soft sounding. Mine are wired with mains leads made by Isotek, fitted with the miniature Bulgin plugs that Quad used for the mains input. The interconnects are Atlas Electra, which I got them several years ago. These were custom made, being fitted with phono sockets at the pre-amp end and four pin DIN plugs at the amp end. The cables greatly exceed the value of the amplifiers but the results are worth every penny, with the vague cloudy sound gone and a very open, tonally rich, and better timed one taking its place.

I would recommend including mains leads, and preferably a mains purifier in your budget. With the advent of modern switch-mode power supplies being fitted to everything from computers to fridges, mains borne noise is now a major hindrance to your audio equipment's performance. There are also RFI (Radio Frequency Interference) issues nowadays, caused by wi-fi transmitters, mobile phones and the plethora of electronic gadgets that are deemed necessary to modern living.

Removing this pollution through a combination of properly screened cables and mains purifiers will have the most amazingly beneficial effects on the sound coming from even very elderly or modestly priced components.

I don't think that there is a fixed percentage ratio of equipment versus cabling that should be adhered to. I would quite honestly recommend spending as much as you can on the cables, with the knowledge that as other components get upgraded, high quality cables will transfer to the new components and help to extract the best available performance from them.

I honestly believe that due to poor cabling a lot of listeners never actually get to hear the full potential of the systems, and that cables should not be regarded as accessories but vital components in their own right. After all, they carry the fuel (electricity) into the system, and transmit the signal between the units. Get this wrong and the most expensive and capable hi-fi will sound at best uninspired, and at worst, unlistenable to.

**TB**

when you have stopped hearing improvements, then the cables are no longer the bottleneck in your system. And if you can't afford those cables? Then you've just discovered your new upgrade path. **PR**

Hi Michael. I am a firm believer in spending as much as you can afford on interconnect and speaker cables. Over the years I have tried wiring systems with cables at various price points and have consistently found that the better the cable, the less it inhibits the flow of the electrical signal, resulting in better sound quality, regardless of the cost of the partnering equipment.

A good example of this are my Quad 303 amplifiers. The original cabling, as supplied by Quad, carries



# Filter to taste

**Audiolab's M-DAC digital convertor has more features than a Sunday newspaper supplement. It's better entertainment too, says Jon Myles**

**A**nother day, another DAC. It's not quite accurate that a digital convertor is being released every day but it certainly seems they are. The growing importance of computer-based music and digital downloads drive the trend.

Which makes sorting the wheat from the chaff ever more important; when one pops up from Audiolab it demands serious attention.

The company has forged a considerable reputation for its digital products in recent years, due to the influence of designer John Westlake – the man responsible for the DacMagic which caused such a stir

when it first appeared.

To say the M-DAC is a fully-featured affair would be something of an understatement. It can handle up to 24bit/192kHz resolution files, boasts seven user-selectable digital filters, a display which can output just about any piece of information you could wish for, a full range of inputs and even an output level control to enable its use as a pre-amp. Oh, and a remote control. With all this complexity a read of the instruction manual is recommended before switching on.

Out of the box it is a sturdy unit weighing in at 4.95kg. The front is dominated by a large rotary control

knob in the centre with the display at one side and four small buttons on the other for menu, input and filter selection along with the power on/off button and a headphone socket (which, incidentally, is powered by its own discrete circuit).

The rear contains both balanced and unbalanced stereo outputs together with a USB 2.0 input port and two optical and two coaxial inputs. There's also a set of S/PDIF optical and coaxial outputs should they be required.

Inside is a high-quality ESS Sabre32 9018 DAC chip, discrete transistor circuitry and copious power supply filtering. Audiolab also

says special attention has been paid to jitter attenuation to ensure all sources are optimally converted once they reach the DAC.

Power comes from a chunky wall-wart type external supply and a small but fully functional remote completes the package.

Setting up the M-DAC for use with a Mac and iPad was relatively straightforward and issue-free (OS 10.4.11 and above recommended). For PCs the Audiolab loads its own drivers – and there's a handy nine pages of instructions in the manual to make sure you can complete the necessary installation.

Once up and running the M-DAC is a breeze to operate. All settings can be accessed via the remote control while the front screen can display a whole wealth of information including nominal or exact incoming signal rate – which is useful for ensuring that high-definition is actually exactly what it says. It'll even display track and time information from a CD.

As mentioned above, the unit can also be used directly into a power amplifier, which might make a tempting proposition for some by taking one stage (and box) out of the signal chain. In this case the volume dial also doubles as a balance control. Alternatively volume and balance duties can be disabled for use into a pre-amp.

## SOUND QUALITY

With all the various filter and control options on offer it's difficult to know where to start when listening so I opted for Audiolab's own recommended Optimal Transient settings. The company says these provide the most natural and pure sonic performance if not the best technical specification.

Plugging in a MacBook Pro and trying a series of high-definition tracks from 24/96kHz upwards, the M-DAC shows that for all its technical complexity it is an assured and thoroughly musical piece of equipment.

Frequency extremes were well-extended, bass firm and assured without the slightest hint of overhang

while treble was sweet and open.

Detail retrieval was also exceptional. The Vince Guaraldi Trio's 'A Charlie Brown Christmas' in 24/192 from HDtracks showed the M-DAC's impressive qualities.

Guaraldi's piano was dynamic with a tremendously spacious presentation and the children's chorus comes over as refreshingly crisp with individual voices easy to delineate.

Switching between the three different Optimal Transient options revealed subtle shifts in the sound although there was no night and day difference.

Taken together they all sound mellifluous with an ever so slightly dark but very detailed sound.

Playing the same Vince Guaraldi Trio's tracks through the remaining four filter options (Sharp Rolloff, Slow Rolloff, Minimum Phase and Optimal Spectrum) showed much greater differences.

Optimal Spectrum, in particular, seemed significantly sharper and more transparent but became slightly more fatiguing over long-term listening while Slow Rolloff was less clean and clear but sounded smoother and more analogue in nature.

Interestingly, moving away from high-definition playback and onto plain vanilla CD and the effects of the filters seemed even more pronounced.

Here Optimal Spectrum gave the most obvious CD-like reproduction – albeit one of the best, rhythmically-assured and sure-footed you're likely to hear from a £600 DAC – while Optimal Transient added a palpably denser hue to the sound.

But that's the beauty of having the various filter options. Playing Keith Jarrett's 'Koln Concert', his solo piano seemed to have just a shade more body and solidity to it with the Minimum Phase filter selected, while Nick Cave's scabrous, growling vocals on 'The Curse Of Millhaven' sounded suitably doom-laden on Optimal

Transient.

In the end, choice of filter will depend very much on the quality of the recording and personal taste, which makes the M-DAC such a superb listening device.

Putting the various filter options aside, at its heart the Audiolab is a very accomplished music-maker.

It has a really bewitching quality with a solidity of sound that isn't always apparent with some rivals. One of its finest attributes is its ability to unravel complex pieces of music without ever sounding overly-analytical or losing the feel of the piece.

Play the dense cacophony of sound on John Coltrane's 'Ascension' via the M-DAC and it's possible to track the various players as they weave their individual paths through the piece.

Switch to Tim Hagans' 'Asiento' and the Audiolab lets you know all about the trumpeter's technical expertise and effortless command of his instrument's upper registers.

Definition over the entire frequency spectrum is admirably even-handed, meaning the M-DAC stays agile at all times. There is a real weight to the bass on the opening of The Pixies 'Debaser' yet when the chiming guitars kick-in the Audiolab shifts gear effortlessly as the pace of the music changes. There's masses of information here but the sound stays precise and controlled.



*The remote allows control of all functions*



*Digital filter selection is displayed on front panel. This is a 'slow' filter that gives best impulse response.*

You never get the impression the M-DAC is struggling in any area – whatever form of music you are playing. Even heavily-processed pop comes over with a certain deftness. Yes, you can tell it is heavily-processed but it remains listenable.

The M-DAC has that quality of allowing the listener to decide just how they want to hear their music; either sitting back and letting the sound wash over them or listening closely and attentively to the



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**A full range of inputs allows for connection to any digital source. There are unbalanced and balanced (XLR) analogue outputs. The power supply is external.**

individual elements in each piece. As a final point, most of the time the Audiolab M-DAC was used with fixed-volume output feeding a Naim pre-amp.

But engaging the volume control and feeding it straight into a power amplifier showed it was no slouch in this area too. The volume attenuation is nicely weighted and the sound retained its rhythmic propulsion and overall detail. At worst, it perhaps sounded a little more veiled at low volumes – but nothing that would negate against building a system from the M-DAC and a good power amplifier.

**CONCLUSION**

There is so much to like about the Audiolab M-DAC it's hard to know where to start.

Its huge feature count is an obvious asset. The various filter options really do help tailor the sound to the benefit of different recordings and delivery formats. Once you're used them it soon becomes obvious just how useful they can be even if you do settle on one for most listening sessions.

But this would be meaningless if, at heart, the Audiolab wasn't a very, very good DAC indeed. Which it undoubtedly is. Put simply, it revels in getting the best from whatever digital source you choose to use – whether that be CD, streaming or computer-stored files.

It has superb detail retrieval, excellent dynamics and an agile delivery while staying precise and controlled on even the most frenetic recordings.

Bass weight is well judged – being deep but never less than tuneful – while upper registers are clean and free from edge.

Add in ease of use, a fully-functional remote to enable control from your listening seat and the ability to act as a digital pre-amp and the Audiolab becomes an even more

tempting proposition. As mentioned at the start of the review, there's no shortage of standalone digital-to-analogue

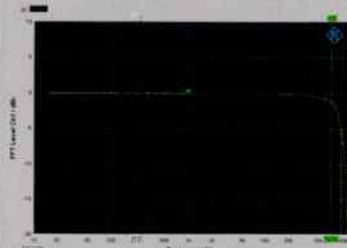
convertors on the market nowadays – but the M-DAC has to rank among the very best at or anywhere near its price. It comes highly recommended.

**MEASURED PERFORMANCE**

Frequency response of the Audiolab M-DAC measured flat from 4Hz to 72kHz (-1dB) with a 192kHz sample rate signal, at widest – meaning with the Minimum Phase filter selected. This applies only to the Coaxial electrical S/PDIF digital input, since the optical input worked to 96kHz sample rate maximum; it would not work with eight 176.4kHz or 192kHz sample rate, usually an optical receiver limitation.

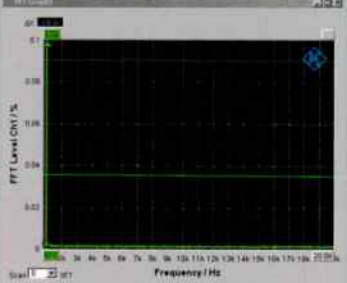
The seven filters split into categories and, interestingly, those Audiolab pick out as optimal are those I gravitate to as well. They are 'slow' filters that give least high frequency extension, but exhibit no pre-ringing and in use sound 'dark', or damped. They are the Optimal Transient set of three, in addition are the usual suspects, meaning Sharp, Minimal Phase and Optimal, all which find broad use because they don't limit hard fought for

**FREQUENCY RESPONSE 192k**



**DISTORTION, -60dB, 24bit**

THD at 0	Level (dB)	Frequency
0.0137%	6.3670 mV	0.9970 kHz
OFF	OFF	OFF



frequency response extension. However, even at 96kHz sample rate the audio band remains unaffected. The situation is different with CD however and 48kHz sample rate, where the Optimal filters will produce an obviously warm sound balance. In this circumstance Slow will likely sound darkest, but Sharp Rolloff and Optimal Spectrum will give familiar CD sound balance.

Distortion was low at 0dB, measuring just 0.002%. At -60dB the result was a low 0.013% with 24bit, through the XLR output at full gain (lowest noise). This is very good, amongst the best. Curiously, with 16bit distortion was on the high side, measuring 0.27%. This disparity affected EIAJ Dynamic Range values, which for CD (16bit) measured a poor 98dB, but with 24bit measured no less than 124dB, setting a new record, bettering even Teac's UD-501 DAC. The filters had no impact upon distortion, unlike those of the Teac.

Output from the unbalanced phono sockets measured 3.2V maximum, and from XLR 6.5V. Apart from this there was no difference between them.

The Audiolab M-DAC has a range of interesting filter options that will have more subjective impact than most, giving a variety of different sound balances. Distortion with CD was on the high side, a disappointment, but with high resolution was extremely low. **NK**

<b>Frequency response (-1dB)</b>	
CD	2Hz - 72kHz
Distortion	(%)
0dB	0.002
-60dB	0.013
Separation (1kHz)	121dB
Noise (IEC A)	-123dB
Dynamic range	124dB
Output	2.2/4.4V

**AUDIOLAB M-DAC**  
£600



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

**VERDICT**  
Excellent sound, a comprehensive feature count and impressive flexibility make the Audiolab a stand-out product at its price.

**FOR**  
- great sound  
- range of filter options  
- comprehensive remote  
- can be used as a digital pre-amp

**AGAINST**  
- nothing at the price

Audiolab UK  
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# All Bar one



**Martin Pipe examines two very different approaches to surround-sound from Yamaha, their RX-A830 AV receiver and YSP-3300 Soundbar.**

**N**ot so long ago, we tested the RX-A820 AV receiver. Now its identical-looking £900 replacement has arrived. And other than a few tweaks here and there, Yamaha tells me, little has changed. We'll discover if that's a good thing shortly.

One of the problems with traditional cinema and multi-channel music is that lots of speakers are required. In today's ever-shrinking homes, trying to find space for them is problematic. Furthermore, the vast majority of home cinema gear is – in musical terms – inferior to purpose-designed hi-fi systems.

Our second Yamaha product is a 'compromise' solution. Known as a 'Soundbar', it uses clever techniques (see 'How it Works' box) to yield a believable soundfield from a single loudspeaker box, when fed surround-sound. And it can be used for better sound, including surround-sound, from the TV.

But first, I'll look at their new RX-A830 AV receiver. Like its predecessor, it adheres to Yamaha's 'Aventage' school of design. That means a fifth stabilising foot for mechanical rigidity, carefully-selected components and attention paid to interior layout. You still get the generous complement of seven

HDMI inputs that accept DSD and are 3D-ready, plus another on the front panel. There are two HDMI outputs (for simultaneous connection of flat-panel TV and projector), 4k upscaling/passthrough, seven channels of amplification, FM/AM and digital radio tuners, music streaming and USB playback, oodles of 'Cinema DSP' magic and even a basic MM phono stage.

All of this is controllable via a handset that works a nicely-designed on-screen graphical user-interface, or a freely-downloadable iOS/Android control App. Oh, and networking is Ethernet only – unless you purchase an optional wireless 'dongle' that



plugs into the rear-panel.

As with what went before, the RX-A830 employs a supplied microphone to 'sound out' your listening room with a sequence of test signals – it then applies the necessary correction, courtesy of proprietary YPAO (Yamaha Parametric Acoustic Optimiser) algorithms. Installing the RX-A830 proved to be a hassle-free experience, while day-to-day usage is intuitive. Front 'presence' and rear-surround speakers – you have to choose between them – can augment the traditional 5.1 experience.

As an alternative, the spare pair of amplifier channels can bi-amp your front channels or drive speakers in another room from an independently-selected source. Thanks to this 'Zone 2' mode, you could for example enjoy music (or radio) in the kitchen with 'in-ceiling' speakers.

In addition to all those HDMI ports and the phono stage, you

receiver's audio system.

Perhaps rather more importantly, its high-definition audio capabilities have been boosted. Maximum resolution 24/192 WAV and FLAC audio files can now be played from networks or USB.

Also on the audio front is virtual surround DSP. A spinoff from Yamaha's Soundbar programme, I was told, this is intended to deliver a believable surround soundfield from just the front speakers (why you'd want to do this after spending all that money on a multichannel receiver is anyone's guess!).

Apple devotees will relish the improved support that the iPad has now been given – digital docking (i.e. transfer of audio via USB) and song-title display.

## PERFORMANCE

Then there are the changes 'under the bonnet'. Yamaha's 'inside man' assured me that the electronics have

As before, the onboard MM preamp, no doubt implemented with a cheap op-amp, is no substitute for a decent phono stage. It pays only lip-service to vinyl's potential, even with a modest Technics SL1210 equipped with Philips GP422 cartridge and the DSPs turned off (Pure Direct mode). The soundstage was rather congested, and Candy's Room (from Bruce Springsteen's *Darkness on the Edge of Town*) was bestowed with a rather forward and aggressive edge. The LP's next track - *Racing in the Streets*, a simpler piano-led number – fared better. A notable upper-bass colouration adds a certain warmth to vocals; if the Pure Direct mode is however replaced by the DSP-driven 'straight' mode then an obvious boxiness is audible. The sound is thicker too, and there's a definite masking of fine detail. In straight mode, though, your sub is active (depending on your speaker setup) and you gain access to an effective



**Behind the RX-A830's front-panel drawbridge. The MHL-compliant HDMI port will go down a treat with gamers, smartphone addicts and camcorder-totin' home moviemakers. Audiophiles will make a beeline for the USB port - which supports 192/24 PCM or FLAC audio files.**

get four digital audio inputs (two optical), two audio-only analogue inputs and two AV inputs with component/composite connectivity. All of this can be flexibly-configured, and analogue video is converted to HDMI. However, as before there's no dedicated tape loop or digital audio output.

All rather familiar. So where are the differences? For a start, the front-panel HDMI port now supports the MHL (Mobile High-definition Link) protocol. In practical terms this means the RX-A830 will let you experience full-HD video and multi-channel/stereo audio stored on a smartphone (which also needs to support MHL) with your TV and the

been 're-routed' and refined to yield better sound quality.

Let's start with the analogue embellishments. The 40-preset FM/AM tuner incorporates RDS, and is equivalent in performance and features terms to the kind of 'separate' that Japanese majors would sell for £100 or so fifteen years ago. It's reasonably good at pulling in signals, but presents you with a rather upfront sound from most broadcasts. With FM stations that actually bother to pay attention to audio quality (e.g. Radio 3), more of the subtleties – and a reasonably-believable soundstage – are apparent, as a listen to the summer's first 'Holst Prom' demonstrated.

compressed-music enhancer.

Although the Pro-Logic II mode is useful for excavating Dolby surround-sound from two-channel sources like digital TV and archive media like VHS hi-fi tapes and laserdisc, the real DSP 'killer app' is Yamaha's exclusive venue-emulating soundfield modes. Party Mode squashes the dynamic range, engages all channels and adds artificial 'excitement' to your music. A Philips LP containing a recording of Mozart's Piano Concerto 21 (LSO/Rowicki/Haebler) was then treated to the 'Hall in Vienna' DSP. The simulated acoustics add a moderately-reverberant spaciousness to the music, giving it a 'live' feel. One

would like to imagine that the Vienna hall in question played host to one of the original 18th-century performances, possibly with Mozart himself in attendance, but as Yamaha doesn't reveal the specific venues that's nothing more than a flight of fancy.

The 'vTuner' Internet radio facility is a definite boon, and some of the stations on offer benefit from excellent sonics. Although you can add 'bookmarks' to your favourite stations, doing so requires a web browser. And while stations are listed by genre or location, there's no 'search' facility. Napster subscribers will be pleased to learn that their streaming service is supported. Apple AirPlay is too, which is more than can be said of the Onkyo competition. Windows and Linux users can stream music from DLNA servers, or play music from USB. The player dealt with everything I threw at it, from MP3s to a painstaking

24/96 FLAC 'rip' of the original Columbia Miles Davis' 'Kind of Blue' LP. The latter classic played perfectly with no streaming 'glitches', and the RX-A830's innate warmth if anything complemented the music.

Talking jazz takes me to the receiver's surround-sound performance, on movies as well as music. Spinning an old favourite – The Matrix, on HD-DVD (remember that?) – makes for an immersive experience. Yes, there's the usual high-octane action. This is impeccably-steered, demonstrating a good use of the various channels – and the explosions show that the subwoofer is properly-controlled. A slight glassiness was evident on occasions, notably when spent cartridge shells were being ejected. But a more subtle scene (when Neo meets the Oracle) makes good use of background ambience. Some classic jazz plays in the background.

Not only can you pin-point where it's coming from, but you can recognise it as Duke Ellington's 'I'm Beginning To See The Light'.

An SACD of Elton John's Goodbye Yellow Brick Road also shows off the RX-A830's surround prowess, the extra channels giving new depth to tracks like Benny and the Jets.

**CONCLUSION**

Yamaha may claim that tweaks to the RX-A830 have resulted in an improvement to sound quality, but I'm not convinced. Certainly as far as I can recall the RX-A820 wasn't as 'boxy' in its DSP modes, delivering a more neutral presentation with music with the same Rogers GS6/GS5/C33/ASB60 speaker system. On the plus side, the new model is a great movie performer – and the ability to handle high-res FLAC files is beneficial.

**MEASURED PERFORMANCE**

The RX-A830 produced 144 Watts into 8 Ohms and 225 Watts into 4 Ohms, so it's powerful and will go loud. The chassis remained cool under test. With a damping factor of 34 the amplifier will maintain good bass control and likely have quite dry bass.

Distortion was low, measuring 0.08% at 10kHz, delivering one Watt into a 4 Ohm load. Harmonics were extended though, this being classic crossover distortion, our analysis shows. There may be a hint of sharpness in the sound from this, but it will be small.

Frequency response was wide, measuring 2Hz-120kHz with Pure Direct selected to bypass the input Analogue-to-Digital Converter (ADC). The input ADC limits bandwidth to 24kHz (48k sample rate) by sharp anti-alias filtering and overloaded at 2.6V in, so it just has enough headroom for the analogue output of a CD player. Noise from the ADC was relatively low at -94dB but distortion at -60dB on the high side at 0.6%, third harmonic. With analogue inputs Pure Direct is always best used to avoid the ADC, an all receivers.

The S/PDIF digital inputs, both electrical and optical, accepted up to 192kHz sample rate, with up to 24bit resolution. Frequency response measured flat to 61kHz and distortion low at 0.12% at -60dB with 24bit digital, a good result. EIAJ Dynamic Range was 107dB with 24bit and 102dB with 16bit, both good values, so the Yamaha has a good on-board DAC.

The VHF/FM tuner measured well, having a frequency response that rolled down slowly from 4kHz upward, just enough to give a smooth sound. With treble -1dB at 10kHz it will not sound warm however. Full quieting (minimum hiss) occurred at 0.95mV and stereo sensitivity was high at 19µV.

The phono stage was accurately equalised up to 20kHz, and gain rolled down below 20Hz to give some small attenuation to warps, level being -3dB at 5Hz. Sensitivity was normal at 5mV for an MM cartridge and overload satisfactorily high at 80mV. Hiss was low at -76dB, noise from the cartridge swamping this.

The Yamaha RX-A830 measured well all round. It has no weak spots, although the amplifier had more crossover distortion than some. Balancing this the digital stages worked up to 192kHz sample rate and both the VHF/FM tuner and phono stage were accurate in equalisation. **NK**

**Power** 144watts  
**CD/tuner/aux.**  
**Frequency response** 2Hz-120kHz  
**Separation** 91dB  
**Noise** -101dB  
**Distortion** 0.07%  
**Sensitivity** 260mV  
**Damping factor** 34

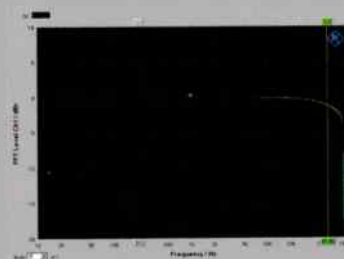
**PHONO (LP)**  
**Frequency response** 24Hz-20kHz  
**Separation** 72dB  
**Noise** -76dB  
**Distortion** 0.007%

**Sensitivity** 5mV  
**Overload** 80mV

**S/PDIF (24/192)**  
**Frequency response** 2Hz-61kHz  
**Distortion (-60dB)** 0.12%

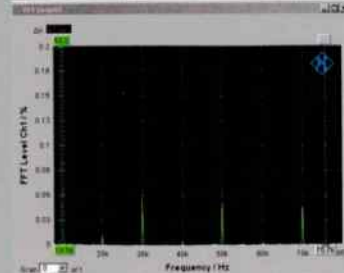
**VHF/FM**  
**Frequency response** 35Hz-10kHz  
**Separation** 46dB  
**Noise** -69dB  
**Full quieting at** 0.95mV  
**Distortion (50% mod)** 0.08%

**FREQUENCY RESPONSE S/PDIF**



**AMP DISTORTION, 10kHz, 1W**

THD+N	0.0818 %	2.0452 V	10.000 kHz
OH	OFF	OFF	OFF



**YAMAHA RX-A830 £900**



**GOOD - worth auditioning**

**VERDICT**

Music suffered a little from colouration, but the rather more obvious artificiality of movie soundtracks was done full justice by the RX-A830.

**FOR**

- good movie performance that harnesses surround-sound potential
- well-featured
- Yamaha's DSP modes unmatched
- hi-res FLACs and Internet radio

**AGAINST**

- veiled detail and DSP 'boxiness'
- no digital output for recorders, etc.

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# More sound, less speaker?



**Martin Pipe examines Yamaha's YSP-3300 Soundbar, an alternative to multiple surround-sound 'speakers.**

**S**oundbars are designed to sit below a widescreen TV, giving better sound than that possible from the TV's own small, flat stereo loudspeakers. Cleverly, they have also been equipped with sound steering technology, enabling them to deliver surround-sound into a room, from TV (rare), Blu-ray or DVD.

To do this Yamaha licensed One Limited's focused-beam 'digital sound projection' technology – discussed in the boxout on page 36. From a single box, listeners can enjoy a pretty good emulation of multichannel sound with none of the domestic complications associated with 5.1 or 7.1 speaker setups driven by AV receivers. The Soundbar offers a clever alternative

to a full surround-sound system in effect, one that's very room friendly.

The latest distillation of Yamaha's work can be found in the YSP-3300 reviewed here – and its bigger brother, the YSP-4300 that adds an FM tuner and USB playback, plus 22 beam drivers instead of 16.

The bar is placed under a screen or on a wall (with an optional bracket). An accompanying wireless subwoofer covers the lowest frequencies; mid-range is handled by a pair of 6.5cm drivers built into the Soundbar.

Like an AV receiver the £1,000 YSP-3300 also acts as an HDMI switching centre, passing the selected video to your TV while 'picking off' the audio for the loudspeakers. Two

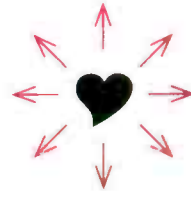
optical digital inputs, and an analogue one, are provided too, so outside items, like CD player or tuner can be connected.

A wireless 'dongle' allows music from iPods to be played. The latter also has a USB port that, when connected to your computer system, allows it to act as a 'virtual soundcard'. You can then listen to your audio with existing applications like Winamp, VLC and iTunes. With this in mind, the YSP-3300's compressed-music enhancer could be useful.

Another similarity with Yamaha's AV receivers is a microphone-driven auto-calibration system. 'IntelliBeam' is, if anything, even more essential here bearing in mind the unusual nature of the system. The supplied microphone fits into a cardboard stand that can be positioned in different areas, and



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Analogue and digital inputs are provided, so external sources like CD player or tuner can be connected. HDMI inputs cater for Blu-ray and DVD players. The HDMI output to the TV carries an Audio Return Channel (ARC) so TV sound can be fed to the Soundbar, but the TV must have ARC too.

the calibration results placed into one of three memories selected via a pleasantly-designed handset. This function is very useful, as it means that listening can be optimised for specific locations within the room. Changes can be made, and it's easy to adjust levels and 'play with the beams'. In addition to the usual standard and high-def Dolby and DTS decoding modes that you would normally associate with AV receivers are Pro-Logic II and a handful of the venue-simulating DSP modes that define one of Yamaha's major contributions to the field.

Considering the complexities and compromise nature of this product relative to multi-speaker arrangements, the YSP-3300 acquitted itself well sonically – certainly with Blu-ray movies like Transformers

(I was using a Cambridge 751BD Blu-ray player for playback). An enveloping soundfield is created in the listening position, and it's retained (within reason) even if you move around. In other words, everyone sitting on a sofa should enjoy the experience. Ambient scenes don't however benefit as much as the impressively-rendered 'gung-ho' action sequences; a mild colouration can affect vocals (notably centre-channel dialogue) although intelligibility is never lost. Until, that is, you play the system too loud – then obvious strain sets in. But by its very nature the YSP-3300 is intended for environments that lack space.

So far, on the whole, so good – especially considering that there's no need to worry, sub apart, about installing speakers. In the interests

of maintaining excitement, movie soundtracks tend to be bombastic, exaggerated and forward. Music is rather more revealing of absolute performance; here, you get an enjoyable if not particularly detailed presentation. The YSP-3300 cannot decode DSD streams, but will give you multi-channel music from such sources if your player is set to PCM output. The atmosphere of 'Funeral for a Friend' that opens Elton John's Goodbye Yellow Brick Road was portrayed well, but when the song segues into Love Lies Bleeding the aforementioned midband colouration spoils John's voice. With two-channel material, the soundstage seemed rather artificial relative to my Naim Nait 3-based music system, which also 'filled in' more of the musical subtleties.

### SOUND STEERING HOW IT WORKS -

Back in 2004, Pioneer – one of the leading proponents of plasma flat-panel displays – introduced a matching audio system. Weighing in at 50kg, the £25,000 PDSP-1 'digital sound projector' was a revolutionary product. At that time, a conventional 5.1 speaker system was needed to reproduce multi-channel audio from DVDs. The 'aspirational' PDSP-1 could do the same thing from a single five inch-thick panel that typically sat under the screen.

On its surface were no fewer than 254 tiny drive units, each powered by its own PWM amplifier. These were driven by some cutting-edge DSP, and contributed to the generation and steering of up to seven individually-focused sound 'beams' that were aimed either directly at the listener or reflected off walls. Listeners gained the impression that sound was coming from all around them. So effective was the illusion that you would jerk your head around, looking behind you for 'speakers' that weren't there.

It may have been a Japanese product, but making the whole thing possible was British 'phased-array beam-forming' technology – from a company called 1 Limited (now Cambridge Mechatronics). The PDSP-1 may have worked very well, but its stratospheric price ensured that few were sold. Not long thereafter, Pioneer arch-competitor Yamaha stepped in and acquired a 1 licence. Its digital sound projectors were considerably cheaper than Pioneer's, using fewer transducers. Yamaha's extensive DSP experience must have come in handy too.

The YSP-3300 tested here employs an array of only 16 'beam drivers', flanked by two mid-range drivers and reinforced by an external subwoofer. Whereas the Pioneer needed 254 drive units to cover the audible spectrum, the Yamaha is able to make do with fewer, because conventional drive units handle lower frequencies – where less 'directivity' is evident. As with the digital sound projection concept itself, it's a compromise – but a very clever one.



**YAMAHA**  
YSP-3300 £1,000



**GOOD - worth auditioning**

#### VERDICT

I wouldn't want to use the YSP-3300 exclusively for music listening, but it will convert the HD-ready flat-panel TV and Blu-ray player of your lounge into a space-efficient home cinema of good potential. You can then keep your 'listening room' as it is!

#### FOR

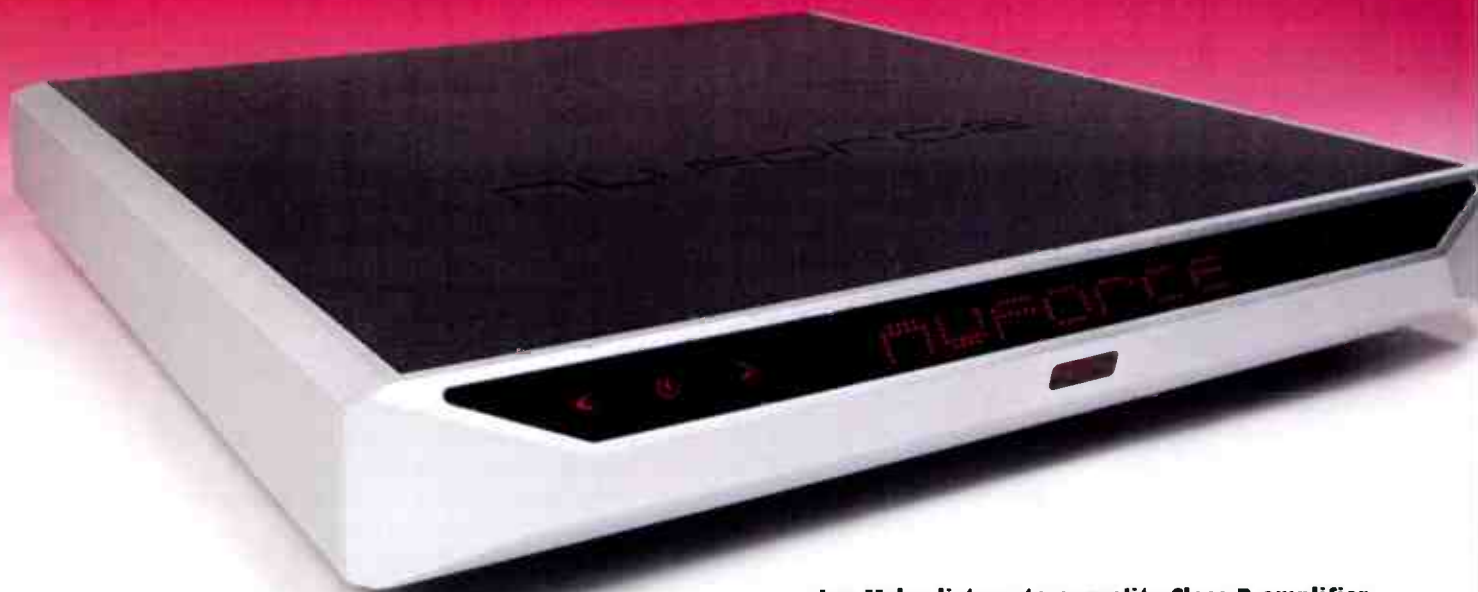
- the only external speaker you'll need to worry about is the supplied sub!
- a decent performance from movie soundtracks
- Dongle-driven wireless music capabilities of practical value

#### AGAINST

- no network audio playback
- music reproduction lacks finesse and believability
- midband 'boxiness' can colour vocals

Yamaha  
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<http://uk.yamaha.com/>

# The Nu Sound



**Jon Myles listens to a quality Class D amplifier, the NuForce IA-18.**

**N**uForce has built a strong reputation for good-sounding Class D amplification.

While this mode of operation has had a rather mixed history in hi-fi circles, there's no doubt when done well it can sound impressive. Indeed NuForce's Reference 9SE V2 monoblocks feature in this very magazine's World Standards section. Since then the company has updated its V2 power modules to V3 status – two of which feature in the IA-18 integrated.

NuForce say they are capable of outputting 135 Watts into 8 Ohms, rising to 235 Watts into 4 Ohms and 335 Watts into 2 Ohm loads. Out the box, it's certainly a distinctive-looking unit – standing just 2 inches tall and housed in a sand-blasted black or silver anodized case. It does, however, stretch back some 16 inches which negates the slimline profile and may cause a problem on one or two hi-fi racks.

Inside the case NuForce says the IA-18 draws on the design of the company's P-20 flagship pre-amplifier. It features five line inputs – each of

which has its own volume adjustment for precise level matching between sources.

Volume control is via a thin-film switched-resistor ladder network, meaning that only a single resistor is ever in the signal path at any volume setting. Some 99 increments of 0.5dB each are available.

The Cross Matrix Array capacitor module between the pre and power sections is said to deliver clean DC to enable the power amps to drive almost any loudspeaker with absolute authority and harmonic integrity. Control is via touch-sensitive pads on the front panel which take a little getting used to, but once mastered are relatively straight-forward. Alternatively, there's the unusually shaped wand-like remote control, which is a model of simplicity and good design.

## SOUND QUALITY

NuForce claims any listener will be impressed by the IA-18's crystalline,

fatigue-free and holographic soundstage, coupled to exceptional detail retrieval. For once, that's not just manufacturer's hyperbole. Hooked up to a pair of Q Acoustics' little Concept 20 standmounts the NuForce produces a clean, clear articulate sound.

There's a crystalline clarity to its presentation that makes Nils Lofgren's guitar strings really zing on 'Keith Don't Go'. It's a fine recording and the NuForce allows you to hear just how good it is.

That clarity – allied to the ample power reserves – means



**Wand-style remote is intuitive and easy to use**

it's easy to push up the volume without the sound congealing.

It also means detail lovers will find plenty to like. The NuForce allows you to hear into complex mixes with ease.



Five RCA inputs offer balance-matched volume.

On Ornette Coleman's 'Free Jazz' it's immediately evident you are listening to two separate jazz combos – one through each speaker. Some lesser amplifiers can reduce this record to a cacophonous sludge but the NuForce picks it apart with aplomb.

Compared to my reference SuperNait there's a little more spaciousness around individual notes but perhaps less of the Naim's rhythmic drive. The IA-18 doesn't push the music along in quite the manner of Salisbury's finest but it does let you hear more of the nuances of individual players. Some may level the accusation of a lack of character – but it's more the NuForce not imposing its own sound on the music.

One aspect of this is a seemingly lower noise floor. Orchestral crescendos on the Oregon Symphony's 'Music For A Time Of War' hit you with tremendous power – starting and stopping with alacrity.

Switching to a pair of Spendor SP100Rs and this slimline integrated showed it could really shake a room. Jah Wobble's bass lines on 'Passage To Hades' thundered out, the big Spendors seeming to love the clean power delivery on offer.

The 99-step volume control also works extremely well, allowing easy incremental adjustments. Admittedly, some may find the presentation a little dry for their tastes but it never sounds less than accurate. And it does translate to almost see-through imaging on the right recordings.

Close your eyes and Sinead O'Connor could almost be in the room on her Sean-Nos Nua collection.

**CONCLUSION**

Those with reservations about Class D operation could find themselves taken aback by this NuForce integrated. It really does seem to have distilled the advantages while avoiding many of the drawbacks.

It stays cool, has masses of power in a slim chassis but stays clean and clear even when you push the volume up to neighbour-annoying levels.

"close your eyes and Sinead O'Connor could almost be in the room"

Yes, some may prefer slightly more 'character' in their amplification but that would miss the point. The NuForce sets out to reproduce exactly what's on your discs or downloads with nothing added or

taken away and does a damn fine job of it.

Add in its distinctive looks and commendable build quality and the NuForce is an amplifier definitely worth being heard.

**MEASURED PERFORMANCE**

The IA-18 produced 112 Watts into 8 Ohms and 210 Watts into 4 Ohms. It ran cool during tests, displaying a benefit of Class D. All loudspeaker terminals were at +24V above ground (common mode offset), a drawback of some Class Ds. However, differential offset – the voltage between the terminals, as seen by a loudspeaker – was 12mV (R ch) and 74mV (L ch). The latter is a bit high, putting 19mA through the loudspeaker, but it's no disaster.

Frequency response can vary substantially upon load in Class Ds, due to their output filter network. The IA-18 was relatively stable here though, treble above 20kHz peaking slightly

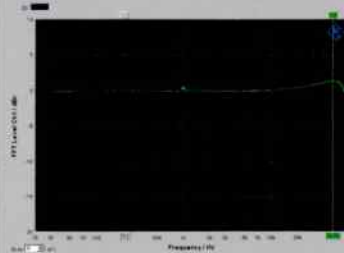
(+2dB) into an 8 Ohm load and less so (+1.2dB) into a 4 Ohm load. Since the lift starts at 10kHz there may well be an audible sheen to treble, or even obvious brightness. At the other end of the spectrum a high pass filter attenuates subsonics below 20Hz. In all then, the IA-18 is likely to have a dry and light balance. A high damping factor of 53 will keep good control of lightly damped loudspeakers, but may sound bass-dry on well damped ones.

Distortion levels on NuForce Class D amplifiers have always been low and that was the case with this amplifier. The midband was very clean although what little distortion that was produced (0.1% or less) had an extended harmonic structure. At high frequencies distortion rose to around 0.16% except at high powers, where a high 0.4% was reached, again with an extended harmonic structure. In all the IA-18 should sound clean, providing it isn't run close to full output.

Input sensitivity was a tad low at 450mV – fine for most sources, except low gain phono stages.

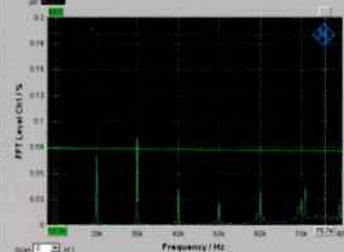
The IA-18 measures well as Class D goes. It's size somewhat negates a primary advantage of Class D; Class A/Bs can deliver similar power from a smaller case, but otherwise the IA-18 works well. NK

**FREQUENCY RESPONSE**



**DISTORTION**

THD at 10%	Level (dB)	Frequency
0.1602 %	2.1177 V	10.000 kHz
OFF	OFF	OFF



Power	112watts
Frequency response	15Hz-28kHz
Separation	92dB
Noise	-106dB
Distortion	0.16%
Sensitivity	460mV
Damping factor	53

**NUFORCE IA-18**  
£2,899

OUTSTANDING - amongst the best

**VERDICT**

A very impressive integrated amplifier from NuForce. Bags of detail, clean sound and fantastic imaging. Definitely worth hearing.

**FOR**

- power
- very clean sound
- detail
- slim

**AGAINST**

- deep chassis
- dry quality

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# Platinum series



QUAD's reputation as a manufacturer of hi-fi products that deliver musical accuracy through technical prowess is legendary and is nowhere more evident than in the Platinum series of components. Platinum is the pinnacle of QUAD design, a series of CD/DAC Pre and Power amplifiers that provides everything you need, bar the loudspeakers, to replay music recordings as they were meant to be heard – naturally. Platinum is the flagship of the QUAD range, a new set of electronics from a brand that has been famous for quality amplification since 1936. Like all QUAD designs, Platinum's purpose is the 'closest approach to the original sound' – in Platinum's case closer than ever before.





## WIN A TIMESTEP T-01 MC MOVING COIL PHONO PREAMP WORTH £995 IN THIS MONTH'S GREAT GIVEAWAY!

**H**ere's your chance to win the superb T-01 MC Timestep moving coil (MC) phono stage we reviewed in our April 2013 issue.

Timestep are more recently known in the audio field as developers and manufacturers of power supply units for the Technics SL1200 series of turntables. This is their first commercially available phonostage, although owner, Dave Cawley, told me that he built his first one as far back as 1981, to partner a Dynavector Ruby Carat cartridge.

Several designs later, the T-01 MC became a reality, boasting

discrete dual mono circuits fed by a custom made toroidal transformer. RIAA equalisation is passive and gain provided by four Toshiba FETs (Field Effect Transistors) per channel. The signal inputs via lossless gold plated PTFE input connectors and by a Dale CMF55 input matching resistor. Resistance is factory set at 100 Ohms, which matches most modern moving coil cartridges. Other values can be provided on request. Dave says that this resistor, and the Wima polypropylene RIAA capacitors, were the two most sonically influential choices of component in the finished design.

The power supply uses four Shottkey diodes made by Vishay, and

is accessed by an IEC socket at the back right of the casework. Between this and the four gold plated phono sockets for the signal, is a Ground Lift switch. This disconnects the internal electronics from the earth, should an earth loop be causing hum, but keeps the chassis earthed through the mains for safety.

The slim casework (measuring 445 x 310 x 48mm, w x d x h) is made from high grade aluminium, finished in black. The only control is the power-on knob on the front left, which is accompanied by an orange LED, that is set to glow gently, not light the room up like a stage set.

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 October 2013 to:

**October 2013 Competition,  
Hi-Fi World magazine,  
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Kilburn Park Road,  
London NW6 5LF**

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### QUESTIONS

**[1] What is the case made of?**

- [a] plastic
- [b] tin
- [c] cardboard
- [d] aluminium

**[2] Is RIAA equalisation -**

- [a] active
- [b] passive
- [c] non-existent
- [d] inverted

**[3] Who makes the Shottkey diodes?**

- [a] Fred
- [b] Jim
- [c] Mavis
- [d] Vishay

**[4] The Ground Lift switch eliminates -**

- [a] Hum
- [b] Mice
- [c] Bad smells
- [d] Wow & Flutter

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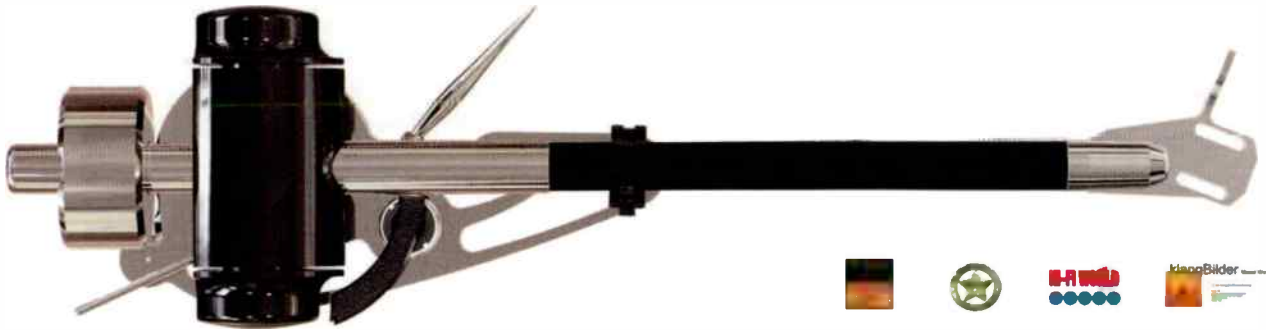
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# WORLD STANDARDS

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

## TURNTABLES

### REGA RPI 2010 £225

Pleasing sound, fine build and ease of set-up and use make this a great first 'real' hi-fi turntable.

### REGA P2 2008 £300

Excellent value for money engineering, easy set up and fine sound.

### REGA P3-24 2008 £405

Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

### 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.

### FUNK FIRM VECTOR II 2009 £860

Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.



### MICHELL GYRODEC SE 2005 £1,138

Design icon with superlative build and finish. Sound is beautifully smooth, effortless and exceptionally expansive. No longer peerless at the price, but still a brilliant platform.

### MARANTZ TT-15S1 2005 £1,299

Cracking all in one deck/arm/cartridge combination, this must surely be the best sounding 'plug and play' package at this price point.

### ROKSAN RADIUS 5.2 2011 £1,450

Although getting expensive, the latest Radius is a highly grown up package with a flowing yet engaging nature; a fine package.



### AVID DIVA II SP 2010 £2,000

New twin belt drive and power supply make this a more commanding performer, although there's a substantial price hike. Speed, dynamics and detail are hard to beat anywhere near the price.

### INSPIRE ECLIPSE Sev2 12 2010 £2,349

Finely engineered, smooth and detailed sounding deck offering valuable twelve inch tonearm compatibility.

### NOTTINGHAM ANALOGUE HYPERSPACE 2010 £2,390

Deliciously spacious, lyrical and beguiling sounding turntable, but lacks ultimate grip.

### 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.

### DR FEICKERT WOODPECKER 2010 £3,445

Elegant deck with great low frequency solidity, coherent soundstaging and a precise midband.



### LINN LP12SE 2010 £3,510

Surely hi-fi's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel subchassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive, though.

### ACOUSTIC SIGNATURE STORM 2011 £3,612

An excellent high end design with a smooth, solid, open and lyrical sound and razor sharp styling and build.

### FLETCHER AUDIO OMEGA .5 2010 £3,699

Charming high end turntable that's a fitting testament to the late Tom Fletcher.

### PALMER 3 2010 £3,750

Eccentric hand built high end turntable with a pleasingly smooth, sweet and lucid sound.



### E.A.T. FORTE S EVO 12 2010 £4,750

Excellent premium price turntable with power, precision and passion aplenty, but relaxed and easy going by nature too. Great value package with the Pro-ject Evo 12" arm option.

### 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...

### SME MODEL 10A 1995 £4,556

Exquisitely engineered deck and SMEV tonearm combo that's an extremely accomplished performer with classical music.

### AVID VOLVERE SEQUEL 2007 £4,600

Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Exceedingly neutral yet powerful sound is edge-of-the-seat stuff.

### BRINKMANN BARDO 2010 £5,845

Unique high end direct drive turntable with amazing grip and focus, albeit not the most romantic of natures.



### McINTOSH MT10 2008 £8,995

Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

### 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.

### 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 counterweight modification.

### MICHELL TECNOARM A 2003 £442

The late John Michell's clever reworking of the Rega theme, using blasting, drilling and rewiring! Surely the best overall performer under £500.

**ORIGIN LIVE SILVER 3C** 2010 £599  
Excellent mid-price tonearm with a clean and open yet lyrical sound.



**HADCOCK GH-242 EXPORT** 2010 £770  
Consummately musical, lyrical sounding tonearm, but needs the right turntable. Excellent value.

**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.

**FUNK FIRM FXR II** 2010 £1,175  
Clever reworking of the ubiquitous Rega platform, the FXR II gives a wonderfully musical, almost unipivot like 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.

**NAIM ARO** 1987 £1,425  
Charismatic unipivot is poor at frequency extremes but sublime in the midband; truly emotive and insightful.

**HELIUS OMEGA** 2008 £1,595  
Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

**SME SERIES IV** 1988 £1,620  
Offers nine tenths of the SME V's magic at just over half price. Exquisitely built and finished, and a design classic. Faces stiff competition these days, but lovely nevertheless.

**SME 312S** 2010 £1,750  
Twelve inch magnesium alloy armtube plus SME V bearings makes an impressive transcription tool with an insightful yet composed sound. Superlative build completes the package.



**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.

**SME SERIES V** 1987 £2,389  
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

**LINN EKOS SE** 2010 £3,700  
Subtle mods over the years, including revised bearings and the recent new wiring has kept it a serious contender in the superarm stakes. Has a commanding musicality all of its own.

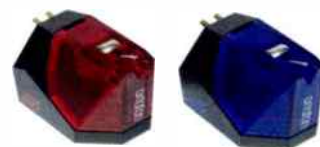
**OL ENTERPRISE 3C** 2010 £4,500  
Few if any pivoted arms come close to this arm's combination of liquid musicality and forensic grip.

**CARTRIDGES**

**AUDIO TECHNICA AT-95E** 1984 £25  
Great starter cartridge that's detailed and musical beyond its price. Superglue the stylus in for better sound!

**AUDIO TECHNICA AT-F3/III** 2010 £189  
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

**ORTOFON 2M RED/BLUE** 2007 £60/£120  
Modern, high resolution budget moving magnets that are always an engaging listen.



**GOLDRING G1042** 1994 £239  
One of the best MMs going, with sweet and extended treble and punchy, muscular bass.

**ORTOFON VIVO BLUE2011** £275  
Super new budget moving coil cartridge from respected Danish manufacturer; a real step up from previous efforts.

**DENON DL103R** 2006 £295  
Awkward to get working properly with a poor mounting arrangement, yet it rewards with a musical performance that makes similarly priced cartridges sound cold.

**DYNAVECTOR DV10X52003** £295  
Distant descendent of the classic Ultimo 10X, this has warmth and sweetness in spades, allied to a punchy bass. Beats G1042 comfortably.

**ORTOFON 2M BLACK 2007** £350  
Staggeringly good high-end MM that uses a stylus from the MC Jubilee and easily rivals similarly-priced MCs

**DYNAVECTOR DV20X-H2003** £395  
Deliciously sweet sound with fantastic get-up-and-go makes this a great value budget MC. High output version works a treat with valve phono stages too.



**AUDIO TECHNICA AT-OC9MLIII** 2010 £399  
New stylus and cantilever breathe life into this feisty, punchy and detailed performer.

**ORTOFON RONDO BRONZE** 2005 £500  
Excellent mid-price moving coil with real rhythmic alacrity and a decent deal of finesse.

**LYRA DORIAN** 2007 £649  
Incisive and musical, this baby Lyra is one of the most powerful and revealing MCs at its price point. Beware the sharp treble, though!



**BENZ MICRO GLIDER L2 2008** £650  
Crisp, clean and detailed MC; particularly impressive at both ends of the frequency spectrum

**ZYX R-100H** 2005 £799  
Exceptionally tight sounding and detailed cartridge with the musical skills to match, this is up with the best at the price, with a presentation all of its own.

**TRANSFIGURATION AXIA** 2007 £890  
Musically adept and highly resolute cartridge with impressive tracking abilities. Top end lift means careful matching required, however.

**BENZ MICRO WOOD SL 2010** £945  
Highly finessed Swiss moving coil that plays music with riflebolt precision.



**ORTOFON CADENZA BLUE** 2009 £1,000  
Musical, out of the box sound, allied to real finesse, makes this a great do-it-all high end moving coil.

**ORTOFON CADENZA BRONZE** 2010 £1,350  
Smooth and engaging high end MC with a slightly warmer and more relaxed presentation than its superb bigger brother.

**ORTOFON CADENZA BLACK** 2010 £1,650  
Ultra incisive, transparent and dimensional moving coil with grip and punch aplenty.

**ORTOFON MC WINDFELD** 2008 £2,250  
Ortofon's new flagship MC is a sophisticated and alluring performer that takes the vinyl experience to a new level.

**KOETSU RED K SIGNATURE** 2007 £2,399  
The new K Signature adds a hefty dose of insight and finesse to the already impressive Red and the results are fabulous.



**DIGITAL SOURCES****MUSICAL FIDELITY V-DAC £170**

Clear, concise, low distortion sound belies giveaway price. Superlative value for money.

**CAMBRIDGE AUDIO DACMAGIC 2010 £230**

A flexible new DAC, this is an impressively rhythmic and detailed performer.

**ARCAM rDAC 2010 £300**

Cracking budget DAC sporting a fulsome and musical sound with gorgeous build and styling.

**MUSICAL FIDELITY MI DAC 2010 £400**

Surprisingly sophisticated upsampling DAC with oodles of detail and air, but bass isn't quite as powerful as it could be.

**STELLO DA100 SIGNATURE £750**

Superbly finessed sounding DAC at the price, with strong driving bass and plenty of air and space.

**CAMBRIDGE AZUR 840C 2006 £800**

Well built CD player with a silky, yet detailed sound and a whole host of useful facilities. Excellent value for money.

**NAIM CD5I 2008 £895**

Naim's new italic 'i' variant improves even further on the original mid-price classic, offering super tight, grippy and musical sound.

**ROKSAN KANDY K2 CD 2010 £900**

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

**BENCHMARK DAC-1S 2009 £930**

Power, precision and poise - allied to real seat-of-the-pants musicality, this DAC justifies its premium price.

**MUSICAL FIDELITY M3 CD 2011 £995**

Excellent mid-price machine with slick slot loading and an open and inviting sound.

**ELECTROCOMPANIET PD-1 2011 £1,250**

Quirky but highly capable digital convertor with an effective wireless radio option (£250) and balanced outputs.

**SIMAUDIO MOON 300D 2010 £1,290**

Lovely fluid sounding DAC with a deep, dark, velvety tonality.

**CYRUS CD8 SE 2008 £1,350**

Bespoke Servo Evolution mech makes this the most musically engaging machine at the price, with super smooth tonality to boot. Optional PSX-R adds bass and dimensionality.

**DENON DCD2010AE 2010 £1,700**

Powerful, open sound allied to a rich tonality and satisfying subtlety make this an excellent mid-price buy.

**NAIM DAC 2010 £1,995**

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

**MERIDIAN GO8.2 2011 £2,400**

Everyman's modern high end CD player, the stylish, well made Meridian has an extremely enjoyable yet refined and accurate sound.

**MARANTZ SA-KI PEARL CD 2010 £2,500**

Finely honed affordable high end silver disc spinner, this has a musical lucidity that's unexpected at this price.

**LEEMA ANTILLA IIS ECO 2011 £2,995**

Stable and smooth yet superbly detailed and musically engaging, this is class of the £3,000 CD player field.

**CHORD QBD64 2008 £3,000**

Bespoke architecture gives a uniquely musical sound that's beguiling yet proffers dizzying incision and grip.

**ELECTROCOMPANIET EMC-1UP 2009 £3,450**

Quirky yet extremely capable high end upsampling CD spinner, with a musical fluency that beguiles more than it impresses.

**ACCUSTIC ARTS CDPI MK2 2007 £3,985**

Styling not to everyone's taste but build quality is impeccable and the performance is stunningly musical.

**ESOTERIC X-05 2010 £4,495**

Superlative 'affordable high end' CD/SACD spinner with excellent build, massive detail and great poise.

**WEISS DAC202 2010 £4,600**

Brilliantly open and insightful sounding DAC with a range of useful features.

**ELECTROCOMPANIET EMP-1/S 2011 £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.

**NAIM CDX2-XPS2 2003 £4,950**

A fine high end machine, but add an XPS2 and it becomes one of the most characteristically engaging 16bit machines we've ever heard. Plays music with such passion!

**NAIM CDS3 2003 £7,050**

The most polished Naim CD to date; tremendously capable and musical, but lacks the Rottweiler quality of the cheaper CDX2-XPS2.

**dCS DEBUSSY 2011 £7,500**

Compact, stylish DAC bringing the gloriously smooth, svelte, spacious sound of dCS to a wider audience.

**ACCUSTIC ARTS DRIVE I MK2/TUBE DAC 2 2007 £7,980**

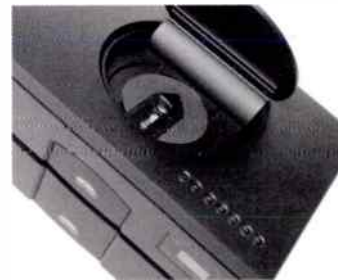
Superbly built high end CD transport and DAC combo that shows just what the format can be capable of. Very tangible, musical sound with wonderful dynamics and glistening harmonics. Only curious styling and clunky build detract from its brilliance!

**DCS PAGANINI DAC £9,599**

Digital rarely sounds better; dCS's bespoke Ring DAC makes for power, punch and insight on an epic scale. Add clock and upsampler for an even more profound experience.

**NAIM CD555/555PS 2006 £14,000**

Very probably the best CD player yet made - certainly the most expensive; a digital *tour de force*.

**NETWORK****NAIM HDX 2009 £4,405**

Interesting one-box network enabled hard disk music system gives superb sonics together with impressive ease of use.

**LINN KLIMAX DS 2007 £9,600**

Landmark network music player, offering brilliant sonics at up to 24/96 resolution from hard disk/NAS. Expensive, but you can hear why...

**PHONO STAGES****CAMBRIDGE AUDIO 640P 2009 £99**

Excellent entry level design that raises the bar for budget phono stages. Crisp, smooth yet brightly lit sound on both MM and MC that's a vast improvement on most budget inboard designs.

**GRAHAM SLEE ERA GOLD V 2004 £370**

Warm, open and musical nature makes this a great budget phono stage.

**ASTIN TREW AT8000 2010 £880**

Expansive, detailed, powerful sound makes this a leading sub-£1,000 contender.

**CHORD CHORDETTE DUAL 2010 £799**

Well presented mid price designed with detailed sound and USB input for archiving.

**ICON AUDIO PSI.2 2007 £599**  
Excellent valve phono stage with good range of facilities and fine imaging abilities.



**A.N.T. AUDIO KORA 3T LTD 2010 £995**  
Exceptionally musical and natural sounding all discrete transistor phono stage, with highly lucid, valve-like presentation.

**AVID PULSUS 2010 £1,100**  
Powerful, propulsive, expansive sound puts this right at the top of the £1,000 phono stage tree.

**QUAD QC24P 2007 £1,200**  
Dynamic performer that can be used on its own as a complete phono-level preamp.

**ICON AUDIO PS3 2008 £1,500**  
Super sounding valve phono preamplifier, with an expansive, engaging and organic nature that makes vinyl sheer joy!

**SUTHERLAND 20/20 2010 £1,999**  
Well engineered, smooth sounding solid-state phono stage with a charm of its own.

**EMILLE ALLURE 2010 £2,495**  
Just as the name suggests, this is a lovely way to play LP with an exceptionally open and lucid sound.



**AVID PULSARE 2010 £3,800**  
This superbly built, well specified phono stage has a powerful and authoritative sound that bristles with detail and energy.

**WHEST PS.30 RDT SE2011 £4,500**  
The least solid-state sounding Whest we've heard, this builds on the family strengths of precision and grip but adds a welcome poise and fluidity.

**NAT AUDIO SIGNATURE 2011 £5,633**  
Sophisticated sounding, unusually engineered MM and MC phono stage, but faces stiff competition at this lofty price.

## AMPLIFIERS

**ICON AUDIO STEREO 40/III 2010 £1,200**  
Excellent starter tube integrated, with plenty of detail and an expansively musical sound.



**NAIM NAIT 5i 2007 £725**  
The italic 'i' version remains one of the most musically competent and dynamically engaging integrations at the price.

**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 but not the world's most beguiling.

**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 MYSTRO 2010 £1,225**  
Sugden's first Class AB integrated in a long time surprises; rollickingly good fun, it loses surprisingly little in smoothness to its Class AB siblings.

**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.

**CREEK DESTINY 2 2010 £1,445**  
Beautifully voiced integrated amplifier with a distinctly seductive, tube like sound. A solid-state superstar!

**SUGDEN A21A S2 2008 £1,469**  
Crystalline clarity, dizzying speed and forensic detailing makes this seminal design the most musical at the price, but power limited so needs sensitive speakers.



**CYRUS 8XPD 2010 £1,500**  
A quality integrated that suits all genres of music providing insight and clarity in a compact but flexible package.

**ANATEK A50R 2007 £1,600**  
Simple integrated amplifier with super bass grip and effortless dynamics.

**VINCENT SA-236MK 2010 £1,749**  
Big, powerful and expansive sounding hybrid transistor amplifier, with a lively, musical nature.

**NAIM SUPERNAIT 2007 £2,475**  
Integrated *tour de force* from Naim that combines impressive functionality and connectivity with super sound.

**AUDIO RESEARCH VS160 2009 £3,298**  
Load of tube power allied to a strong bass and smooth open midband makes this a grin-inducing listen.

**LEEMA TUCANA II 2010 £3,495**  
Polished high end integrated amp that combines power, detail and genuine musicality with a good range of facilities.



**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-integrations.

**QUAD II CLASSIC 2010 £4,500**  
Beautiful retro styled integrated amplifier with a subtle, supple sound - although needs matching to speakers that are easy loads.

**QUAD II CLASSIC INTEGRATED 2010 £4,500**  
Thoroughly modern music maker with classic style and great pedigree, this amp sings with gentle music but is no headbanger!

**SIM AUDIO MOON 600i 2010 £5,750**  
Sturdy build, useful facilities and a wonderfully relaxed, seamless and even-handed sound will win this many friends.

**MUSICAL FIDELITY AMS351 2010 £6,000**  
One of the best high end integrations we've come across, this combines hear-through transparency with musical get-up-and-go.

**DARTZEEL CTH-8550 2010 £16,500**  
Charismatic and quirky high end solid-state integrated amplifier with superb sound and a charming visage.

## HEADPHONE AMPLIFIERS

**FIDELITY AUDIO HPA 100 2011 £350**  
Great little headphone amplifier with a lively yet refined and open sound.

**MUSICAL FIDELITY X-CAN V8 2008 £350**  
Open and explicitly detailed sound plus serious bass wallop and the ability to drive anything to very high levels makes this a great partner for most mid-to-high end headphones.

## PREAMPLIFIERS

**MING DA MD7-SE 2012 £1520.00**  
A valve preamplifier with an open, effortless sound and big sound stage. It has plenty of gain so will accept any source and drive any power amp. A tuneful beauty.



**CREEK OBH-22 2008 £350**  
Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

**ICON AUDIO LA-4 2011 £800**  
Uses early 6SN7 triodes for liquid sound, has plenty of gain and remote control.

**DPA CA-1 2010 £2,650**  
Excellent solid-state preamp with a meticulously detailed and propulsive sound, but a deep velvety tonality.

**MELODY PURE BLACK 101D 2007 £3,295**  
The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterpiece.

**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.



**MF AUDIO CLASSIC  
CII SILVER**

2010 £4,500

One of the best preamplifiers we've heard at any price, this transformer coupled marvel does very little wrong: its powerful, clean, open yet delicate sound is unmatched at or near the price.

**NUFORCE P-9** 2007 £2,200

Impressive two box preamp with superb resolution and an engaging sound.

**POWER AMPLIFIERS****XTZ AP-100** 2010 £520

Decently smooth yet usefully muscular, this power amp punches way beyond its price point in sonic and value terms.

**QUAD 909** 2001 £900

The latest 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. Lovely build, finish and Quad's legendary service are nice.

**NUFORCE REFERENCE 9SE V2** 2006 £1,750

Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

**DPA SA-1** 2010 £2,850

Pacey, engaging and rhythmic almost to a fault, this solid-state power amplifier isn't the world's most powerful but is none the worse for it.

**QUAD II-40** 2005 £3,230

Modern tube monoblock power amplifiers with plenty of power, liquid and open mid-band and spacious, airy treble. Explicit, engaging sound, but not as euphonic as some.

**ELECTROCOMPANET NEMO** 2009 £4,450 (EACH)

The Norwegian power station is as cool as a glacier tonally, yet impresses with its sheer physicality and fleetness of foot. 600W per channel makes for a massive bang per buck.

**ICON AUDIO MB845 MkII**

2010 £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.

**QUAD II-80** 2005 £6,000

Quad's best ever power amplifier, this is a dramatic performer with a silky but dark tonality, blistering dynamics, serious power and a compellingly musical sound. They don't come much better.

**MUSICAL FIDELITY AM550** 2010 £7,000

Mighty, assured high end full Class A integrated proffering icy clarity allied to real musicality. Lacks the lucidity of the best tube amps but redeems with power and punch.

**LOUDSPEAKERS****Q ACOUSTICS 2020** 2010 £140

Great little standmounters with a friendly, fun yet surprisingly refined gait. Excellent value starter speakers.

**ACOUSTIC ENERGY NEO I** 2007 £199

Tidy and well balanced standmounters with pleasing clarity and detail.

**MISSION MX2** 2011 £200

Sophisticated sound alloyed with real musical insight makes these small standmounters super value for money.

**ACOUSTIC ENERGY NEO I v2** 2010 £225

Civilised sounding speaker with fast and tuneful bass.

**B&W 686** 2007 £279

B&W's new baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

**WHARFEDALE DIAMOND 10.3** 2010 £290

Great small standmounters for audiophiles on a budget; dry punchy sound with impressive soundstaging at the price.

**MORDAUNT SHORT AVIANO 2** 2010 £300

Classy sounding standmounter at a still affordable price.

**KEF IQ30** 2009 £330

Beautifully built, classily styled standmounters with exceptional image projection and a very clean, detailed sound.

**USHER S-520** 2006 £350

Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

**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.

**XTZ 99.25** 2010 £640

Disarmingly open and refined at the price, these standmounters bring unexpected civility, refinement and insight to the price point. Exceptional value for money.

**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.

**SPENDOR S3/SE** 2004 £950

A natural successor to the BBC LS3/5a, whose impressive neutrality, imaging and evenhandedness makes this a superior, if less charismatic, loudspeaker.

**MY AUDIO DESIGN MY1920** 2011 £1350

Exceptionally smooth, spacious and refined mini monitors that beguile and excite in equal measure.

**ELAC BS243** 2010 £1,000

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

**RRR FS100** 2007 £1,055

Mind-boggling amount of loudspeaker for the money. Big and sturdily built with serious bass and awesome soundstage scale. A real bargain.

**ONE THING AUDIO ESL57** 2007 £1,450

One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

**GURU QM-10P** 2007 £1,595

Quirky but adorable standmounters that are way off the pace in respect of detail and power, but well capable at playing a tune and pulling you in to the music.

**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.

**ISOPHON GALILEO** 2007 £2,100

Big standmounters that really grip the music and offer quite startling dynamics and grip.

**MY AUDIO DESIGN MYCLAPTON SE** 2010 £3,299

Powerful, dynamic, musical yet refined, this unconventional point-source design yields dramatic sonic benefits.

**SPENDOR S8E** 2008 £1,895  
Generously large, silky smooth delivery, this dynamic sounding floorstander is an excellent all rounder.



**MONITOR AUDIO PL100** 2008 £2,300  
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.

**PMC OB II** 2008 £2,950  
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**EMMINENT TECHNOLOGY LFT8B** 2010 £2,300  
Brilliant ribbon/moving coil hybrid with seamless, delicate and expansive yet tremendously musical nature.

**MAD MY CLAPTON GRAND MM** 2010 £3,599

Distinctive coaxial standmounters with wonderful soundstaging, bright lucid midband and true musical insight.

**YAMAHA SOAVO 1.1** 2009 £3,000  
Musical, transparent large floorstanders with impressive dynamics and cohesion. Excellent build and finish.



**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.

**TANNOY DEFINITION DC10T** 2010 £5,000

Wonderfully wide and open, super fast and amazingly engaging to listen to.

**ISOTEK AQUARIUS** 2010 £795  
Highly accomplished premium priced mains conditioner that delivers the sonic goods, unlike so many others.

**ECLIPSE TD712z/2** 2011 £5,100  
Flawed genius, and wilfully so. These loudspeakers don't do everything well, but what they can do is profound and enthralling; rhythms, dynamics and soundstaging.

**ARS AURES MI** 2006 £5,995  
Sublime build and finish allied to an insightful, assured and even-handed musical performance makes these an essential high end audition.



**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.

**SPENDOR ST** 2010 £5,995  
This classy sounding, superbly presented big floorstander will appeal to those seeking high end sonics with subtle looks.

**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.

**VIVID VI.5** 2010 £6,000  
Breathtaking transparency, superlative coherence and dizzying speed make these one of the best standmounters ever made - providing you like their 'studio sound'.



**GERMAN PHYSIKS LIMITED II** 2011 £7,800

Don't be fooled by the austere looks; this is a superbly enjoyable omnidirectional speaker with a wonderfully fast, expansive sound.

**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...

**REVOLVER CYGNIS GOLD** 2010 £15,000

Vast in scale with effortless dynamics and an easy, barrel chested bass, these big bangers are great for lowish power tube amps. Large room needed!

**MARTIN LOGAN CLX LINEAR** 2010 £15,990

Meticulously crafted electrostatic that's free from traditional limitations, this is one of the very best loudspeakers money can buy.

**B&W 801D** 2006 £10,500  
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



**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.

## ACCESSORIES

**WADIA 1701** 2010 £349  
The first iPod dock to extract the music digitally, letting you hook your little Apple direct to a DAC for superior sound.

**TOWNSHEND MAXIMUM** 2003 £800

Classy ribbon supertweeter with flexible level settings and cool styling - you'll be amazed at the difference it makes, especially with Quad electrostatics.

## HEADPHONES

**JAYS V-JAYS** 2010 £49  
Wonderful little budget over-ear portable phones with a clean, smooth sound to beat the best of the rest at the price.



**SENNHEISER MX-550** 2005 £19  
Our unqualified recommendation for those seeking a serious sounding pair of in-ear phones. Smooth, detailed and musical.

**SENNHEISER PX-100** 2002 £29  
Cracking pair of lightweight open back cans ideal for personals, but good enough for real hi-fi use. Superb build allied to a smooth and engaging performance make them the spiritual successor to the HD400s.

**GOLDRING DR150** 2006 £70  
Excellent build and fine sound makes these budget cans superlative value for money.

**SENNHEISER HD-590** 1998 £199  
The company's best real-world cans to date. Open and smooth with plenty of detail. Brightly lit midband makes them an ideal partner for a valve headphone amp.

**SENNHEISER HD-650** 2004 £250  
A super all round reference design with crisp, detailed and even sound allied to superlative build and comfort. Cable upgrade yields great results.

**SENNEISER HD800 2010 £1,000**

The ultimate expression of the Sennheiser philosophy offers massive speed, clarity and insight, although lacks some of the charm of the softer, more beguiling rival Staxes.

**STAX SR-007T OMEGA II/SRM-007T 2006 £2,890**

Simply the best headphones we've ever heard at any price, these sweetly translucent electrostatic ear-speakers are like no other headphone, or loudspeaker for that matter...

**INTERCONNECTS****TELLURIUM Q BLACK 2010 £276/3m**

A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

**TECHLINK WIRES XS 2007 £20**

Highly accomplished interconnects at an absurdly low price. Stunning value for money.

**WIREWORLD OASIS 5 2003 £99/M**

Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

**CHORD COMPANY CHAMELEON 2 £90/M**

One of our favourites, these are musical performers with a smooth yet open sound.

**DNM RESON 2002 £40/M**

Neutral and transparent - a steal!

**VDH ULTIMATE THE FIRST 2004 £260/0.6M**

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space results in a cracking cable for the 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.

**MISSING LINK CRYO REFERENCE 2008 £375**

Currently our favourite 'affordable high end' interconnects, with a deliciously smooth, open and subtle sound without a hint of edge or grain. Superb value, inasmuch as it's as good as some designs at three times the price.

**TUNERS****DENON TU-1500AE 2006 £120**

Excellent entry level analogue tuner; slick sonics and fine feature count make it a bargain.

**CAMBRIDGE AUDIO 640T 2005 £250**

Sweet sounding digital/analogue hybrid with fine build and finish at the price.

**ARCAM FMJ T32 2009 £550**

Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.

**CREEK CLASSIC TUNER 2006 £550**

No tuner offers better sound per pound; wonderfully three dimensional and smooth from bottom to top.

**MICROMEGA FM-10 2010 £750**

Don't let the modest proportions fool you, this is a state-of-the-art modern analogue tuner with bespoke internals giving a warm, expansive sound.

**MYRYAD MXT-2000 2005 £800**

Sumptuous sound and excellent build is all most will ever need in a tuner; superb.

**MAGNUM DYNALAB MD-90T 2010 £1,295**

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

**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.

**SYSTEMS****YAMAHA CRX-M170 2007 £200**

One heck of a lot of quality performance on DAB, CD and FM for £200! Optional matching £120 NX-E300 loudspeakers aren't too shabby either.

**TEAC DR-H300DAB 2008 £329**

Nicely built and styled mini with fine performance on all sources that even plays DVDs!

**NAD C-715DAB 2008 £429**

Small, neat looks cover a truly capable system that shows just what a compact design can achieve.

**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.

**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.

**PEACHTREE AUDIO IDECCO £1,000**

Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.

**ARCAM SOLO 2005 £1,249**

Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

**LINN CLASSIK MUSIC 2008 £1,250**

Neat update of the original and best one-box stereo system; superbly musical sound beats equivalently priced separates.

**NAIM UNITIQUE 2010 £1,350**

Great little half width one-box system with truly impressive sound allied to a wealth of source options.

**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; most see sense when they listen to it...

**AURA NOTE MUSIC CENTRE 2007 £1,500**

Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.

**NAIM UNITI 2009 £1,995**

Uniquely versatile one box music system with excellent ergonomics and sonics to match. A landmark product for Naim.

**LINN CLASSIK MOVIE 2007 £2,250**

Superbly built all-in-one that offers excellent sound across all formats and is surprisingly easy to use.

**MERIDIAN SOOLOOS 2.1 2010 £6,990**

Thanks to its crisp styling and bright, colourful touchscreen, plus excellent search facilities this is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.

**MARANTZ 'LEGEND' 2007 £22,000**

The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.



# Big Red

The new Olympus LS-12 and LS-14 are digital audio recorders with a big, red Record button. Noel Keywood is impressed.

Once upon a time a big red button labelled Record was common. Not any more. Recording has seemingly gone out of fashion, or perhaps it has been killed off: remember the slogan 'Home Taping is Killing Music' set against a skull and crossbones? The music industry has never been happy for consumers to record. We now have file copying, but it isn't much use if you want to record the radio, your LPs, conversation, a song or live music.

The Olympus LS-12 and LS-14 are handheld, battery powered, digital audio recorders that are small and light enough (170 gms with batteries) to be carried around. Measuring 140mm high, 65mm wide and 25mm deep, they'll fit a large pocket. They can record sound from their microphones or from a line input, in high resolution digital, (24/96), meaning better quality than CD. The basic LS-12 costs just £130 and the more capable LS-14 £170. And they both have a big, red Record button. Is this what every audiophile needs at home? Or are those prices suspiciously low?

These portable audio recorders are purposed for live music recording and interviews, more than high

fidelity, yet with 24bit resolution and 96kHz sample rate as a top quality option they potentially offer better sound quality than CD. Where most dictation machines have a tiny on-board mic hidden in their body, behind a small pinhole to the outer world that destroys quality, these recorders have large, conspicuous stereo microphones with an unhindered acoustic view of their surroundings – and our measurements showed they work well.

Recordings are stored to internal memory, 2GB in the LS-12 and 4GB in the LS-14, or in an optional SD plug-in card, 32GB maximum. A line input makes recording from the tape output of a hi-fi amplifier possible, so here's a way of recording LPs with quality better than CD, or so I hoped when checking their specs.

The LS-12 offers a good set of features and ability, and the LS-14 builds on them. They share basic parts and functions, but most significantly the LS-14 has an extra microphone (called Tresmic) that extends low frequency response, from 80Hz down to 20Hz our measurements showed, to better capture bass frequencies. Olympus also add facilities and improve finish, making the LS-14 slightly more

visually attractive than the '12. The addition of a Low Cut filter (100Hz / 300Hz / Off) is most important, but there's also a Voice Guide that won't stop talking so I rushed to switch it off!

Recordings can be made in normal PCM, from '44.1kHz/16bit' (their nomenclature) sample rate mono, suitable for voice at CD quality, 44.1kHz/16bit stereo, 48kHz/16bit and in 88.1 and 96kHz sample rates at 24bit resolution. As Olympus' recording times chart makes clear, the highest quality option of 24bit/96kHz brings recording time down to 40 mins on the LS-12 with 2GB of memory and 1hr 35mins on the LS-14. Lowering quality increases recording time and most people will be happy with the many hours available at CD quality. For those that need more recording time, an SD card can be added, or mp3 quality can be selected, reaching down to 128kbps stereo, or 64kbps mono, the latter giving 52/117hrs of voice recording on internal memory, or up to 1000hrs on a 32GB SD card.

PCM recording produces an automatically numbered WAV file, that increments upward by 1 for every new recording, so stopping and starting doesn't erase an earlier

file. Recording was a two button process: press Record once to go into Record pause, indicated by Record button surround flashing red intermittently, then press again to start recording. Record pause allows recording gain to be set, as well as headphone volume, on the jog dial. This all worked well, an orange indicator and Over legend on the display warning of overload. A limiter (voice / music) can be selected to avoid the worst affects of overload. It's best to monitor whilst recording on headphones, but replay can also be heard through a small on-board loudspeaker. At high gains handling noise becomes an issue, so the body can be tripod mounted.

A 3.5mm jack input for an external mic allows specialised directional gun mics and such like to be used, that Olympus can supply from their accessory range, or can be bought from someone like StudioSpares.

What interested me was a line input through a 3.5mm stereo jack. This allows recording from the hi-fi and Olympus have configured it well for this purpose. Maximum input sensitivity was 200mV and minimum 3V (overload) – fine for an amplifier's tape output sockets. I ran both units successfully via this line input from a Marantz AV receiver's tape out, recording VHF/FM radio, and directly from an Icon Audio PS3 valve phono preamplifier, fed by Ortofon Cadenza Bronze MC cartridge, in an SME312S arm on Garrard 401 turntable. There were no difficulties, except that the Ground lift of the PS3 had to be off (i.e. the PS3 grounded) because the recorders are not earthed, and a phono-to-3.5mm adaptor used. The PS3 turns out over 1V so record gain had to be taken right down, but many low gain phono stages will need it right up.

The headphone output is also a line output that can drive a hi-fi, but it delivers little signal, just 0.3V. There's a mini-USB socket for connection to a Mac or PC, where it is seen as a mass storage device. You record a file and transfer it to a computer over this link, where it can be stored, processed or played. If you have a network player (e.g. Cambridge StreamMagic 6) it can then be played through the hi-fi over a network, or transferred to USB memory and walked to the hi-fi (sneakernet), the latter being best. I recorded LPs and split the single 24/96 file using the free Audacity

music editor, but long files can also be split on these recorders.

Three recording modes are fitted, selected by a front dial: Smart, Manual and Quick. There is also a musical instrument tuning function.

And finally, batteries. Two removable AA batteries are used; there is no on-board lithium-ion rechargeable battery. Re-chargeable AAs can be used of course, charged on an external charger. Olympus say in excess of 40 hours recording time is possible. Both recorders auto-switch off when not used and their display illumination shuts down quickly too; this can be set up to 1min maximum – not a lot because the display is barely legible in low light with no illumination. Pressing Stop (or any button) triggers screen illumination.

### IN USE

The microphones were almost as accurate as our measuring microphone, tests showed, so they're truly high quality, not just designed to look the part. The LS-12 mics don't capture much bass below 80Hz, but the Tresmic of the LS-14 took it down to subsonic frequencies and captured lows well, again correctly in terms of level.

Low frequencies can be a nuisance in a recording, introducing all sorts of rumbling and booming sounds you never realised were there whilst recording, so this ability of the LS-14 has to be used carefully. Two bass (high pass) filters allow deep bass to be cut out. You can alternatively post-EQ deep bass out with an editor like Audacity. The LS-14 has been tailored to capture drums and bass fully, something the LS-12 cannot do, although again post-EQ will help the '12 here.

Of the three record modes, 'Quick' dynamically adjusts record level. It's the usual gain riding system that works well enough for general use. 'Smart' senses peak level during a pre-record pause and then records with this input gain setting. It gives better quality by eliminating gain riding, whilst avoiding the need to manually adjust gain. 'Manual' is what I used, quickly finding the mic gain settings don't apply here. An optional limiter gain-rides to minimise overload; it doesn't prevent it but does lessen its effects; at high gains hiss can be heard to ride up and down, as you'd expect.

I liked the way headphone volume and record level (which

affects headphone volume) could be set with the rotary jog dial in Rec Pause. But the screen is small, and graphics and text were small, thin and spindly and not so easy to read. The record level display covers 40dB. Display reaction time was slow and there was no colour to differentiate between acceptable (green) and overload (red). The display panel was a tad basic in all areas: speed, legibility



**Small loudspeaker at rear, 3.5mm earphone and headphone jacks and mini-USB socket.**

and clarity of message, but adequate.

Measurement showed noise in the mic amps (or from the mics themselves) to be significant and in use I heard this. At full record gain, low level sounds from my surroundings were clearly audible, handling noise, loud and clicks and spits I made with my mouth (at 0.5m) were enough to cause overload. But hiss was also clearly audible; these recorders are not the quietest. They are fine for general use, but not true high fidelity or, in the pro world, pro quality. At this point you won't be surprised to learn there's also an LS-100, price £350, that offers better performance, but it's a semi-pro machine with XLR sockets and such like. The LS-12 and 14 are simpler and relatively easy to use.

Let me get their limitation into

# Box Design by Pro-Ject



## DAC Box DS

The DAC Box DS allows you to bring your digital music to life. Whether you have a network streaming device, a CD Player or a computer loaded with your downloaded music; this innovative DAC can take it all and transport it to your hi-fi system with optimum fidelity. Now at a NEW PRICE!

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- Top-Grade D/A converter chip
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## Box Design

Whether you want to add an iPod or computer music library to your existing Hi-Fi setup, or you're starting a main or secondary system from scratch, Box Design by Pro-Ject Audio Systems is a fantastic way for all music lovers to bring more high-quality audio into their lives.

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Box Design by Pro-Ject Audio Systems  
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perspective. Measurement showed that noise and distortion in the mic / line preamps, although low, was enough to compromise ultimate performance; through the line input 24bit recording resolution gave no better results than 16bit, dynamic range measuring a low 87dB with both. This is below CD (16bit) that easily manages 98dB dynamic range and 24bit that gives at least 110dB, so dynamic range is disappointingly low, -10dB down. But at the same time it is no disaster; when recording LP disc surface noise drowned input amplifier noise, for example.

**SOUND QUALITY**

Recording LP to CD worked well and delivered good results by general standards. There was a somewhat cold, hard quality to Duffy's voice singing Warwick Avenue that I'm not used to, the recording being clearly different to the original, less full bodied, cool in tonal character as explained and a bit lacking in life or soul. But technically it wasn't in obvious tonal error or noisy and would pass muster in most situations I suspect. Much the same quality affected all recordings I made.

Whilst I wouldn't choose to run a recording from either machine instead of the original through my hi-fi (WAD 300B valve amplifier, Martin Logan Electromotion loudspeakers), they sounded pleasant enough when played through headphones from the LS-12 or 14, and decent too when the line output was used to drive the hi-fi.

I got punchier results by transferring the WAV recordings to an Astell&Kern AK120 portable player and driving the system from this, but although this improved dynamics and pepped things up, it didn't offer a complete cure; the coldness of character was there and a certain lacklustre quality.

Similar recordings made with a Furutech Esprit preamplifier were better, altogether more lively and dynamic sounding, but the Esprit is £835 – quite a price gap. This illustrates what superb value both Olympus recorders are, I feel.

Live recording at full gain and overloading the mics with finger snaps showed the limiter successfully avoided digital distortion, even though overload was registered. Sudden gain reduction caused hiss to quickly disappear and then rise back up slowly of course, due to gain riding, but this is inevitable. I suspect

background noise would be enough in most environments to overwhelm this and use of full gain unrealistic, even when bird watching! However, a quiet studio may well make hiss just audible at high gain.

Sound quality from microphone recordings was good, certainly in terms of tonal balance. There was again a rather hard, 'tin can' tonality and a lack of real smoothness or finesse, the mic capsules determining quality in this case. At the price these are minor criticisms though. I felt '96kHz/24bit' was a bit more open sounding and airy than 44.1kHz/16bit but not more insightful.

**CONCLUSION**

I ended up very impressed by these recorders. They're well engineered all round and do a massive job, acting as recorders and players. They can

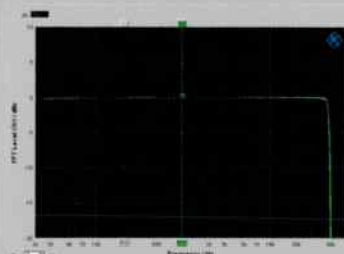
be used for high quality dictation, live music recording, singing, instrument / band practice and much else, including making digital recordings from an amplifier's tape output sockets. The recordings can be transferred to a computer and stored, edited or played. Or they can be played on the recorder, through either its small loudspeaker (tinny sounding) or headphones. Volume through high quality insensitive headphones like the Philips Fidelio X1s I used was limited though. I transferred recordings to a high resolution portable player able to give more volume.

For most people the LS-12 will be good enough, but those who want deep bass need the LS-14. At their absurdly low price both recorders are amazing value – modern digital workhorses worth having, complete with a big, red Record button. At last!

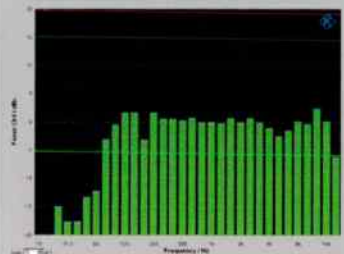
**MEASURED PERFORMANCE**

The LS12 and 14 measured identically, except for their mic performance, so the results here apply to both models. Frequency response was flat to 46kHz with 24/96 resolution selected, so there's plenty of bandwidth. Selecting 16bit or 24bit made no difference to distortion levels because noise and preamplifier distortion swamped distortion from the ADC/DAC, overwhelming even 16bit quantisation noise. At full line gain noise measured -80dB from line input to output and distortion 1.8% due mainly to second and third harmonics that came from the mic amplifiers. The line input needed just 0.2V (200mV) for 0dB at full recording gain so they will work from an amplifier's tape output. All the same, 24bit resolution is a bit academic with these

**FREQUENCY RESPONSE, 96k**



**MIC RESPONSE, LS-12**



recorders, because their preamps are noisy and produce analogue distortion. Line input overload was a high 3V, so there's plenty of range here and overload is unlikely in use.

Output from the headphone socket was 0.3V, a normal enough figure, if not enough to drive insensitive 'phones loud.

The microphones were accurate and had a response that reached 16kHz. Low frequencies rolled down fast below 80Hz on the LS12 but the LS14's bass mic took response right down to 20Hz, making it truly a wideband and accurate recorder. Both mics were flat and accurate over their operating range, giving a result identical to our Bruel & Kjaer measuring microphone with a wideband loudspeaker as source.

These hand held recorders measured well enough, but they are not quite hi-fi, at least through the analogue line input – there's too much noise and distortion. They are able to record from an amplifier's tape output, as well as from their microphones, and they can be used as music players, through the on-board loudspeaker or headphones. **NK**

**Frequency response (-1dB)**

CD 4Hz - 46kHz

Distortion	(%)
0dB	0.04
-60dB	1.8

Separation (1kHz)	92dB
Noise (IEC A)	-80dB
Dynamic range	87dB
Output	0.3V
Sensitivity	0.2V

**OLYMPUS**  
**LS-12 £130**  
**LS-14 £170**  
**PORTABLE DIGITAL**  
**RECORDERS**



**EXCELLENT - extremely capable**

**VALUE - keenly priced**

**VERDICT**

Excellent digital recorders for music, speech and audio. Pocketable and cheap.

**FOR**

- mic and line recording
- good quality
- portable
- easy to use

**AGAINST**

- not quite hi-fi
- small illegible screen

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 www.olympus.co.uk

For more details see p40 or go to:

# WHITTLEBURY

A wealth of new products will be on view at the National Audio Show, Whittlebury Hall, Northamptonshire, this year. Here's a quick preview of new products that'll be there.

## ICON AUDIO

Icon Audio will be presenting the first public appearance of the new KT150 amplifiers.

The KT150 is a new valve that provides KT88 type properties but with more power. See this month's news section for amplifier upgrade prices.

Also look out for the PS1 MKII £999.95 (MM) and PS3 MKII £1899.95 (MM) phono amps with redesigned power supplies: both will be available with a MC option. Finally, the Stereo 845 integrated amp (£5999.95) will be on show, offering 40+40W from massive 845 valves.

Click on [www.iconaudio.com](http://www.iconaudio.com) or call 0116 244 0593 for more information



## HENLEY DESIGNS

In a room packed with new products you will be able to view the Pro-Ject 1 Xpression Carbon (£575), an update of the 1 Xpression III turntable, including an improved one-piece carbon fibre tone-arm with over-sized support, new DC power supply and motor isolation, high-gloss platter and sorbothane-damped counterweight. It is fitted with a new Ortofon 2M Silver cartridge (a 2M Red with silver coils).

The Pro-Ject Signature (£7,500), a new flagship turntable, will be on show along with the Pro-Ject Stream Box DSA (£999), a streamer, Internet radio player, DAC and multi-input integrated amplifier in one box.

Audio-Technica will be present with its ADX range of open-backed headphones (£150-£925) while the Roksan Oxygene CD Player (from £2,500) and integrated amplifier (from £3,000) will also be present alongside the Audiovector Discreet streaming and active loudspeaker system (from £1,850). Call 01235 511 166 or click on [www.henleydesigns.co.uk](http://www.henleydesigns.co.uk) for more information.



*Final*  
final audio design

## HIFI HEADPHONES

This outfit will be showing the Final Audio Design Pandora full size headphones for the first time in the UK. When finally released, it will be priced at around £3,000. Check out the accompanying image that also features the FI-BA-SS IEM (£1,100).

Click on [www.hifiheadphones.co.uk](http://www.hifiheadphones.co.uk) or call 01903 768910 for more information.



[www.chestergroup.org/nationalaudioshow](http://www.chestergroup.org/nationalaudioshow)

# SHOW PREVIEW

## QUADRAL

Available for viewing will be: the new IPSO speaker series (from £199), outdoor/ weatherproof 2-way speaker, in three sizes; the Qube 7 (from £250), an addition to the company's subwoofer range; the Magique TV system (from £650) and the Rondo active desktop speakers (from £650) — ideal for multi-media, Bluetooth use and USB connectivity.

Also look out for the Aurum Orkan Active (from £6,950) and Altan Active handmade speakers (£TBA), featuring the company's Aurum Electronic amp technology and the re-designed Platinum M (from £395 to £3,500) range of speakers. Expect a new Aurum Electronic pre-amp (£2,750) and power amp (£3,195).

Call 01785 748 446 or click on [www.quadralgb-le.co.uk](http://www.quadralgb-le.co.uk) for more information.



## DECENT AUDIO

Decent Audio will be focusing on the Audeze planar magnetic headphones. The LCD-2 (875) and LCD-3 (£1,725) use planar magnetic technology in a 'around the ear' design.

Call 05602 054669 or click on [www.decentaudio.co.uk](http://www.decentaudio.co.uk) for more information

## ALACRITY AUDIO

The company will be launching the Caterthun 8 loudspeaker (from £3499): pictured on the left with the Caterthun Classic to the right. The new design features the same operating technology as the Classics but, says the company, the new design offers, "More."

Call 01273 697848 or click on [www.alacrityaudio.co.uk](http://www.alacrityaudio.co.uk)



## INSPIRE HIFI

Inspire will be showing the Monarch Direct Drive turntable and the new, entry level, Black Magic. An array of both 9" and 12" arms will be available including the Ortofon TA series. Watch out for the new Audio Origami UNI tonearm on an Inspire-upgraded Vivid Linn LP12.

Call 01246 472222 or click on [www.inspirehifi.co.uk](http://www.inspirehifi.co.uk) for more information

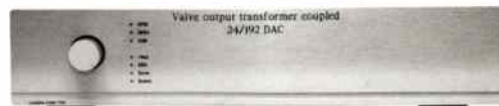


## MAINS CABLES R US

Back for a third consecutive year, MCRU will be showing the Clearaudio Concept MM turntable that retails for under £1,000 and comes set-up with arm and cartridge direct from the factory. The company is also supporting Longdog Audio. Owned by engineer, Nick Gorham, Longdog

will be presenting the LDA VDt1 24bit/192 kHz DSD DAC. This valve output, transformer-coupled DAC has been designed and built in the UK.

Click on [www.mains-cables-r-us.co.uk](http://www.mains-cables-r-us.co.uk) or call 07908 056978 for more information



## CLARO AUDIO

New from the company is a power supply to go with its Clarity Dual Turntable that both stabilises the speed and limits the power into the turntable.

Click on [www.claro-audio.co.uk](http://www.claro-audio.co.uk) or call 01423 79993 for more information.



## HIGH END CABLE

New from High End Cable will be the Raidho D-1 speakers (from £14,400), featuring a sealed ribbon tweeter and diamond/carbonite mid-bass driver, the first UK showing of Nordost's Valhalla 2 cable (interconnects from £6,000 per metre per pair), Panda Feet cable supports (£100 for a set of four) for ribbons, ovals and round cables as well as cable lifts at a fiver a pop. Finally, retailing at £695 are The ONE speakers aimed at desk-top and bookshelf mounting.

Click on [www.highendcable.co.uk](http://www.highendcable.co.uk) or call 01775 761880 for more information.



## DIVERSE VINYL

Among a host of vinyl, the company will be launching a new release by Eleanor McEvoy. 'If You Leave' will be making it's vinyl debut on Diverse Records along with a new release by Eddi Reader, 'The Songs Of Robert Burns'.

Click on [www.diversevinyl.com](http://www.diversevinyl.com) or call 01633 259661 for more information.



NEW PowerKord-100™

NEW PowerKord-300™

NEW PowerKord-500™

All NEW PowerKords coming soon from Russ Andrews.

Russ Andrews

## RUSS ANDREWS

Russ Andrews Accessories will be showing a new range of power cords. The PowerKord 100 (from £150), 300 (from £230) and 500 (from £440) feature major improvements.

Call 01539 797300 or click on [www.russandrews.com](http://www.russandrews.com) for more information.



## TIMESTEP

*Timestep will be showing its Technics-based EVO IR turntable. Fitted with the new SME J shaped arm and conventional removable headshell. Also on display will be the T-01MC Phonostage.*

*Click on [www.soundhifi.com](http://www.soundhifi.com) or call 01803 83366 for more details.*

## TEDDY PARDO

*A new module adds 192kHz asynchronous USB input to the TeddyDAC (£866). It is based on the XMOS chip, enhanced by ultra low jitter clocks. The company is proud of the power supply that, it says, provides an "analogue sound".*

*The PR1 pre-amp (£1,166) is a solid state affair featuring low noise JFET transistors, Tantalum and PPS capacitors and WBT NextGen sockets. All components are mounted on a six layer immersion gold FR4 PCB.*

*The MB100 monoblock amplifiers provide 100W of power for £1,732. Featuring a regulated power supply, it includes a similar design philosophy to the pre-amp.*

*Click on [www.teddypardo.com](http://www.teddypardo.com) for more information.*



## GARRARD/LORICRAFT

*A Loricraft/Garrard 501 (£14,000) featuring a new electronic power supply including a computer controlled stabilised variable speed control, will be exhibited.*

*Fingers crossed that the Loricraft/Garrard 601 (£6,500) and the Loricraft Trident turntable (£4,750), based on the 601, will also be present.*

*Call 01488 72267 or click [www.garrard501.com](http://www.garrard501.com)*

## SOUND FOWNDATATIONS

*Clearaudio's The Master Innovation turntable (£14,500) sits in-between the Statement turntable (£90,000) and Innovation (£6,400), and features the non-contact magnetic drive found on the Statement as well as the ceramic magnetic bearing. Existing Clearaudio Innovation customers can upgrade to the Master Innovation from £9,100.*

*Watch out for the Performance DC that integrates a high-torque, smooth and quiet DC motor into the chassis. The motor is similar to that used in Clearaudio's high-end Ovation and Innovation series turntables. A new 40mm thick black POM platter sits next to the new Clearaudio Clarify tonearm that features a woven carbon fibre arm tube. Completing the package is the Clearaudio Virtuoso v2 MM cartridge (£2,495), with a resonance-optimized ebony body.*

*Call 01276 501 392 or click on [www.soundfowndations.co.uk](http://www.soundfowndations.co.uk)*



## THE MUSIC ROOM

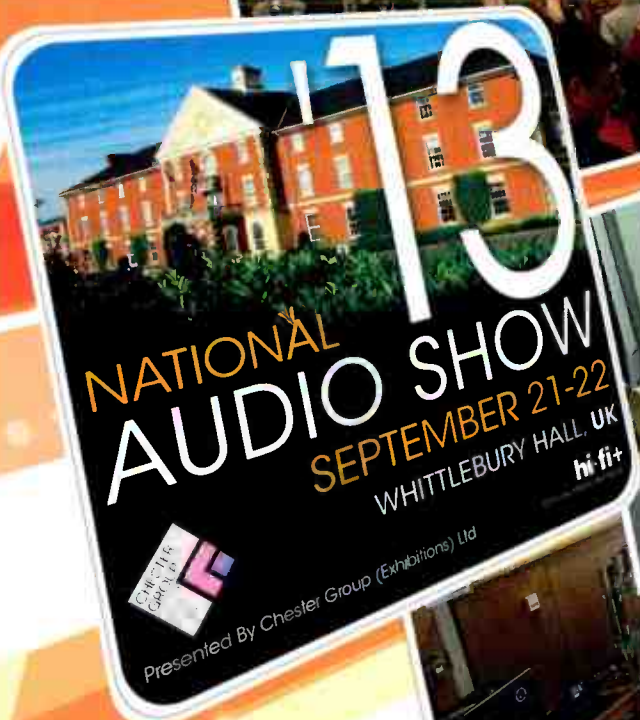
*Check out the Burmester 101 integrated amplifier (£4,080) with the 102 CD player at the same price.*

*The new Zingali speaker range (from £3,250) was previewed in Munich. Featuring the Omniray horn and new pedestal, it acts a quarter wave guide which focuses the energy from the down-firing bass reflex system.*

*In the headphone area — the Headzone — watch for the UK premier of the Abyss AB-1266 headphones (£3,495).*

*Call 0141 333 9700 or click on [www.music-room.com](http://www.music-room.com) for more information.*

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- Audionote
- Audiovector
- Auralic
- Black Rhodium
- Blue Horizon
- Box Design by-Pro-Ject Audio

- Brian and Trevors
- Brodmann Acoustics
- Canor
- Claro Audio
- Classic Album Sundays
- Clearaudio
- Clearlight Audio
- Concert Fidelity
- Custom Design
- dCS
- Diverse Vinyl
- Final Audio Design
- Furutech
- Gato Audio
- Gearbox Records
- German Maestro
- Harman Kardon
- Henley Designs
- Hi-Fi Racks

- HiFi Headphones
- HiFi Plus
- High End Cable
- Icon Audio
- ifi
- Inspire Hi-Fi
- IsoTek
- JBL
- Kralk Audio
- Lehmann Audio
- Linn
- Longdog Audio
- Loricraft Audio
- Loud & Clear
- LW Audio
- MCRU
- Music First Audio
- Mytek
- Ortofon

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## THE RIGHT NOTE

New at the show will be the: Aurender W20 streamer (£12,999), featuring two hard discs including a 240GB SSD plus OCXO word clocks; Vertex Aletheia DAC 1.5 (£15,995), featuring no upsampling, noise shaping or filtering but extensive anti-distortive technologies and VTL S200 valve power amp (£9,800) featuring 200W of power, SmartTube automatic biasing and tetrode/triode switching.



Call 01225 874728 or click on [www.rightnote.co.uk](http://www.rightnote.co.uk)



## Z:AXIS

Z:Axis Audio will be officially launching the Concert Fidelity brand in the UK including the ZL-200 Mono Power Amplifier (£26,300); LSX2 Pre amplifier (£12,900) and DAC 040 BD (£7,900) along with their own support system, the Ariya-Sacca (£7,600).

In addition, you will also be able to see MBL's CD transport 1621a (£18,900) with TAD Labs Compact Reference1 (CR1) loudspeakers (£36,995).

Click on [www.zaxisaudio.com](http://www.zaxisaudio.com) or call 01273 891750 for more information.

### MBL CD transport



ZL-200

### TAD Labs Compact Reference1



DAC 040 BD

### Ariya-Sacca support system



LSX2 Pre amplifier

## KRALC AUDIO

First up is the new mini monitor speaker, the BC-30 (£349), each pair hand crafted from a single sheet of birch wood ply. Next, is Version 2 of the Atlps-1 (£749) speaker featuring the new cast aluminum bass driver.

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# Trad Player

**Trad styling meets high resolution audio. Noel Keywood assesses the Colorfly C4Pro digital audio player.**

**T**he wacky Colorfly C4 Pro digital audio player has been around since 2010. We were offered a review sample some time ago, but took one look at it and declined! "It's like something out of *Starsky and Hutch*" commented reviewer Rafael Todes, who totes an Astell&Kern AK120 portable. Perhaps, but the C4 has gathered a large following and gets good reviews all the same: users typically say it sounds fantastic and it blew them away (etc!). So we asked to review the top C4 Pro.

What does the C4 Pro do? It is a portable music player that offers sound quality better than CD. Not only can it drive headphones, but also a hi-fi system. It's powered by an on-board re-chargeable, non-replaceable battery power supply. It has 32GB of internal memory to store music, plus one slot that can accept a 32GB micro-SD card, giving 64GB music storage in all. A 64GB card is not recognised, say Colorfly.

In real life the C4 Pro is as

eccentric as it appears in photographs. The contrast between its 1970s aesthetics, and 21st century ability to play highest resolution

digital files is peculiar, even bizarre. I can think of few products that look or feel as antiquated as this one, yet house latest technologies, purposed for tomorrow – meaning better sound quality than CD.

There are no moving parts, such as an LP inside. Music is downloaded from a computer and stored in flash memory. The provision of a line out jack socket means the C4 Pro can be hooked up to a hi-fi amplifier's CD or Aux input and used as a 'CD player'. By this I mean it can play CD files to deliver CD sound quality, or high resolution files for better quality than CD. As an aside – you can only download high resolution files; they are not commonly available by other means; you won't be buying them in HMV (don't even ask). Unencrypted, they are easily transferable, typically on a memory stick, between friends perhaps.

The player is 'portable' but not easily pocketable, because of its size. The case measures 126mm high 77mm wide and 26mm deep; it would fit only the largest pockets on – say – cargo trousers. A weight of 260gms makes it feel pretty solid too.

Part of its weight and bulk is attributable to a carved walnut sleeve. Also adding to weight and size are the volume slider, a rocker switch and mechanical control panels, as well as an old-style 1/4in headphone jack, no less, the logic of which I'll explain later.

Faux aged-bronze trims contrast with the American black walnut case, and at top sits a relatively large display panel that, unlike Astell&Kern's, is not touch sensitive. It does, however, have a sharp and clear colour display showing music level, track progress, bit depth and sample rate, track info, and the logos SRC (Sample Rate Conversion) and EQ applied. I liked the main feature of this panel, its sound level meter. Calibrated to cover a wide 60dB range it shows where music has been recorded in the dynamic range available, as well as its intrinsic dynamic range. So Eagles tracks hovered just below maximum (0dB) to sound loud and had a limited range from soft to loud of 20dB, whilst modern quality recordings were quieter but covered a much wider range. It was nice to see such a well thought out and informative display.

There are two headphone outputs: one uses a small 3.5mm headphone jack and the other a bulky 1/4in jack. The logic of this isn't immediately obvious, but measurement showed the large socket delivers no less than 1.9V – as



**Large 1/4in headphone jack, with a small 3.5mm jack on its right. Phono sockets are digital audio input and output. There's a card slot and mini-USB port here too, plus a hole to allow reset with a paper clip.**

much as a CD player and too much for headphones. Level can be reduced with the volume control but with sensitive phones this means setting volume very low, at which point there's little resolution. This is a line output, if useable with headphones. The small jack carries an attenuated signal, -10dB lower in level, better suited to headphones. However, subjectively I preferred the 1/4in line jack and used it for headphone listening.

What look like analogue phono sockets on the bottom panel are in fact an S/PDIF digital audio input and output. The input allows the player to be used as a DAC, and the output means an external DAC can be used if wished.

The internal DAC is a Cirrus Logic CS4398. There is also a CS8422 sample rate convertor whose main purpose is to up-sample CD to 24/192 resolution, Colorfly say. You can't get rid of 16bit quantisation noise or conjure up supersonic data from nowhere by doing this, but you can use better filters for small benefit.

Also on the bottom panel are a mini-USB socket for charging and uploading music files from a computer, a micro-SD card slot and a reset facility that I used a number of times. Although reset was quick, the small hole needs a paper clip or similar, which a user may not have when travelling – not such a good idea.

Colorfly claim to use top quality parts internally, for best sound quality. A temperature compensated crystal oscillator has top notch clock stability, to minimise jitter. The analogue slider volume control comes from Alps, renown for the Alps Blue potentiometer used by

nearly every hi-fi manufacturer; it's an obligatory part of proven and accepted high quality. An analogue volume control doesn't sacrifice dynamic range like a digital volume control and this one controls both headphone outputs. Elna Silmic II electrolytic capacitors are used for "better tone". Colorfly do appear to have made serious effort in the sound quality stakes, at least in component specification.

Our C4 Pro came with outboard charging unit that delivers 5V down a USB cable to the 3.7V battery inside. I suspect from the handbook this is aimed at the German market: it had a European two-pin plug that needs an adaptor for the UK. Ours didn't work (this may have been due to poor contact in the adaptor) so I used an Apple iPhone charger. Once charged the Colorfly played for 8 hours in a continuous looping test where the current drawing display panel was used little, so expect 8 hours as a maximum and around 7.5 hours as a likely real life playing time. That's a day's play perhaps. The C4 Pro can be set to play whilst charging, done whilst connecting to a computer. Plugging it into a Mac or PC turns it on and starts charging, its internal memory appearing as a removable 'mass storage device' on-screen (Mac).

## IN USE

Seeing FLAC in the file compatibility listing I merrily loaded up a small test library of 24/96 and 24/192 FLAC files and was greeted by a buzzing noise through the headphones; the C4 Pro does not play FLAC at anything above 16bit resolution – and 16bit is yesterday. It only plays hi-res in basic uncompressed WAV format. A lot of hi-res comes as FLAC because it is free, popular, has metadata and halves file sizes, equivalently halving download times and storage capacity.

The solution to this difficulty is to use XLD on a Mac, or dbpoweramp on a PC, to convert such files to WAV; I used XLD,

causing a small folder containing ten 24/96 test songs to expand 60%, from 774MB to 1.25GB. The internal memory will hold around 250 24/96 WAV songs (or half that with 24/192).

In real life my Astell&Kern AK120 carries all sorts of stuff: old analogue recordings in 24/192, CD rips in miserable 16/44.1 and swathes of recent hires, mostly in 24/96, making song capacity prediction impossible. But as a guide a CD track that is typically 60MB in WAV, will occupy 195MB at 24/96 resolution, and 390MB at 24/192 resolution. So although the Colorfly's 64GB total storage capacity is adequate, the need to use uncompressed WAV substantially diminishes the number of songs it can carry, as well as necessitating transcode to WAV.

In addition to WAV the player also handles MP3, Ogg Vorbis and APE, Colorfly say. I loaded CD rips (16/44.1) compressed by FLAC and these did play. So, all in all, the C4 Pro



**Excellent display panel shows wide 60dB music range, with red meter indicator. Bit depth and sample rate are shown too.**

is limited in file format compatibility and is looking dated here – and don't ask about DSD.

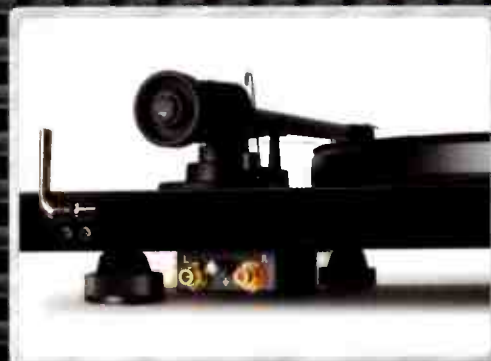
The peculiar rocker switch is a spring loaded temporary 'make' type that gives direct access to sample rate conversion and six music EQs: Normal, Rock, Pop, Classic, Bass and Jazz. Just press the switch to scroll through them. I listened to them and heard the usual basic EQs being applied; nothing special here; I stuck with Normal but some may want Bass to give portable 'phones a kick.

Sample rate conversion (SRC) changes resolution as well as sample rate, typically being used to 'improve' CD by increasing its resolution from 16bit to 24bit, and sample rate from 44.1kHz to 96kHz or even 192kHz. Sounds good, but there's no information that can be recovered

# The Carbon Age



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**Walnut case and faux graphics.**

and the sins of 16bit, namely quantisation noise, are not ameliorated, so there's negligible improvement in sound quality.

This is not to say CD does not sound better after being ripped and played on the C4 Pro; re-clocking lessens jitter and both cleans and stabilises the sound, giving an improvement many find clearly audible (as I do). Just don't expect much from SRC.

**SOUND QUALITY**

Which brings me onto sound quality. Rafael's comment seemed apposite: the C4's sound was 1970s too, but in a good way. It was muscular and expansive, like Starsky's Gran Torino, but similarly less than svelte. Enjoy the power; forget sophistication!

With a CD rip of the Eagles' 'Somebody' the C4 Pro put up a massive sound stage, painting the band in a big broad picture across it. There was a strong sense of grip in the timing, and dynamics were large; I immediately realised this player has an exciting presentation, one that's visceral with Rock. The Hammond had a big fruity presence in the mix as it swirled in the background and the bass line was thunderous, through Philips Fidelio XI headphones. I also felt the sense of grip and power through my travelling lightweight Jay V-Jays, even though they lack bass power. Cymbals were sweet and sonorous – a real surprise because the CD sounds rough – and strummed guitar had a similarly finely resolved, sweet quality.

I suspect the special components here; when I've used Black Gates and

Alps parts in the past this is the sort of improvement they bring, lifting the mundane a step toward the sublime.

With Tom Petty's 'Refugee' (24/96) I was aware that, as I suspected working through CD rips, the C4 Pro is brighter than the AKI20, faster and sharper, more forceful. There was a sheen to treble that gave the presentation a hard edge. It lifted horns of the Berliner Philharmoniker playing Dvorak's Cello Concerto, making them stand out, but gave strings a little glare.

The bass line in Diana Krall's 'Narrow Daylight' was clean and firm, and piano chords rang out strongly; this is a big and bold sounding player. Plectrum on steel guitar strings sent shards of sound through my ears; I can understand why users declare that having heard this player "all else is gaslight" to borrow someone's infamous phrase upon hearing CD. But although I was mightily impressed I also had some slight reservations. The darkness in silences wasn't quite

there, nor the silky smoothness of hi-res done well that I have become used to.

All of which is to say the C4 Pro has a Technicolour sound that is fast and forceful, and has superb treble resolution too. It is gripping and exciting, if a little hard and fast in character; you won't be nodding off listening to this one!

**CONCLUSION**

1970s fantabulous, the Colorfly C4 Pro is one wacky device. Ignoring the clutter of its styling and file format limitations, it has an exciting sound that seemingly lifts hi-res higher, making listening a thrill. It isn't quite the bees knees in sophistication, in any area: styling, sound or usability. Pull it out beside someone using an iPod and they'll collapse laughing. Unfortunately, no matter how good its sound, at the price it is not now competitive; similarly priced rivals offer pocket-ability, a more neutral sound and wider file format range.

**MEASURED PERFORMANCE**

Frequency response of the Colorfly measured flat from 4Hz to 44.6kHz (-1dB) with a 192kHz sample rate signal, our analysis here shows. Selecting Fast or Slow output filter made no difference to this result, which was surprising.

With 96kHz sample rate bandwidth fell to 42kHz and with CD (44.1kHz sample rate) frequency response was flat to 21kHz before rolling off steeply due to the need for brick wall anti-alias filtering.

Distortion levels were low with 16 bit and 24 bit signals, but a small

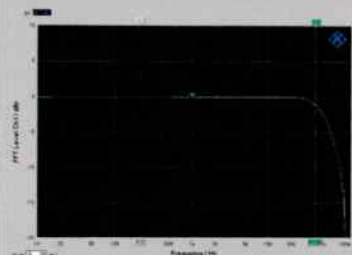
amount of noise, possibly in the output amps, increased the distortion figure. As a result, distortion figures were not up with the best. At -60dB around 0.02% is possible but the Colorfly produced 0.12% distortion. This small limitation affected its EIAJ Dynamic Range figures, the player having a value of 100dB with 16bit and 105dB with 24bit, where 110dB or higher is possible.

Output from the large 1/4in jack was a high 1.9V – close to CD and sufficient to drive an amplifier's CD or Aux input. The adjacent small 3.5mm jack gave far less, just 0.6V (-10dB) and is obviously purposed for headphones.

Jitter was low, as claimed, with negligible signal-correlated jitter, just 18pS of random jitter, low clock wander and little phase noise.

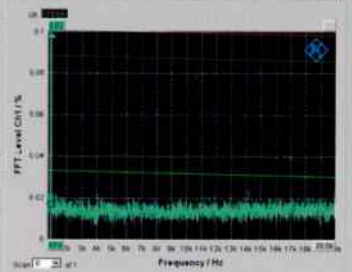
The Colorfly measured well, being able to reproduce high resolution digital with clear improvement upon CD quality. It doesn't quite get the best out 24bit digital, dynamic range being limited, but it should give a good account of itself all the same. **NK**

**FREQUENCY RESPONSE, 192k**



**DISTORTION, -60dB, 24bit**

THD	0.1097 %	1.9089 mV	997.00 Hz
CH1	OFF	OFF	OFF



<b>Frequency response (-1dB)</b>	<b>4Hz - 44.6kHz</b>
<b>CD</b>	
<b>Distortion (%)</b>	
0dB	0.002
-60dB (24bit)	0.12
<b>Separation (1kHz)</b>	<b>118dB</b>
<b>Noise (IEC A)</b>	<b>-105dB</b>
<b>Dynamic range</b>	<b>100/106dB</b>
<b>Output</b>	<b>1.9V</b>

**COLORFLY C4 PRO DIGITAL AUDIO PLAYER, £550.00**



**GOOD - worth auditioning**

**VERDICT**

Dynamic and exciting sound, but barely portable and with mediocre ergonomics and appearance. An eccentric and expensive product.

**FOR**

- dynamic sound
- good display
- high output

**AGAINST**

- file incompatibility
- appearance
- finish

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World Radio History



# Small Q

**Q Acoustics have updated their 2020i 'speakers with a new cabinet and dedicated stands, to produce the Concept 20 here. Jon Myles finds them a little wonder.**

**W**hat makes a good loudspeaker? Drive units? Cabinet construction? Or, in the case of a standmount, what it sits on? In reality, as we all know, it's a combination of all three. Which brings us to the Q Acoustics Concept 20.

In essence this is the company's well-regarded budget 2020i model with a new cabinet and – to bring the best out of them – a dedicated stand adding £200 to the cost.

So whereas the 2020is are £210 a pair the Concept 20 with stands will set you back £550. Which does start to put them up against some serious competition – including Q Acoustics own 2050i floorstander costing £575. But take a closer look at the Concept 20s and you start to see their thinking.

Essentially, they take the 2020i drive units – a soft-dome tweeter with carbon fibre and ceramic-coated paper mid/bass, and a slightly tweaked crossover – then put them in a vastly improved cabinet.

In essence the Concept 20 enclosure uses a box-within-a-box design with inner and outer enclosures of 10mm MDF panels separated by a compliant compound called Gelcore, said to dampen any panel resonances by turning the unwanted energy into heat.



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The tweeter still remains decoupled from the front panel to reduce any vibration from the mid/bass unit muddying high frequencies.

But other changes from the 2020is include bi-wireable speaker terminals mounted on the rear panel below the reflex port rather than in a plastic tray at the base of the speaker.

Then there's the dedicated stands. Yes, they cost £200 – but in terms of material value for money that doesn't seem excessive. Standing 66cm high, the metal top plate again has a Gelcore filling for damping with three threaded metal discs that screw into the underside of the speaker to hold it firm.

The main pillar is made of MDF and three floor spikes finish things off. The rear pair are mounted to a thick glass bracket and adjustable for level while the front spike is fixed in place. In practice they make it extremely easy to achieve levelling without too much stress – which isn't something you can say about every stand.

Put together it's an undeniably handsome pairing with a reassuring solidity and sense of purpose.

**SOUND QUALITY**

Firmly secured on their stands, placed clear of a rear wall and given a slight toe-in you can hear the benefits of the Concept 20's cabinet.

At just 26cm tall bass quantity and dynamic extension are never going to be prodigious – but there is still an enticing sound on offer.

Their biggest strength is an admirable coherence and freedom from boxiness. Keep the volume at a reasonable level and they sound tuneful and rhythmically assured.

The fiery trumpet playing of Tim Hagans on 'Asiento' was hard-hitting yet composed. The higher registers seemed to float free of the speakers

while the backing was all of a piece. New Order's 'Age Of Consent' also romped along with admirable verve.

There's something undeniably right about the overall voicing of the Concepts – no sense that they are pushing the envelope to try to be something they are not.

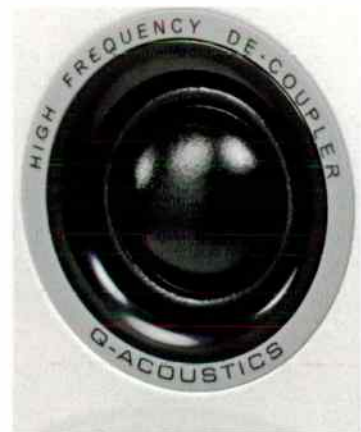
Take a track like Daft Punk's 'Instant Crush' and ultimately you'll lose some of the detail but not the overall feel and ambience. The pace and timing are immaculate and drive the track along with admirable force and precision.

And secured to the dedicated stands the soundstage is impressively wide. In fact, they may be a virtual requisite. Moving the speakers to another pair of stands (albeit cheaper models) saw the sound take a noticeable dip in quality. Nothing that would make you think they were seriously compromised by alternative stands, but enough to realise how much the dedicated stands contribute to sound quality.

Back on their preferred residence Chick Corea's 'Further Explorations' came over well – the Concepts doing a good job of reproducing

the late Paul Motian's elastic drumming.

In fact, this is where these speakers really shine. Simple, acoustic music can sound sublime, having a palpable presence and sense of atmosphere.



*The tweeter is decoupled from the main cabinet to minimise resonances from the mid/bass unit*

**CONCLUSION**

The Concept 20s are a superb update of Q Acoustics 2020is, showing just how much difference an improved cabinet can make. To get the best from them, though, the dedicated stands have to be used. It takes the price to £550 and starts to push them up against some tough competition which will give greater frequency extension.

But if you are in the market for a small standmount speaker that looks excellent, has a well-balanced sound and won't let you down then this is one to listen to.

**MEASURED PERFORMANCE**

In keeping with all Q Acoustics loudspeakers, the Concept 20s had an impressively flat frequency response, our third-octave analysis shows. Not only does this give a nice even sound free from tonal aberrations, it's also indicative of low coloration. Treble lifts just slightly, enough to ensure highs are clear and obvious, without being forced. There's no crossover dip around 3kHz, so

detailing will be strong. Output at lower frequencies doesn't rise at all and this suggests the Concept 20s will have quite dry, restrained bass, not a warm or fat sound, and this was confirmed by our decay analysis.

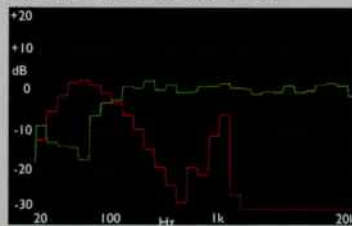
Forward output from the bass unit rolls down below 150Hz, suggesting the 'speakers have been designed to work close to a rear wall. The port peaks around 50Hz and its output was very high, no less than +16dB above the bass unit at 80Hz (+6dB is common) so it provides all the bass and it will likely sound 'bouncy'.

Impedance measured 6.5 Ohms but the bass unit is a 4 Ohm model, like most these days, so that is the minimum load value. Sensitivity was high as small loudspeakers go, measuring 88dB from one nominal Watt of input (2.8V). A 40 Watt amp will go loud.

A 200mS decay analysis shows the Concept 20s to be very low in coloration, and the cabinet isn't at all hot at low frequencies. Bass quality should be good but an amplifier with heft (Naim) may be needed for bass weight.

The Concept 20 is tightly engineered from top to bottom. It measured very well and can only give a high standard of sound. **NK**

**FREQUENCY RESPONSE**



Green - driver output  
Red - port output

**IMPEDANCE**



**Q ACOUSTICS  
CONCEPT 20  
£350/£550 WITH  
STAND**



**EXCELLENT - extremely capable**

**VERDICT**  
Impressive standmount with a clear and musical signature. Best used with dedicated stand.

**FOR**  
- lovely musical sound  
- rigid cabinet construction  
- pace and timing

**AGAINST**  
- best with dedicated stands  
- limited frequency extremes

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The new MC Anna from Ortofon sits at the highest echelon of Moving Coil cartridges. This state-of-the-art product is representative of numerous design elements and ideals pioneered by one of the world-leaders in analogue technologies. As a result, the MC Anna is truly capable of the highest degree of performance possible, and will provide a sound which is literally unsurpassed. The MC Anna is named after and inspired by the world-renowned operatic soprano, Anna Netrebko.

The stylish Xpression cartridge from Ortofon bridges the gap between SPU-type designs and High-End models like the MC Windfeld and MC Anna, which are designed for headshell mounting. The result is a high-performance moving coil cartridge with the convenience of a standard headshell connector. By using some of the best technologies available to them, Ortofon have made the Xpression into not just a convenient and attractive design, but also one of the finest sounding cartridges available on the market.

## Cadenza Series



The Cadenza series represents another example of Ortofon's constant push toward technological perfection. By taking various design characteristics acquired through market leaders, such as the MC Jubilee and Kontrapunkt series, Ortofon have developed Cadenza to elevate any decent Hi-Fi system to a whole new level. The range consists of 5 different models, including a Mono version, but they all adhere to Ortofon's core principles of accurate information retrieval and phenomenal sound performance.

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# "we audiophiles are good for something after all"



Paul Rigby

**Y**ou know...it brings a tear to the eye. Not just for me but to a group of people whose creativity was largely ignored.

Take yourself back to the early eighties and that critical time when punk had lost focus. Gone was the individuality and philosophical purity of the movement. In came commerciality and leather jackets. Johnny Rotten wore safety pins because he was too poor to buy new clothes – the pins held his old clothes together. The band-wagon jumping, 'me too' brigade adopted the safety pin as a Disneyland affectation. That's why post punk bands emerged. The quest for a new purity combined with the allure of new technology.

Synthesisers were still expensive but dropping rapidly in price and getting your hands on one meant that the 'three chords to make a song' punk ethic could continue in a more extreme form. Now, you didn't even have to learn three chords. You just had to use a single finger to prod a synth key and it would make a noise weird enough to get you noticed.

So post punk rapidly splintered into a host of sub-genres, one of which became minimal wave, a new construction of electronic music. Innocent and naïve in the most positive of senses, it featured a pioneering spirit and a musical output that was raw and basic in its construction, producing simple repetitive patterns and vocals that often circled around them.

Notably, this early synth movement attracted influences from avant-garde philosophies such as futurism, as well as numerable later developments in technology such as the MIDI interface and the sequencer.

Highly unstable, minimal wave itself splintered into sub-genres such as cold wave (early Cure), electropop (Tubeway Army), synthpunk (Cabaret

Voltaire) and more.

They were the commercial successes, but there was more to the movement. In fact, like any musical iceberg, you only ever got to see ten per cent of it. The rest was busy, though, because of the popularisation of the recordable cassette tape and the Sony Walkman, which was introduced in 1979. These artists were subsumed within the cassette culture, primarily due to a lack of funds but also because of new, cheap, cassette-based 4-track home studio gadgets from the likes of Fostex and Tascam who were entering the market.

Hence, many solo artists and bands from this period were producing innovative, exciting and often extraordinary musical works, recorded onto cassette and sold in very limited numbers within basic packaging.

Many of these unique tapes have been left to rot in drawers or basements or discarded through sheer neglect. One man, Frank Maier, has made it his mission to rescue this underground culture and present its music to the world within a format that befits its status and quality: vinyl.

I'm a big fan of all of these early electronica genres (and analogue in all of its guises) and so Maier's German-based label, Vinyl On Demand ([www.vinyl-on-demand.com](http://www.vinyl-on-demand.com)), is always on my radar. He has recently been working hard on a new and quite stunning, fifteen record, twelve LP, vinyl-based box set that provides a unique insight into the genre and includes artists such as Kevin Lazar, Los Paranos, Peter Becker Olaf Schirm, Emily Faryna and Paul Nagle.

As you might expect, Maier's priorities and requirements when creating his luxurious vinyl editions are different from the usual vinyl reissue company. Take the hardware, for example, "Most tape decks we use

in the studio are Kenwoods such as the KX-5030 or KX-5060. They are reasonably priced transports, sufficient to transfer the analogue tapes to digital. For a tape deck, we look for a good, strong transport to pull the reel as some of the tapes get stuck.

When working with original 1/4 reels, we use a Revox B77 but we also work with Transfer U-Matic (introduced in 1969, this industrial videocassette was one of the first video formats on the market which failed as a consumer item due to costs) or Betamax. We need to be very flexible here as artists did record on a variety of tapes back in the late-seventies to late-eighties."

In terms of software, Maier likes to work with Wavelab 7, multi-band-compression and BX Saturator amongst others.

"Solid software and hardware tools are essential within the intensive process of audio restoration, to assure the best possible quality from old and noisy tapes that are, after all thirty to thirty-five years old. Sometimes we need two or three full days to squeeze the best results from a tape."

The results are worth it, though, because this music, previously locked, decaying within a cassette shell, is not only given a new lease of life, it also finds a new audience and, wonderfully, new heart to the artists who had, mostly, left their creative endeavors and found a proper job", Maier confirmed.

"A great side-effect of these releases is that many artists start to produce music again, building websites for their artistic projects, meeting old friends and band-partners. They are proud of what they have achieved and happy with the recognition they have finally received".

You see? We audiophiles are good for something after all. ●



## VTL S-200 Signature Stereo Power Amplifier

*It's been worth waiting for!*

The S-200 bears a similar sonic signature to its bigger brother, the MB-450 Series III Signature monoblocks. The mid bass authority and control is excellent while the midrange and top end reflect natural timbres and instrument colors effortlessly. The amplifier's agility and speed, its very low noise floor, and its ability to drive a wide range of speakers are distinct features that few other tube amplifiers in this price category can offer.

This 200 watts/channel stereo amplifier is packed with technology VTL has spent years developing. A fully balanced differential input stage drives a differential phase splitter and a lower impedance push-pull output stage with a custom made, fully balanced, interleaved and coupled output transformer. Like its stable mates, the amplifier incorporates VTL's SmartTube technology with automatic bias adjustment and fault sensing, making this amplifier especially welcome to music lovers who value ease of use. With the S-200, there's no need to guess when or if a tube may need to be replaced.

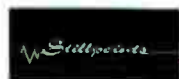
To keep the output tube operating point constant and stabilize the critical power supplies, even under AC and main power supply fluctuations, the S-200 deploys adjustable precision-regulated bias and screen supplies, yielding tonal stability and sonic integrity especially during complex, dynamic signal conditions.

The S-200 also features a user adjustable Damping Factor feedback control that allows the user to adjust the amplifier's output impedance by varying the amount of negative feedback. Impedance can now be precisely set to suit the listener's taste, and to improve control of the loudspeaker loads to deliver best performance.



*Pair the S-200 with VTL's TLA-5 Series II preamplifier for one of the most compelling and seductive sounds available anywhere!*

At Kog Audio, we select the most exceptional products in order to give music lovers unmatched enjoyment, and build systems that will exceed expectations and provide pleasure for years. Please visit our website for information, links and reviews for all our products.





# 142 million album sales globally and vinyl accounted for 2% of this market



Tony Bolton

**A**lthough I buy a lot of second hand records from the local second-hand shops, charity outlets, and also our local recycling centre which has a Resale Area and is my current favourite record shop, I do buy new pressings as well. The most recent of these is the new Shpongale album 'Museum of Consciousness', their fifth release since forming in 1998.

What made this release different to their previous offerings was the automatic inclusion of a free digital download of the album, regardless of whether I bought the vinyl or CD versions. With the CD there is a free High Quality MP3 download at 320 kbps, while with the vinyl there is a choice of MP3 HD (iTunes and iPod compatible), High quality MP3 (320 kbps), Apple Lossless or FLAC.

There are also options to get just a downloaded version, but in doing so the purchaser misses out on the booklets and the 3D lenticular cover which looks good on the CD version, but amazing on the LP casework.

Digital options like these are becoming increasingly common with most new album releases. In fact I cannot think of anything that I have bought new in the last 12 months that didn't have a download supplied with the vinyl. I like the concept, since it leaves the purchaser with a high resolution copy for use at home and an easily accessed digital version to load into a 'phone or whatever portable music player that you favour.

The inclusion of this extra with the CD is new to me, but again it makes storing a copy on a hard drive very simple, and since a lot of current computers are not now equipped with disc drives, this is obviously the direction that the market is having to take as a result.

How much this lack of a disc

drive will further depress CD sales is anyone's guess. According to some figures, they are down 14% in the first six months of this year compared with the same period in 2012, while at the same time (according to Nielsen Soundscan) in the UK there were 2.9 million LP sales in the same period, a rise of 33.5% over the first six months of 2012.

Interestingly, although these sales are being driven, to a certain extent, by the reissue market, the majority are of contemporary music being bought by the traditional market for such sounds – the teen, 20 and 30 something age groups, most of whom were brought up with CD as the main music carrier.

There has been discussion about resurgence of the 7 inch single market, amongst teens but the figures released from this year's "Record Store Day" (held on the third Saturday of April every year since 2007) show this market sector cannot wholly account for the growth in sales. On this day the sales of analogue discs were made up as follows: 1249 7" albums, 25,100 12" albums, 27,642 7" singles and 15,545 12" singles, an increase of 60% over last year.

To put this in perspective, in the first six months of 2013 there were 142 million album sales globally and vinyl accounted for 2% of this market.

Looking further into the subject I found that the dance music sector, which was the driving force in maintaining vinyl's existence during the dark days of the 1990s, is declining as DJs move over to using CD players such as the ubiquitous Pioneer CDJ1000 or hard-drive based systems such as Serato or Traktor Pro 2.

There is also a growing trend to DJ in clubs using the music video

released with the track, displayed on big screens. This trend will further harm CD sales because this type of media is downloaded from the record company websites.

Another area of music where sales are showing a worrying decrease is classical music. The Nielson figures for America in 2012, compared to 2011, show a 20.5% drop in total classical album sales from 9,400,000 to 7,500,000. The digital / download classical music sales for the same period showed an increase from 2,300,000 to 2,600,000, but this was not enough to offset the overall decrease.

Virtually all classical music sales are in some form of digital format, the vinyl classical market being mostly occupied by reissues of classic LPs from the fifties and sixties.

Whether a move towards vinyl issues of these recordings would help turn the tide is unknown. I, for one, would be far more likely to buy contemporary classical recordings if they were available on vinyl, (there are a lot of superb performers gracing our concert halls at the moment). As it is, I tend to avoid the CD releases, and stick to the second-hand delights of the Decca SXL series and the like from the fifties and sixties, and enjoy the more lifelike performances and better sound quality that this gives me when compared to the over-edited renditions that seem to comprise most of the modern CD repertoire.

An old friend of mine had a favourite saying that "the only constant is change itself". This is proving very true of the retail music markets. Over the years we have been told that vinyl is dead and that CD was perfect. Where the future lies, I don't know, but I think vinyl has demonstrated that it is here to stay for a good while yet, as the silver disc loses ground rapidly. ●

# Vinyl is black!



The Evo 1 What an evocative name and rightly so too! The SL-1200 evolved from a Hi Fi turntable into a DJ deck and now we turn it back into a Hi Fi turntable again! Fitted with the legendary SME 309 tonearm and the Audio Technica AT33EV your emotions will run wild. The AT33EV is itself an evolutionary cartridge hence its EV suffix and matches the SME 309 so well. We have worked with direct drive turntables and moving coil cartridges for over 30 years now and the EVO has evolved into a mature product that is quite simply a world beater. We can supply completely new units with 5 year guarantees, used ones with 2 year guarantees, or we can convert your own..



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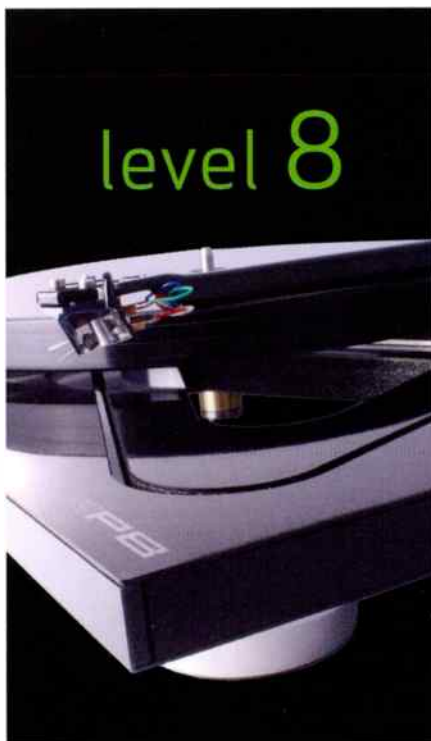
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# "cathode resistors and capacitors either blow up or burn out"



Noel Keywood

**V**alve amplifiers can – and too often do – destroy themselves in spectacular fashion. Big blue flashes come from the output valves, then there's a bang and, after some very nasty sounds through the speakers, all falls silent. There may be a burning smell.

It's enough to put anyone off using one, but I've been running a World Audio Design 300B for twenty years now and it's been trouble free. It really is down to the manufacturer and how much power they are trying to get from a valve. Push them too hard and they will fail spectacularly.

I'm constantly reminded about all this when dealing with valve amps., and the issue came up obliquely with the Audio Research VS175 I review this month. Not because their amps blow up – precisely the opposite – but because they take precautions to prevent them blowing up. And the KT120 tube is part of this tale.

Let me tell you how valve amps fail, something too many valve amp manufacturers fail to understand.

If a power valve is asked to handle more than its rated power the anode will overheat, and so will the electrode structure around it. It will not necessarily glow cherry red, as happens when overheating is extreme. Instead, the metalwork is thermally cycled beyond its long term survival limits and eventually warps so severely the huge voltage on the anode, 500V-800V, flashes over to the grid and cathode when the fine gaps between them diminish. Once this process starts and bright blue flashes appear, it's only a short time before total failure occurs.

In total failure, when the anode contacts the cathode, full HT is put across cathode resistors and capacitors and they either blow up or burn out. Worse, the surge of current through the output

transformer primary can burn this out too.

What is left is a sorry mess and often an amplifier beyond economic repair. HT fuses should save the output transformer but some designers like to avoid fuses "because they affect sound quality". I suspect they don't know why a fuse is crucial.

So, how to minimise such total failure? Obviously, a valve must not be over run. Unfortunately, when I see absurd claimed power outputs of – say – 70 Watts from one pair of KT88s, I know the manufacturer is either over stating the true power produced or that the amplifier isn't going to last long. However, complicating the issue is the quality of the valve used.

When power valves were produced by GEC, Marconi and Mullard, they were high quality items and their failure rates low. Modern valves from less sophisticated factories in Eastern Europe, Russia and China are not only less capable, but they are more prone to failure and to batch variation. At World Audio Design we once bought a batch of KT88s and every one failed! Luckily, no amplifier was damaged as a result of this, but it illustrates what is happening out there in the real world.

Old valves were successfully manufactured to very tight tolerances. I once used a GZ37 rectifier from Mullard in a prototype amp and all was fine. When I plugged in current production versions every one flashed over, even though I was running the valve below its rated voltage. I ended up using a wider tolerance 5U4G that never flashed over, but it was much bigger.

And that's what we see with the new KT120. It is a modern revision of the KT88 Kinkless Tetrode, with a bigger anode able to dissipate more power. Its electrode structure

is strengthened to resist thermal distortion and the possibility of flash over. It probably better suits current production processes too.

That's all fine. But now to one last wrinkle. Some valves fail early, meaning they work when tested before leaving the factory, only to fail shortly afterward in the customer's home. Great!

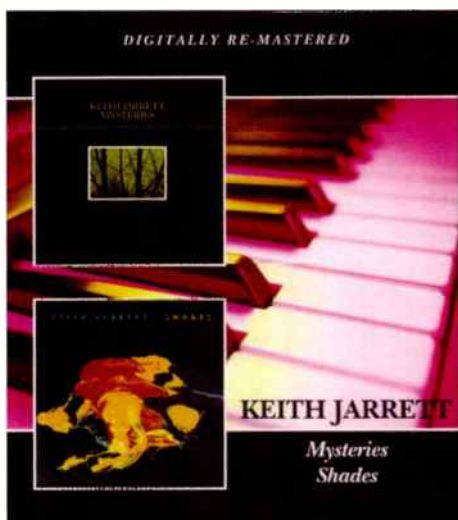
The only way to avoid this is to soak test every valve, and this is what Audio Research do. It is time consuming and expensive, but you get an amplifier that'll work as intended for the life of the output valve. Audio Research recommend you purchase new, soak tested valves from them also when replacing tubes, but they are more expensive than unsoaked tubes of course.

So now you can see why Audio Research have chosen the KT120, leaving behind the well built and reliable 6550 they once used.

The twist to this tale is that, having found the KT120 a big success, its manufacturer Tung Sol have now come up with a plug-in upgrade, the KT150 – and we are running '150s at Hi-Fi World right now.

The KT150 has slightly higher anode dissipation, 75 Watts instead of 60 Watts, and a stronger and non-resonant glass bulb shaped like a gherkin, giving it a distinct appearance. It also has a smoother, darker sound.

Although the KT120 gives more power than a KT88, is rugged, reliable and cheap – around £40 – it can sound sharp, even fierce. The KT150 is designed to sound better, whilst being even stronger, but it costs £100 – more than a 300B. That's expensive. All the same, providing manufacturers don't over-drive them, blue flashes and destruction will hopefully be a thing of the past with these new Kinkless Tetrodes. ●



KEITH JARRETT

Mysteries/Shades  
BGO

Talk to true jazz fans and Jarrett is considered to be nothing short of a genius.

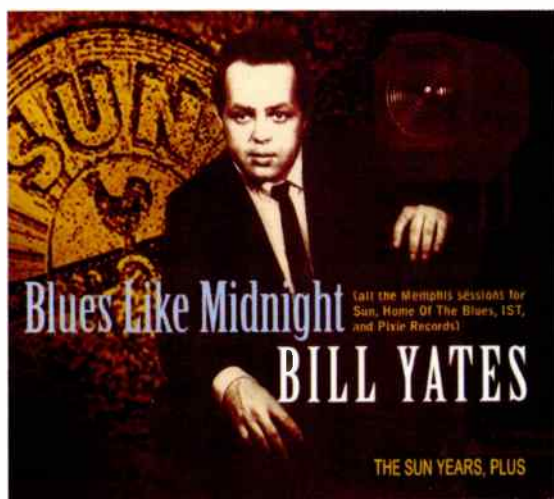
A brilliant pianist, he is seen as a consummate innovator, completely changing the face of solo piano work in terms of improv. For this new reissue from BGO, the well produced CD includes two albums: 'Mysteries' and 'Shades', both released in 1975, a prolific period of recording which saw Jarrett release five albums within that single year.

For 'Mysteries', Jarrett utilised his quintet structure but adopted a more experimental, exploratory sequence meaning that this album, while excellent, is aimed at true Jarrett fans only. It features a selection of top-notch highlights, however, including the reflective John Coltrane-like title track that spans fifteen minutes

For 'Shades', the quintet, featuring bassist Charlie Haden, drummer Paul Motian and

percussionist Guilherme Franco keeps the band moving at a pace with 'Shades of Jazz' offering a memorable melody and innovative improvisations, Jarrett being ably accompanied by sax player Dewey Redman. The pace of the album increases somewhat when the almost gospel-infused track 'Southern Smiles' kicks in along with 'Rose Petals' but starts to truly motor during 'Diatribes'.

Also look out for other BGO releases this month including Gentle Giant's classic harder rock, concept piece, 'Three Friends' (1972) and the under-rated, complexity of 'Octopus' (1972). Jerry Lee Lewis is back with two sixties' outings, recorded just before he took a left turn into country: 'The Return Of Rock' (1965) and 'Soul My Way' (1967). Check out Clover's 'Unavailable' (1977) and 'Love On The Wire' (1977), while the Incredible String Band's 'Hard Rope & Silken Twine' (1974), was the band's last album before disbanding.



BILL YATES

Blues Like Midnight  
Bear Family

Yates, once touted as the white Ray Charles, was a singer and pianist who, in conjunction with his partner, Billy Adams, created more singles for Sun Records than most of the other artists on the roster. Adams started singing early, with his brother and sister, as a kids gospel group in Mississippi, recruiting a young man who sang with them for a while. A certain Elvis Presley. Later, as Yates progressed, he would hang out with the likes of Carl Perkins and Jerry Lee Lewis, travelling around in a hearse. During these times, Lewis was seen as unreliable, so Yates often had to step in for Jerry Lee as the headline: reports say that Yates could play piano just like the Wild One.

But it was that early Presley connection which forged a relationship with the King when Yates was employed as Presley's bodyguard for a time, although Yates' own career continued

unabated. According to Sun boss, Sam Philips, "Bill had an awful lot of soul in his voice. He was probably as versatile as any artist I've ever worked with."

This excellent CD features all of the 45 singles created for Sun and Home Of The Blues (an independent Memphis label publishing post-Sun blues and pre-Stax soul) along with unissued tracks and alternative versions along with a rare single issued on the Pixie label.

Also look for other releases from Bear Family, including 'Rock Me Baby - The Sun Years Plus' from Yates' colleague, Billy Adams, also on Sun and working as a bandleader, drummer and singer. Doctor Ross And His Jump And Jive Boys' 'Juke Box Boogie' features the Sun and Chess singles plus unissued singles recorded at Sun. Finally The Drifters' 'Rock' features the band's rock'n'roll recordings plus alternative takes.

**A** three CD set that features those singles that 'should' have been a hit but were not and then faded from view. So what we've got here is a wealth of top quality artists such as Bobby Darin, the Everly Brothers, Johnny Cash, Perry Como and Johnny Mathis. Each and every one was flushed down the loo of pop chartdom.

Maybe Gene Vincent, for example concocted the wrong nonsense word combination. His previous hit, 'Be-Bop-a-Lula' couldn't be replicated with the more elaborate 'B-I-Bickey-Bi, Bo-Bo-Go', in 1957. Can't think why. Meanwhile Little Miss Dynamite didn't quite make the grade with a namesake song title, 'Dynamite' in the same year. But why did Lonnie Donegan not succeed with 'Midnight Special' in 1958? The man was a skiffle phenomenon. Maybe it was the right song/wrong audience? Wilma Lee and Stony Cooper had

a Top 5 hit with the same song the year after but within the country charts. And why 'Plain Jane' died a death for Bobby Darin in 1959 is a mystery, especially when it was flanked by two No.1 hits: 'Mack the Knife' and 'Dream Lover'. Whatever your musical taste, you will find plenty to interest you amongst this compilation. Fascinating stuff.

The label has also released 'Teenage Blues', an examination of the Texas record label, Starday Custom. Covering three CDs, it includes tracks from the likes of The Beck Brothers and Gene Ray. 'Soul City Chicago' examines early releases from Chess, OKeh, Vee Jay and One-derful featuring artists like Etta James, the Dells and Little Milton. Also look out for 'Rockin' Bones' which features rockabilly tracks from 1956-1961 including rarities from Johnny Burnette and Jesse James. And, finally, 'Youths Boogie' covers Jamaican music from 1959-1962 featuring productions from Chris Blackwell and Duke Reid.



VARIOUS

The Forgotten 45s: 1957-1959  
 Fantastic Voyage

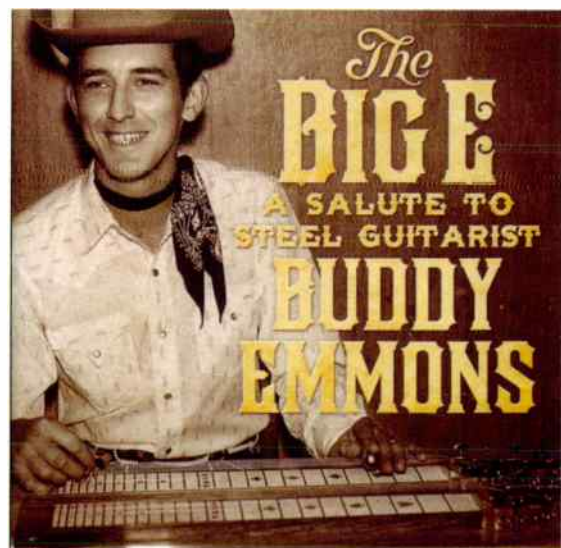
AUDIOPHILE CD

**E**mmons wasn't just the best steel guitar player in Nashville, he was one of the best that there has ever been. Playing the thing since the age of eleven certainly helped. He took to the instrument like a duck to the wet stuff, turning pro by the age of sixteen and, in 1956, fulfilled his first pro gig as he stepped in for Walter Haynes, backing country novelty song king and balladeer, Little Jimmy Dickens.

He did well enough to appear with them at the prestigious Grand Ole Opry and on several singles (a Dickens track, 'When Your House Is Not A Home', is featured on this CD). By 1957, he was recording solo singles. From there, Emmons played with luminaries such as Ernest Tubbs (late-fifties), Ray Price (1963) and Roger Miller (1969). Emmons left to resume his solo career in 1973, releasing an array of albums.

This new CD is a sixteen-track celebration, a sort of salute to Emmons featuring people and songs that featured heavily during Emmons' life. With profits donated to the Country Music Hall of Fame and Museum, the CD features 'That's All It Took' from Emmylou Harris. Emmons played on Gram Parsons' first solo LP, Harris featured on the same. 'Blue Jade', is performed by Duane Eddy, a good friend, as is Willie Nelson, who contributes 'Are You Sure'. The track, 'This Cold War With You' was originally recorded by Emmons with Ray Price in 1963. Here, another exponent of the steel guitar, JayDee Maness (ex-Buck Owens Buckaroo) gives his rendition.

This CD is packed with top quality talent and songs. It's nice to see a tribute actually mean something to the recipient and his fans rather than a vehicle for a celebrity jolly-up. Recommended.



BUDDY EMMONS

The Big E: A Salute To A Steel Guitarist  
 MPI



# 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.

**We do not sell these products. It is for your information only.**

## DIGITAL

**CAMBRIDGE AUDIO CDI 1986 £1500**  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.

**CAMBRIDGE AUDIO CD4SE 1998 £200**  
A touch soft in the treble and tonally light, but outstanding in every other respect.

**LINN KARIK III 1995 £1775**  
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**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



**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.



**MERIDIAN 207 1988 £995**  
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bistream gear. No digital output.

**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.



## 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.

**NAIM CDS 1990 £ N/A**  
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.



**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!

**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.



**SONY CDP-701ES 1984 £890**  
Sony's first ever bespoke high end 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.

**TECHNICS SL-P1200 1987 £800**  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pro' use and laden with facilities - a great eighties icon. Sonically, it's pure fun, with hefty bass that can still show weedy modern players a thing or two!

**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.

## COMPACT DISC TRANSPORTS

**TEAC VRDS-T1 1994 £600**  
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.



**ESOTERIC P0 1997 £8,000**  
The best CD drive bar none; TEAC's Tokyo boys pushed the boat out in style. Brilliantly incisive, ridiculously over engineered.

**KENWOOD 9010 1986 £600**  
The first discrete Jap transport was beautifully done and responds well to re-clocking even today.

## DACs

**CAMBRIDGE AUDIO DACMAGIC 1995 £99**  
Good value upgrade for budget CD players with extensive facilities and detailed sonics.



**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.



**PINK TRIANGLE**

**DACAPO** 1993 £ N/A  
Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard. Clever plug-in digital filter modules really worked!

**QED DIGIT** 1991 £90

Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**TURNTABLES****ARISTON RDI 15** 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.

**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 PL12D** 1973 £36

The beginning of the end for the British turntable industry. 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 PL12D was off the pace compared to rivals

**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.

**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

**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.

**GOLDRING LENCO**

**GL75** 1970 £15.65  
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today from specialists. Eminently tweakable. Similar 88 and 99 motor units are budget 301/TD124 rivals.

**LINN AXIS** 1987 £253

Simplified cut-price version of the Sondek complete with LVX arm. Elegant and decently performing mid-price package. Later version with Akito tonearm better.

**MARANTZ TT1000** 1978 £ N/A

Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.

**MICHELL GYRODEC** 1981 £599

Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved until recently. Early examples sound cold and mechanical, but now right on the pace. Clean, solid and architectural sound.

**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.

**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.

**GARRARD 301/401** 1953 £19

Heavy metal - tremendously strong and articulate with only a veiled treble to let it down. In many respects, better than the seventies 'superdecks' that succeeded it.

**ROKSAN XERXES** 1984 £550

Supposedly the first to 'better' the LP12. 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.

**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!

**THORENS TD124** 1959 £ N/A

The template for virtually every 1970s 'super-deck', 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.

**TOWNSHEND ROCK** 1979 £ N/A

The product of academic research by the Cranfield Institute, this novel machine has an extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**TRIO LO-7D** 1978 £600

The best 'all-in-one' turntable package ever made, Trio/Kenwood threw their 'engineering best practice' book at this one with startling results. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**TO NEARMS****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.

**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.

**ALPHASON HRI005** 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 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.

**GRACE G707** 1974 £58

This early Japanese example of the tonearm art has a smooth, lyrical sound. Imported by Linn, fitted to early LP12s. Sonically way off the pace now, though.

**REGA RB300** 1983 £88

Inspired budget esoterica. Detailed, tight, neutral sound but tonally grey sounding in absolute terms. Responds well to tweaking, and its cheaper RB250 brother better still.

**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.

**LINN ITTOK LVII** 1978 £253

Arguably the first 'superarm'; Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. Now off the pace,

but the final LVIII version worth seeking out.  
**HADCOCK GH228** 1976 £46  
 Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.



**NAIM ARO** 1986 £875  
 Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



**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.

**INTEGRATED AMPLIFIERS/COMBOS**

**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.

**ROGERS A75** 1978 £220  
 The prototypical Audiolab 8000a - 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 and open to listen to.

**EXPOSURE VII/VIII** 1985 £625  
 Seminal mid-eighties Exposure pre-power, offering most of what rival Naim amps did with just that little bit extra smoothness and sweetness. Still, it's by no means 'sweet' by today's standards, being lean, punchy, musical. It's also possessed of that quintessentially eighties look - frumpy black steel boxes with rough silk screened logos!



**SUGDEN C51/P51** 1976 £130  
 Soft sounding early Sugden combo with a plethora of facilities and filters, complete with seventies-tastic DIN socketry. A sweet and endearing performer as you'd expect, but lacking in power and poor load driving ability, so partner carefully.

**VTL MINIMAL/50W MONOBLOCK** 1985 £1,300  
 Vacuum Tube Logic was one of the Europe's biggest tube names in the eighties, and it shows. Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

**A&R A60** 1977 £115  
 Sweet and musical feature-packed integrated; the Audiolab 8000A used its blueprint to great effect.



**CREEK CAS4040** 1983 £150  
 More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

**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.



**MCINTOSH MA6800** 1995 £3735  
 Effortlessly sweet, strong and powerful with seminal styling to match.

**SUGDEN A21** 1969 £ N/A  
 Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**MISSION CYRUS 2** 1984 £299  
 Classic eighties minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



**MUSICAL FIDELITY A1** 1985 £350  
 Beguiling Class A integrated with exquisite styling. Questionable reliability.



**NAIM NAIT** 1984 £350  
 Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

**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.

**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.



**MYST TMA3** 1983 £300  
 Madcap eighties minimalism, but a strong and tight performer all the same.

**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



**ROTEL RA-820BX** 1983 £139  
 Lively and clean budget integrated that arguably started the move to minimalism.

**PREAMPLIFIERS**

**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.

**AUDIO RESEARCH SP-8** 1982 £1,400  
 Beautifully designed and built high end tube preamplifier with deliciously sweet and smooth sound. Not the last word in incision or grip, but that didn't matter to those who aspired to it.

**CONRAD JOHNSON MOTIV MC-8** 1986 £2,500  
 Minimalist FET-based preamplifier from the Yank valve specialists is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden high end stuff. Something of a curio, but worthwhile nonetheless.

**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!

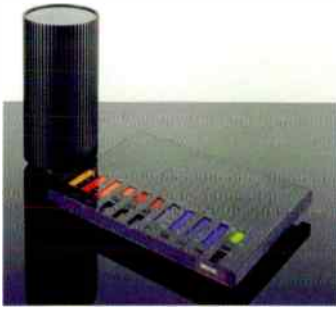
**LINN LK-1** 1986 £499  
 A brave attempt by the Glasgow boys to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not half bad for under £100.

**QUAD 22** 1958 £25  
 The partner to the much vaunted Quad II monoblocks - cloudy and vague sound means it's for anacrophiles only.

**QUAD 33** 1968 £43  
 Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



**LECSO AC-1** 1973 £ N/A  
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.



**NAIM NAC32.5** 1978 £ N/A  
The Salisbury company came of age with this, their classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**POWER AMPLIFIERS**

**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.

**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 their rarity means high prices are the order of the day.

**LECSO API** 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.

**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 sound, that's far more modern than Quad IIs. Deeply impressive when in fine fettle.



**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 £  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.



**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



**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.

**QUAD 303** 1968 £55  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**RADFORD STA25 RENAISSANCE** 1986 £977

At the time, very possibly the least cool amplifier on the planet – and we're not talking heat dissipation here. 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.



**KRELL KMA100 II** 1987 £5,750  
Ludicrous monoblock version of the giant KSA-100 is one of the seminal eighties transistor power amplifiers. Massive wallop allied to a very clean and open Class A sound makes this one of the best amplifiers of its type, ever.

**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 eighties-tastic experience.



**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 GI042 for an unbeatable budget combination.



**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.

**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.

**TUNERS**

**MARANTZ ST-8** 1978 £353  
Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.



**CREEK CAS3140** 1985 £199  
Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

**NAD 4040** 1979 £79  
Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica. Needs a good antenna to work properly, however.

**NAIM NAT03** 1993 £595  
The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

**PIONEER TX-9500** 1976 £295  
Another of the serious classic solid-staters. Boasts the usual high end Jap package of fine sound, brilliant sensitivity and superb build.

**YAMAHA CT7000** 1977 £444  
Reputedly the best of the classic Jap analogues, this combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

**NAD 4140** 1995 £199  
Brilliant affordable digital tuner has a smooth, detailed musical sound plus sensible real-world facilities.

**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. Fed to a modern outboard decoder they're deliciously lucid with true dimensionality.



**QUAD FM4 1983 £240**  
 Supreme ergonomics and styling allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**REVOX B760 1975 £520**  
 More of a semi-pro machine than a domestic bit of kit, 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?

**ROGERS T75 1977 £125**  
 Superb mid-price British audiophile design, complete with understated black fascia. Fine sound in the true Rogers mould – smooth and sweet with fine dimensionality.

**SANSUI TU-9900 1976 £300**  
 A flagship Japanese tuner designed to steal sales from the likes of Accuphase and Revox, it boasts superlative RF performance and an extremely smooth and lucid sound, along with very fine build and finish.

**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 a very good sound quality allied to brilliant ergonomics.

**SEQUERRA MODEL I 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.



**TECHNICS ST-8080 1976 £180**  
 National Panasonic's specialist hi-fi brand was a big hitter back then, and this is no exception. Superb FM stage makes for a very clean and smooth listen with lots of detail and depth.



**ANALOGUE RECORDERS**  
**YAMAHA TC-800GL 1977 £179**  
 Early classic with ski-slope styling courtesy of Mario Bellini. Middling sonics by modern standards, but cool nonetheless!



**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.



**PIONEER CTF-950 1978 £400**  
 Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

**REVOX A77 1968 £145**  
 The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days. B77 better, but couldn't match the Japanese.



**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.



**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

**DIGITAL RECORDERS**  
**PIONEER PDR-555RW 1999 £480**  
 For a moment, this was the CD recorder to have. Clean and detailed.

**SONY MDS-JE555ES 2000 £900**  
 The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.



**MARANTZ DR-17 1999 £1100**  
 Probably the best sounding CD recorder made; built like a brick outhouse with a true audiophile sound and HDCD compatibility.



**KENWOOD DM-9090 1997 £500**  
 Serious and sophisticated sound thanks to well implemented ATRAC 4.5; surprisingly musical MD recorder.

**SONY TCD-8 DATMAN 1996 £599**  
 Super clean sound makes this an amazing portable, but fragile.

**LOUDSPEAKERS**  
**ACOUSTIC RESEARCH ARI85 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...

**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. Partner with Rogers AB1 subwoofers for an extra two octaves of bass!

**LOWTHER PM6A 1957 £18 EACH**  
 This seminal full-range driver is still manufactured. High sensitivity, as fitted to many classic horn designs.

**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.

**JR 149 1977 £120**  
 Infamous cylindrical speaker that 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 rewards with fine clarity and imaging.



**TANNOY WESTMINSTER**

1985 £4500

Folded horn monsters which certainly sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.

**SPENDOR BCI**

1976 £240

Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit – and the result is a beautifully warm yet well focussed sound. A little bass bloom necessitates careful low-stand mounting, but these prove that the seventies did have some fine designs after all!

**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.

**MAGNEPLANAR SMGA 198X**

£800

Technological loudspeaker with genuinely musical abilities; fast, smooth, open, dry.

**KEF R105**

1977 £785

Three way Bextrene-based floorstander (complete with castors!) gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace. The quintessential nineteen seventies loudspeaker.

**IMF TLS80**

1976 £550

Warm and powerful nineteen seventies behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms aren't its forte.

**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.

**LEAK SANDWICH**

1961 £39 EACH

Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

**HEYBROOK HBI**

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.

**CELESTION SL6**

1984 £350

Smallish 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...

**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.

**YAMAHA NS1000**

1977 £532

High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabinets equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!

**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!

## CLASSIC CONTACTS

When a classic goes 'poof' your troubles have just started, but there may be a good ending. Replacing failing parts can improve the sound, so here is a short listing of all these companies who specialise in getting a classic up and running again after its deposited a small ring of soot on your ceiling!

**GT AUDIO**

(Graham Tricker, Bucks)

Leak Troughline specialists. Also Quad and most classic tuners, radios and amplifiers restored, repaired.

Tel: 01895 833099

Mob: 07960 962579

www.gtaudio.com

**TECHNICAL AND GENERAL**

(East Sussex)

Turntable parts - wide range of spares and accessories, plus arms and cartridges.

Tel: 01892 654534

**CARTRIDGE MAN**

(Len Gregory, London)

Specialist cartridge re-tipping service and repairs. High quality special cartridges.

Tel: 020 8688 6565

Email: thecartridgeman@talktalk.net

www.thecartridgeman.com

**QUAD ELECTROACOUSTICS**

(Cambs) Quad's service department, able to repair almost all Quad products, from the very first. (Also Audiolab, Mission & Wharfedale).

Tel: 0845 458001 | www.quad-hifi.co.uk

**Dr MARTIN BASTIN**

(Shropshire) Garrard 301/401

restoration, renovation and service. Special plinths; rumble cures, etc.

Tel: 01584 823446

**ARKLESS ELECTRONICS**

(Northumberland)

Specialist in repairs, restoration and modifications to all amplifiers, valve or solid state, ancient and modern.

Tel.: 01670 530674

Email: info@arklesselectronics.com

www.arklesselectronics.com

**CLASSIQUE SOUNDS**

(Paul Greenfield, Leicester)

ESL-57s restored, rebuilt, fully renovated or improved. Leak, Quad valves amps etc.

Tel: 0845 123 5137/

Mob: 0116 2835821

Email: classique\_sounds@yahoo.co.uk

www.flashbacksales.co.uk/classique

**WEMBLEY LOUDSPEAKER**

(Paul MacCallam, London)

Comprehensive loudspeaker servicing.

Tel: 020 8 743 4567

Email: paul@wembleyloudspeaker.co.uk

www.wembleyloudspeaker.com

**CLASSIC NAKAMICHI**

(Paul Wilkins, Worthing, West Sussex).

Restore, Repair & Service Nakamichi Cassette Decks.

Tel: 01903 695695

Email: paul@bowersandwilkins.co.uk

www.bowersandwilkins.co.uk

**ONE THING**

(Coventry) Specialist in electrostatic

panel manufacture and repair. Can refurbish ESL 57s and 63s as well as Leak Troughlines and Quad IIs.

Email: one.thing@ntlworld.com

www.onethingaudio.com

**LORICRAFT AUDIO**

(Terry O'Sullivan, Bucks)

Garrard 301/401 and their own 501 repair, spares and service.:

Tel: 01488 72267

www.garrard501.com

**EXPERT STYLUS COMPANY**

(Wyndham Hodgson, Surrey) Stylus

replacement service for all types of cartridge. Including precise profiling for 78s. Tel: 01372 276604

Email: w.hodgson@btclick.com

**OCTAVE AUDIO WOODWORKING**

(Bristol) Unit 2, 16 Midland Street, St Phillips. Bristol. Tel: 0117 925 6015

www.octave-aw.co.uk

**REVOX**

(Brian Reeves, Cheshire)

Revox tape recorder spares, service and repair. Accessories also available.

Tel: 0161 499 2349

Email: brian@revoxservice.co.uk

www.revov.freeuk.com

**SOWTER TRANSFORMERS**

(Brian Sowter, Ipswich)

Large range of audio transformers for valve amps, cartridges, line drive, interstage plus all associated services.

Tel: 01473 252794

www.sowter.co.uk

**LOCKWOOD AUDIO**

(London)

Tannoy loudspeaker parts, restoration and repair. Also Epos and TDL loudspeakers.

Tel: 020 8 864 8008

www.lockwoodaudio.co.uk

**ATV AUDIO**

(Henry Dulat, Surrey)

Repairs, restorations and upgrades to valve and transistor amps and all analogue audio including Revox.

Tel: 01372 456921 Mobile: 07730 134973

# vinyl section

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OCTOBER 2013

[www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk)

**ORIGIN LIVE SOVEREIGN TURNTABLE 86**  
Paul Rigby listens to a top flight turntable from Origin Live.

**REGA CARBON CARTRIDGE 93**  
Tony Bolton listens a new budget cartridge from Rega.

## news

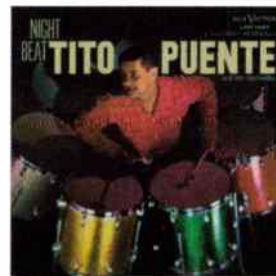
### RECORD STORE DAY 2013



Supporting local record shops, the music industry produces limited edition and exclusive releases for sale on the High St, once a year. Two recent examples relate to classic TV.

'Doctor Who: The Krotons' (Silva Screen; [www.silvascreenmusic.com](http://www.silvascreenmusic.com)) is a 10" vinyl release by Brian Hodgson and the BBC Radiophonic Workshop featuring sound effects from this storyline, broadcast in late-1968 and early-1969, that started Patrick Troughton

as the second actor to fulfil the classic role. The second release is a 7" EP called 'Themes for Action!' (Network; [www.networkonair.com](http://www.networkonair.com)), featuring six

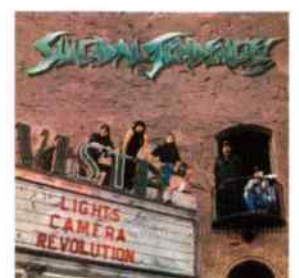
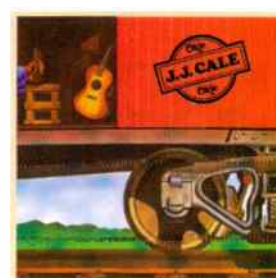
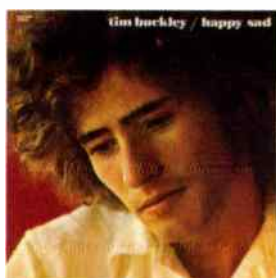


### MUSIC ON VINYL BLOW OUT!

All available via Music On Vinyl ([www.musiconvinyl.com](http://www.musiconvinyl.com)) and starting with Bonnie Raitt's debut, self-titled 1971 release. A mixture of blues, folk and R&B, the album is packaged with a subtle delivery and low-key backing, allowing the LP to flow over you.

Now the Latin jazz of Tito Puente. From 1958 comes 'Dance Mania', his magnificent and best-selling work featuring a hard mambo style that is propulsive and driving. 'Neat Beat' (1957) is a contrast, however. A basic big, swing band sound, it shows Puente's diversity successfully. Another double, this time from The Doobie Brothers. 'Toulouse Street' (1972) has an Eagles approach to pop/rock with jazz and R&B folded in. Still sounding fresh today, it is always a fascinating listen. 'Takin' It To The Streets' (1976) was the group's first album with Malcolm McDonald turning the sound mellow and soulful, while continuing the attractive interplay of styles.

Also look out for Tim Buckley's 'Happy Sad', his most underrated work, from 1969, which mines Buckley's jazz interest with six beautiful songs; J.J. Cale's 'Okie', infused with country and gospel, it's a blues, low-key release from 1974. Finally, check out the fourth album from Suicidal Tendencies, 'Lights Camera Revolution' (1990), one of their best efforts, the band sound self-assured, highly motivated and plain angry. Brilliant!



## MUNSTER MUSIC

Direct from Spain is a pair of rare collections. Los Saicos' (Psychos in English) !Demolicion! (Munster; [www.munster-records.com](http://www.munster-records.com)) shows the garage potential of this mid-sixties outfit. The band's entire recorded EP collection is featured on this LP and aggressive stuff it is too: menacing, hostile and primeval.

Formed in 1963, despite the original members performing throughout the fifties in other outfits, Olympic were a Prague-based beat group and have become the longest active group in the Czech Republic. This Munšter double album features a compilation of tracks from 1965-1971.



## ROCK WITH ROLL

Coming down hard is this month's shard of vinyl rock, headed by the new album from Dio. 'Finding The Sacred Heart: Live In Philly 1986' sees ex-Black Sabbath and Rainbow man, Ronnie James Dio on the Sacred Heart tour, playing hits and songs from the divisive 1985 album, although this set is a stormer.

Next is a series of Music On Vinyl ([www.musiconvinyl.co.uk](http://www.musiconvinyl.co.uk)) reissues. First up is the classic prog LP from Camel, 1976's 'Moonmadness' featuring Floyd-esque layered guitar, synths and accessible songs within a loosely-based concept shell.

John Mayall's blues-rock is next and 'Bare Wires' (1968). Featuring a new line up and expanding to seven members, the music also expanded. The LP begins with the 'Bare Wires Suite' spanning twenty-three minutes. A successful album, it reached No 3 in the UK charts.

'Live Taste' (1971) features Rory Gallagher, this LP hasn't been available on vinyl since its original release. A storming live blues rock sequence.

Also look out for Sanctuary's 'Into The Mirror Black' (1990), combining thrash and heavy metal, this is the first reissue since the original release and was the band's final album that included a host of fine songs and musicianship.



## FORCIONE FROM NAIM

Forcione, offered via Naim's record label ([www.naimlabel.com](http://www.naimlabel.com)) is an important and skilful guitarist. In fact, he's been described as the Jimi Hendrix of the acoustic guitar. On Heartplay (2006) with legendary bassist, Charlie Haden, however, his approach is low key and restrained but no less effective with his work being romantic, rhythmic but always inventive.

'Dedicato' examines the man's influences which stretch from jazz to world and classical but without delineated and clunky boundaries. There's a real sense of flow and ease merged with passion in Forcione's delivery.

From 2005, 'Tears Of Joy' continues the theme which not only provides food for the soul but audiophile vibes for the ears. His well recorded albums are rated highly enough for Dali speakers to feature Forcione on their well regarded sample CDs.

Also look out for the 'Quartet In Concert' (2007) double album, a superb concert that was recorded at The Trinity Centre, Tunbridge Wells.

## ...AND FINALLY

Limited to 300 copies, Luck Of Eden Hall's newly released 'Butterfly Revolutions Vol 1 & 2' (Headspin; <http://www.headspinrecords.nl>) combines both volumes (previously available on two separate CDs) together and features modern psychedelia, dreamy rock and spaced-out vibes. Allow your spirit to escape.

From Adrian Munsey (composer) & Andrew Powell (arranger from everyone from Cockney Rebel to David Gilmour) comes 'Full Circle', a double album featuring Elin Manahan Thomas and the Philharmonic Orchestra. A soundtrack to an invisible film, it offers romance and a lush arrangement.





# Crown jewel

**Paul Rigby thinks Origin Live's Sovereign Mk.3 turntable, Enterprise C arm and Champion cartridge are fit for a king.**

**O** rigin Live's latest turntable, the Sovereign Mk.3, features a transformer upgrade, the Enterprise C arm in its 12in version and the Champion cartridge, a wholly new design made for Origin Live by Soundsmith of the USA.

The turntable, spanning 450x380x160mm, is a massy affair, weighing in at 34kg (including the platter). "Turntables do sound better if there is mass in the design", said Mark Baker, Origin Live's boss, "to stop ground and airborne vibration

having too much effect on the deck. The mass is present in the three chromed, steel pods and the slice of steel alloy situated between the two acrylic sandwich slices on the plinth".

The platter is made from a carefully constructed acrylic with low internal stresses. When acrylic is cast, in large slabs, if it's not cooled very carefully it will gradually build internal stresses. "The cheap acrylic platters out there tend to be made in Mexico where there's no control whatsoever. It's taken me the best part of fifteen years to source this type of acrylic".

It has also taken time to find

the bespoke motor and bearing consisting of a hardened steel ball running on a tungsten carbide plate. Origin Live originally used a suspended system but dropped it for, "...a single point system. It's a bit like star-earthing and it's very efficient. If you take the platter off, you will see that it is held together with a single bolt which is the position of the pivot".

Assembling the turntable was lengthy and difficult. Care and attention is required, not helped by the rambling, rather indistinct manual (the arm instructions suffer in the



same way).

The 12in version of the Enterprise C arm is a dual pivot design featuring a carbon fibre tube enhanced by four extra layers, including ebony. "The headshell is constructed from a different material, a conscious decision done to disperse vibration."

The arm uses steel bearings in tungsten steel cups while the low friction yoke is massy to help bass and dynamics.

The arm design is simple in outline. For example, the thread and ball anti-skating mechanism, "... is superior to springs which resonate and to magnets which have a lot of damping affects and prevent freedom of movement".

The Champion cartridge is a six-sided, fully shielded, moving iron design based on 'proprietary' composite chassis, telescoping aluminium alloy cantilever and a Line Contact nude diamond stylus. Weighing in at 10.25g, it works best

with a light, 1.7-1.9g, of tracking force. The mounting screws were able to pass through the headshell and into tapped threads, for a firm fitting. The stylus is not user-removable; if damaged it must be returned for repair.

So why moving iron and not moving coil? President and chief engineer for SoundSmith, Peter Ledermann, was adamant. "In a moving coil, it is difficult to reduce the coil size beyond a certain point. Moving iron, which is very difficult to build, has advantages in this area because the magnet and the coils are stationary. So, you can reduce the size of the iron that is inside the magnetic path and the damping system is much more effective. This means that the cantilever and stylus can respond and recover much more quickly".

Ledermann also referred to the natural resonant frequencies that, after the mass reduction, are moved up in the frequency range in the

Champion. This reduces cartridge 'jitter' and improves the contact of the stylus along the groove wall, reducing groove noise. "When you stay in better statistical contact with the groove wall and the amplitude of the jitter is reduced, you are actually going to hear what's on the record. If the stylus is leaving the groove wall and it's banging its way



*The Champion cartridge body has tapped screw holes. It is a 'moving iron' where magnet and signal coils are housed in the body. Output is low from Moving Iron.*

down the groove, it still generates a voltage because it's in motion. So what you hear are artefacts from the cartridge, trying to do its best", said







*The 12in arm sits on an extended support. The motor sits in a cut-out and is moved to set belt tension. The arm cable is secured by a P clip in final assembly.*

Ledermann.

One of the intriguing aspects of this system review is the price ratio of the individual components. Origin's system comprises a £5,000 turntable, £5,000 arm and £2,500 cartridge. "My views on the 'ratio' have changed a lot over the years", said Baker. "The fact is that you can get a lot of very good decks at fairly low prices. Our low cost decks compete with decks that would normally cost you £10,000. The argument is based on what is available, though. Fifteen years ago, there were no great arms out there. Those that were fetched £500 – considered a real top grade arm price in those days!

That has changed now. I'd say that our Onyx, at £450, out-performs most £3,000 arms. The Enterprise arm is at such a level that you don't need a £10,000 turntable. The question is, in today's terms, with turntable quality already so high, how much more improvement do you really get by spending £13,000 over £3,000 on a deck? Probably, not a lot. The room for improvement, the current place where great strides are being made, is in the arm sector".

## SOUND QUALITY

I first focused on the Sovereign/Enterprise combination, using my reference Benz Glider cartridge on both systems. Spinning Frank Sinatra's 'The September Of My Years', the Origin pair exuded tremendous focus and the stereo image was rock solid while the soundstage was wide and high: a real 'stage' performance, in fact. The entire backing orchestra was also tight and very 'together' as a unit. They were perky and alert in their task.

What also was obvious to the

ear was the low distortion. The Origin pairing produced a quite stunning degree of clarity that allowed the Sinatra voice to sound resonant and, during lower midrange sequences, deeply emotional at times. Similarly, instrumental separation was quite startling, as the treble from a simple triangle offered a warm, gentle yet quite incisive presentation. There was appreciable space between sweeping violins and plucked strings.

Turning to rock and The Stranglers' Radio 1 Session track, 'Down In The Sewer', running at 45rpm, the low distortion allowed the treble to become expressive with well formed cymbals being pulled from the melange while once blurry lyrics were easily distinguishable. The synth-based organ had an airy, light presentation and midrange that never neglected subtle detail. Bass guitar lacked obvious weight but, because it was highly focused, it avoided bloom and bass artefacts, being punchy and direct but revealing with impressive transients and tonal information.

Onto classical and the 'Opening Dance' of Sullivan & Mackerras' 'Pineapple Poll' which provided a spacious soundstage. Upper mids were sparkling with strings being light and lively. Brass impressed in terms of its metallic attack without being aggressive to the ear. Even the triangle was delicate, its reverb tail extending splendidly.

Turning to the Champion, I used an Ortofon Cadenza Black moving coil (£1,800) as a reference to see if a moving iron could challenge this, five globe winning MC unit.

Starting with Sinatra, while the Ortofon offered calm authority, a warm and smooth musical

reproduction, the Champion supplied a more adventurous nature. There was a certain danger and excitement in its presentation. That is, the Champion fully explored every corner of the upper mids to deliver as much detail as possible. I was fortunate to be able to use an Icon PS3 phono amp that offers the right load and enough gain on MC to provide balanced sonics. As such, the general presentation was relatively neutral but bordering on the cool. During a violin sequence, while the Champion didn't have that



*External motor power supply and free standing motor unit.*

relaxed, rich sweep of the Cadenza's strings, it did offer an impressive transient response and Sinatra's vocal performance was incisive.

Moving to The Stranglers, the track was effusive: exuding energy and vitality. The synth organ, often a dominant force of the early part of the track, became the star of the entire song as the Champion extracted detail from its complex runs.

Hugh Cornwell's lead vocal was aggressive and emotive while the bass guitar was balanced within the mix. Percussion was rhythmic, musical and tight but it never bloomed or leaked into the rest of the sonic spectrum.

The classical piece, 'Pineapple



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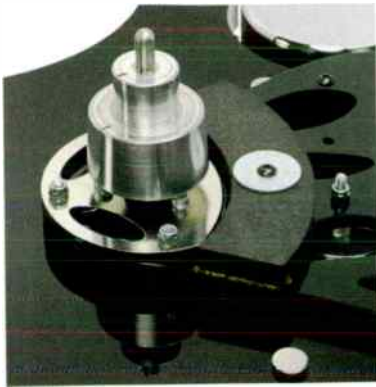


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Poll', offered an open and airy soundstage with a delicate and fragile treble via the triangle plus a slightly cool brass and string presentation. Welcome lower mid, upper bass support grounded the track and gave the track an added musicality.

Finally, spinning the well-mastered Ernestine Anderson track, 'As Long As I Live', running at 45rpm, the low key jazz was transparent in nature with the upper mid-rich piano solo sounding sprightly and alert. The 3D soundstage held Anderson's effective, swing-based vocal performance in place, without a problem. Meanwhile, the percussion was precise while the double bass output was tight and

characterful.

Ending the sound tests on a more general, system level point, for a relatively low cost upgrade to the system as a whole, I'd also recommend the Oyadie STB-MS stabiliser (£225). On The Stranglers track, it immediately calmed the rather shouty lead guitar, a result of compression during mastering, and opened up the soundstage, further reducing distortion. Bass guitar was rounded and lively while the organ synth offered a richer presentation.

**CONCLUSION**

The combination of the Sovereign and the Enterprise, in its 12in incarnation, was startling in terms of sound quality.



The Champion provides a transparent, open performance that sometimes pushes the upper mids to the very limit of easy listening but it also enjoys investigating a track to the full, providing an informative listen.

As a whole, the system is absorbing, offering a focused and perceptive listen. The cartridge needs to be compared with rival designs to see if it meets your aural taste and it needs special loading in the phono stage.

**REFERENCE SYSTEM**

- Avid Acutus/SME IV/Benz Glider
- Icon PS3 Phono amplifier
- Aesthetix Calypso pre-amp
- Icon Audio MB845 Mk.II monoblocks
- Quad ESL-57 speakers with One Thing upgrade
- Nordost QB6 Quantum Qbase power block
- Tellurium Blue power cables
- Atlas Mavros speaker cables
- Atlas Mavros interconnects

**MEASURED PERFORMANCE**

The main arm tube bending mode was well suppressed, giving the structure an impressively stable behaviour free from specific bending modes. This gives strong dynamics, better stereo staging at lower frequencies (drums etc) and less coloration. A single, sharp resonance remains at 1.3kHz and some liveliness from the head shell above this frequency but the arm still measures well by overall market standards.

Turntable speed was initially +1.2% fast. Belt tension affected speed, so speed must be adjusted after the motor has been positioned. The speed adjuster was difficult to access and relatively sensitive; a small rotation of the screw changed speed substantially. Once set to the right speed there was some wow and a little flutter in the system (after perfect test disc centring), resulting in a total weighted Wow & Flutter value of 0.18%, where 0.12% or so is expected from belt drive.

Frequency response of the Soundsmith Champion cartridge measured flat to 12kHz into a 47k (MM) load, with no peaking of the sort suggested. A very similar result was achieved with 1k and 600 Ohm loads (shown), but treble does start to fall at

lower load values. The balance shown here suggests the Champion will have a smooth, easy sound, free from peaky treble. Tracking was good at 1.8gms VTF, at low frequencies and in the midband.

As always with Soundsmith moving iron cartridges lateral distortion was high at 2.6%, slight waveform triangulation (third harmonic) possibly being due to geometric errors in the generator. Cartridges usually produce 0.8% second harmonic in this test. VTA measured 26 degrees and vertical distortion 4.6%, a common enough value. This amount of distortion will sharpen the sound.

Output measured a low 0.56mV at 5cms/sec rms; MMs typically manage ten times more output. A very high gain MM stage (60dB, x1000), or an MC stage with 470 Ohm or more input – both non-standard and rare – are needed.

Channel separation values were unbalanced, -20dB right residual and -28dB left residual, indicating incorrectly aligned modulation axes in the generator. There is still enough separation for stereo though. The Champion didn't measure well in some areas, those where Soundsmiths are consistently below the norm.

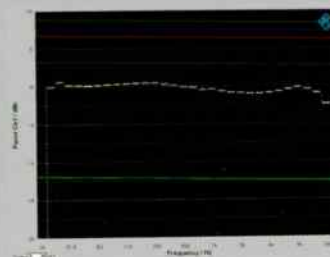
The Enterprise C arm measured well

and will give excellent results, as it has done in the past. The Sovereign turntable needs honing to lower wow. **NK**

Speed error	+1.2%
Wow	0.2%
Flutter	0.08%
Total W&F (wtd)	0.18%

Tracking force	1.8gms
Weight	10.2 gms
Vertical tracking angle	26degrees
Frequency response	20Hz - 12kHz
Channel separation	20dB
Tracking ability (300Hz)	
lateral	90µm
vertical	45µm
lateral (1kHz)	20cms/sec.
Distortion (45µm)	
lateral	2.7%
vertical	4.6%
Output (5cms/sec rms)	0.56 mV

**FREQUENCY RESPONSE, 600**



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# Carbon dating



Tony Bolton tries out a budget moving magnet cartridge from Rega Research

**E**very so often a product comes along that gives me a feeling of déjà vu. In the case of the Rega Carbon cartridge, as soon as I took it out of the box it seemed somehow familiar, and it took me a while to place the family resemblance to the long running Audio Technica AT91 moving magnet cartridge.

This was confirmed when talking to Essex based Rega Research, who advised me that the Carbon is made as an OEM product for them by Audio Technica, but is built to their specification.

The main difference between the two units is the usage of a carbon cantilever that gives the Rega cartridge its name. Attached to the end of this is a conical stylus. The whole assembly is user replaceable.

The unit was designed to fit into the recently introduced RPI turntable where it is supplied pre-aligned, merely requiring the counterweight to be attached and balanced to 1.75g. This surprised me since the instructions suggest a tracking force of between 2 and 3g, and in my Hadcock 242 Cryo unipivot arm, I found that a downforce of 2.3g seemed to provide the best combination of tracking ability and sonic performance.

Setting it up was easy due to the

rectangular body and easily visible cantilever. I aligned it using the UNI-DIN alignment that I have come to favour over either Baerwald or Loeffgren settings. (See HFW Sept 2013 Pp.86 - 87). I then played the cartridge for a good twenty hours to run it in before commencing serious listening.

It is some years since I last listened to a cartridge retailing at a two figure price level, so before I went any further I dug out a Goldring Elektra cartridge just to retune my ears to this sort of price point.

## SOUND QUALITY

Having reset my ears, albeit at a price that was half as much again as that of the Carbon, I settled down with Beethoven's 'Emperor Piano Concerto', and was pleasantly surprised at the competence of the conical stylus in tracking some very complex wave forms when the piano and orchestra reached crescendos. The music retained a good level of cohesion, and although there was a bit of confusion over hard struck chords combining with the power of the full orchestra, overall it was a very creditable performance and one that immediately made me start to

respect this little device.

If I was being super critical then I would have said that the piano had a little bit of a jangle to some of the sounds. The complex harmonics of this instrument are amongst the most demanding of any to reproduce accurately, but, to be honest, the

Elektra, with an elliptical stylus, did very little better. When you consider the price of the



*The square edges of the cartridge body make alignment an easy task.*

Carbon, I thought that the sound was very good indeed.

This particular record is a very good condition mono original pressing and there are few pops or crackles. The ones that are present were handled with a grace that again

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"This level of performance,  
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Jeff Dorgay, *Tone Audio Magazine*, January 2013



"Oozes quality in both  
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Paul Rigby, *Hi Fi World*, March 2013



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World Radio History



**The carbon cantilever that differentiates this cartridge from its Audio Technica AT91 cousin, tipped with a conical stylus.**

belied the price tag of the cartridge.

I stayed in mono, but moved up to an early '70s compilation of early Billie Holiday songs recorded in the 1930s before her voice became a metaphor for angst and drug abuse. Her 1936 version of 'These Foolish Things', accompanied by Teddy Wilson and his orchestra, had a gentle flowing swing to it that was enjoyable, quite tightly timed and presented with a focussed and quite detailed soundstage.

Having acquitted itself so well so far, I decided to give the Carbon a real test and put on 'Ball and Chain' from the 'Cheap Thrills' LP. The guitars were presented with an energetic attack that made for an exciting listen, and the difficulties of Janis's voice were overcome in a fairly creditable manner. There were a couple of points where things started to edge towards abrasive, but the sound was controlled enough to be acceptable even under this sort of duress.

## CONCLUSION

I must admit that I was not expecting much when I first started listening to the Rega Carbon cartridge. The combination of a budget cartridge

"the sound was controlled enough to be acceptable even under this sort of duress."

with a conical tip made me a bit wary, but I can honestly say that I was both surprised and pleased with the way it performed. I certainly don't see it worrying cartridges at three times the price but there are some at double the price that could not give such a capable rendition of the music that it is tracking in the grooves.

If you are looking for a starter

cartridge, or something cheap but capable, then this seems to be the place to look. The carbon cantilever seemed to me to be a major improvement over the aluminium one fitted to the related Audio Technica AT 91, and gave a less peaky and more balanced sound. As such it is a real bargain and comes thoroughly recommended.

### SYSTEM USED:

Linn Sondek/ Hadcock 242 Cryo/ Goldring Elektra  
Luxman E200 phono stage  
Ming Da Dynasty Duet 300B amp  
Kelly KT3 loudspeakers

## MEASURED PERFORMANCE

Vertical tracking force (VTF) quoted by Rega for the Carbon cartridge is 2-3gms. I used 2.25gms as a sensible value and would be prepared to use 2.5gms, but avoid higher values. Tracking force mainly affects tracking ability; had I used a higher VTF then it would have improved. However, results with 2.25gms were good enough for a budget moving-magnet (MM) cartridge, especially in the mid-band where the Carbon stayed in the groove of a 25cms/sec torture track - unexpected. It just got through 20cms/sec with slight mistracking, and this is good, suggesting low-ish tip mass. The carbon cantilever likely is the reason.

The Carbon was less happy tracking the larger groove excursions of lower frequencies, due to low hinge compliance (hence high VTF) and so may well be unhappy with big bass sounds like canons in the 1812, drums strikes etc.

Frequency response was typical MM with a 47k load, and just arm lead capacitance (80pF). The upper midband drooped (generator loss) and high treble peaked (tip mass resonance). This gives a warm balance. Switching in 400pF capacitance on our measuring preamp smoothed out the curve nicely, lifting the upper midband to give the frequency response published here. As budget MMs go this is good; there will be some mellowness in the sound but it will not be dull, nor challenging in the treble (e.g. spitty).

Distortion was low on lateral modulation, but high on vertical modulation due to a high Vertical Tracking

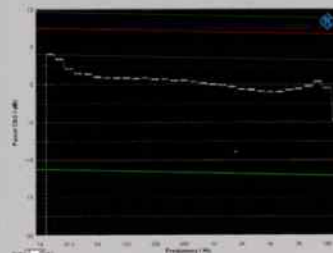
Angle of over 30 degrees. Output was adequate at 5mV, but budget Ortofons do better. Channel separation was adequate at 22dB and the generator's mod. axes well aligned.

The Carbon is very light at 5gms, and some arms will barely accept this. It pushes arm resonance upward in frequency, hence the peak in lower bass in our graph.

Overall, the Carbon measured well in absolute terms and is extraordinary relative to its price of £35. It needs 400pF capacitive loading to give its best result, and 2.5gms VTF is a sensible maximum. **NK**

Tracking force	2-3gms
Weight	5gms
Vertical tracking angle	32degrees
Frequency response	20Hz - 20kHz
Channel separation	22dB
Tracking ability (300Hz)	
lateral	60µm
vertical	45µm
lateral (1kHz)	18cms/sec.
Distortion (45µm)	
lateral	0.8%
vertical	8%
Output (5cms/sec rms)	5.2mV

### FREQUENCY RESPONSE



## REGA CARBON CARTRIDGE £35



**OUTSTANDING** - amongst the best

**VALUE** - keenly priced

### VERDICT

A competent and musically coherent budget sounding cartridge with a fairly unflappable nature.

### FOR

- tracks well
- good bass output
- detailed soundstage

### AGAINST

- treble can get a little edgy at times

Rega Research Ltd.  
www.rega.co.uk

### MUSIC USED;

Beethoven 'Concerto No 5 in E-flat, Op. 73 "Emperor". Fritz Reiner conducting Chicago Symphony Orchestra. RCA Victor Records. LM-2562. 1961.

Billie Holiday 'The Billie Holiday story Vol.1' CBS Records. 68228. 1973.

Big Brother and the Holding Company. 'Cheap Thrills'. Columbia Records. PC 9700. 1967.

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# Cables Section

This month Tony Bolton looks at The Chord company cables.

**T**he Chord Company was founded in 1985 by Sally Kennedy to satisfy the demand for high quality interconnect cables for use with Naim equipment. Two years later the first version of the Cobra interconnect was introduced, followed a few years after that by the original version of the Chameleon. The new versions of both these cables, alongside the new Crimson model are under review here.

As is my usual practice, I gave each cable 48 hours running in on a Blue Horizon Proburn cable burn in accelerator, before settling down to do some listening with the leads connecting the Leema Acoustics Antilla 2S Eco CD player to the matching Tucana II amplifier. I listened to each of the cables for a few hours before doing the comparative listening using the aria 'Celeste Aida', from Verdi's opera of the same name, as sung by Placido Domingo ('Domingo Favourites', Deutsche Grammophon 445 525-2) and the track 'Ja Vidi' by Christophe Goze from the album 'Chill Arabia III' (Bal De Lune records. LUNECD19). This being a fusion of Middle Eastern and contemporary Western beats and sounds.

## INTERCONNECT CABLES CHORD CRIMSON VEE 3



**T**he new Crimson cable has taken the place of the Chrysalis as the starting point in the Chord range. It uses two sets of multi-stranded oxygen free copper conductors, arranged in a twisted pair configuration and covered with a

dual layer shield. The ABS plug casing is new and covers gold plated contacts inside the RCA phono plug.

### SOUND QUALITY

Starting with the Domingo piece, I was immediately struck by the impressive level of bass output for a

cable at this price point. Although not hugely deep, it gave an impression of weight and solidity that surprised me. Domingo's voice was quite well handled although there was a tendency to a slightly nasal quality to his voice.

Changing to 'Ja Vidi' I found that the opening drum beats were well described and the beat had a fair amount of get up and go to it. Mid range sounds had a strong presence although the tambourine had a slightly splashy quality to it.

### CONCLUSION

Bearing in mind that this cable will be partnered with budget electronics, the tonal balance should add a bit of zest to the sound while retaining a good overall balance. It could be a little forward for some systems though.

**CHORD  
CRIMSON VEE 3  
INTERCONNECT  
£55 FOR 1M**



**EXCELLENT** - extremely capable

**VALUE** - keenly priced

#### VERDICT

A big sounding cable that will add a bit of zest to a flat sounding system.

#### FOR

- fast bass
- good imaging
- well projected mid-range

#### AGAINST

- slightly forward high frequencies

The Chord Company Ltd.  
+44 (0) 1980 625700  
www.chord.co.uk

## INTERCONNECT CABLES THE CHORD COBRA VEE 3



**T**his new incarnation of the tried and trusted Cobra interconnect is made with twin silver-plated oxygen free copper conductors, insulated with FEP and covered with what is described as a high density, high frequency shield. The VEE 3 RCA plug is silver plated and con-

nected to the lead with silver solder.

### SOUND QUALITY

This time Domingo's voice had somewhat greater body and depth to it. The trumpets were better controlled and smoother sounding, while the violins seemed to reach higher than they managed on

the Crimson, but sounded more controlled and realistic.

The tambourine sounds on 'Ja Vidi' certainly sounded more inviting through this cable, losing the slight splashy effect and gaining a more three dimensional shape. The bass was noticeably deeper and I felt as though I could see the bottom of the note more clearly. The mid-range had a better sense of integration into the music and the whole sound felt better balanced.

### CONCLUSION

I have a 20 year old pair of Cobra interconnects and comparing these to the new model, I could hear the family resemblance, but the performance of the new model is streets ahead in every aspect. This lead is well enough mannered that it could be used in a far more expensive system without disgracing itself.

**THE CHORD  
COBRA VEE 3  
INTERCONNECT  
£95 FOR 1M**



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

#### VERDICT

A well mannered interconnect that punches above its price point with a smooth and well integrated sound.

#### FOR

- balanced sound
- open soundstage
- smoothness

#### AGAINST

- nothing at the price

The Chord Company Ltd.  
+44 (0) 1980 625700  
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## INTERCONNECT CABLES CHORD CHAMELEON VEE 3



**T**his is another long-standing design that has had an effective make-over. The insides consist of three sets of silver-plated conductors, covered with a 93% braid and a cotton fibre wrap to suppress mechanical noise. The RCA plugs are

silver plated with an ABS outer shell.

### SOUND QUALITY

For the first time I found that I was being made aware of the background sounds and echos in the studio. Each of the performers seemed to have gained some space around them

and it made for a very inviting listen. The texture of all of the sounds was filled out and better described, with the attack of the trumpets having particular impact, although it was very well controlled.

The sway of the rhythms in 'Ja Vidi' seemed to be more obvious with this cable and the soundstage seemed to be occupied by sounds that had matured and put on a little weight. The bass seemed to go very deep and be quite substantial, whilst retaining a good level of agility.

### CONCLUSION

This is a cable that, despite the fairly moderate price, offers performance that is significantly above that expected at this price point. It is well mannered, smooth and detailed. It may be too revealing for budget electronics though.

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# Nait and fast

Martin Pipe enthuses about the Naim Nait, a 'supermini' of the amplifier world.



*Naim's NAIT range of integrated amplifiers set new standards in their price range, giving audiophiles on a budget a 'taste of the high-end'. This one is the third-generation NAIT 3.*

**O**lde Worlde our particular 1994 Naim Nait may be, but it is still in production today. Indeed, a slew of new NAITs was announced recently by Naim – thirty years since the original model set new standards for integrated amplifiers.



*Money's put into where it counts – not silly gimmicks. The ALPS potentiometer seen here, used as a volume control, is the sort of component that you'll find in much more expensive gear.*

In 1983, when CD was a New Thing, most of the affordable (i.e. sub-£300) integrateds were button-festooned boxes sourced from the Far East. Into this pool was thrust the modestly-specced NAIT (from NAIM InTegrated), which took a completely-radical approach.

Borrowing from the minimalist philosophy that had made the Salisbury firm's upgradable pre-power amp combos such a success (especially when partnered with a certain Scottish turntable), the original NAIT eschewed tone controls, filters, comprehensive switching facilities and highly-specced power outputs. £250 bought you a whopping three inputs (one of which fed a decent phono stage), volume/balance controls, decent-quality internal components including a generous power supply based around a toroidal transformer and a mere 13 watts per channel output (into an 8 Ohm load).

All of this came in a half-size enclosure described by many as a 'shoe-box'. Modest it may have been, but the NAIT trounced much of the competition in musical terms – notably in terms of timing and clarity.

It wasn't uncommon to find the baby Naim in a 'budget' audiophile system bookended by Linn products – a modestly-kitted LP12 performing source duties, and Kans as speakers.

Sure, the same outlay would buy you a well-specified and impressively-illuminated rack system from a Japanese manufacturer. But this 'plain Jane' alternative would have delivered the musical goods; to this day, some believe the original NAIT to be the best-sounding.

NAIT Mark One enjoyed a five-year run, but in 1988 was replaced by the NAIT 2. This had the same cabinet form factor, but was better-built and arguably more attractive to look at – whether you chose the chrome-trimmed black one, or the 'Naim Olive' variant. You also got a more ergonomic control panel layout, and a fourth 'auxiliary' input (did anyone say 'CD'?).

In most other respects, though, differences between the two variants were minimal. The power output was still 13 Watts into eight ohms, or just under 20 Watts into four. In theory at least, the low power output restricted the choice of speakers that you could drive from the amplifier



and/or the size of listening room in which it was installed. With relatively-efficient speakers of commensurate standard, carefully-chosen sources and a small-ish room, results could however be outstanding.

Which brings us to the real subject of this piece – the third-generation NAIT 3, which replaced the 2 in 1993. Of a more conventional form factor (i.e. shape) than its two predecessors, its internal design was radically different. A row of soft-touch buttons on the 'Naim Olive' front panel engaged a tape-monitor facility, muted the output and switched between inputs – the number of which had been expanded to five. These buttons form part of a simple logic circuit that switches encapsulated relays to perform the source switching – an elegant and reliable solution.

The NAIT 3's reliance on electronic rather than mechanical input-selection lent it to remote-control operation. And indeed such a version (the 3r) was also available.

Upgrading the 3 to 3r was possible, but doing so was rather expensive as amongst other things



**The NAIT 1 and 2 both had integrated preamps for MM cartridges. Owners of the NAIT 3 could, however, opt for an excellent internally-fitting phono stage. Versions that catered for MM (as seen here) and MC carts were available.**

into four ohms). What a shame that Naim didn't take the radical decision to fit a headphone socket – or move entirely from DIN socketry to phonos.

Then there's the upgradeability. It is possible to convert the NAIT 3

sanctioned by Naim.

My particular NAIT 3 came in good condition, complete with phono stage, from a friend over a decade ago. It had stopped functioning properly, and as someone working in the (then!) highly-paid telecoms industry he decided to buy a new NAIT 5 (complete with remote-control option) rather than get the old one repaired. I was able to get it for a very good price (£100, if I recall). The repair was simple – a few dry joints on the input-select logic chips.

How this came to be is probably because the amp was left on even when not in use. As the NAIT 3 manual itself says, "a better and more consistent performance is achieved when hi-fi equipment is switched on for long periods". Only too familiar with the spiralling cost of energy and the fact that certain types of component (notably electrolytic

"the NAIT 3 was once described in these very pages as 'a taste of high-end audio'. It's difficult to argue with that statement"

the entire preamp board needed to be replaced with one that had the all-important motorised volume and balance controls. The former, incidentally, is a substantial ALPS component; no cost-cutting here!

By 1993, CD had become the primary source of new music. As a result, the NAIT 3 didn't as standard – unlike the two earlier incarnations – cater for vinyl. High-quality MM and MC stages built from discrete components were available, and your choice plugged onto the preamp board; a dealer retrofit was straightforward. If one isn't installed, the relevant input (the only phono-socketted one) will accept a line-level source.

Another significant change relative to its predecessors was a redesigned power amplifier stage. Each quasi-complementary channel of the NAIT 3 is capable of delivering 30 watts into an 8 Ohm load (45W

into a preamp for use with external power amps like Naim's own NAP 90; indeed, the NAIT 3's internal preamp was based very much on the NAC 92. Behind a couple of rear-panel blanking plugs lurk spaces for the necessary DIN connectors. These need to be soldered onto the power amp/power supply circuit board. Interestingly, I have seen some production units with these sockets already fitted. If the original NAIT 3's internal power amps are no longer required, they could be electrically-isolated. Doing so, however, would involve modifications (like PCB track-cutting) unlikely to be



**Although the other inputs used Naim's favourite locking-DIN connectors, the first input took the form of standard gold-plated phono sockets feeding a phono stage – note the ground post. It accepted line-level signals if the phono stage wasn't fitted.**

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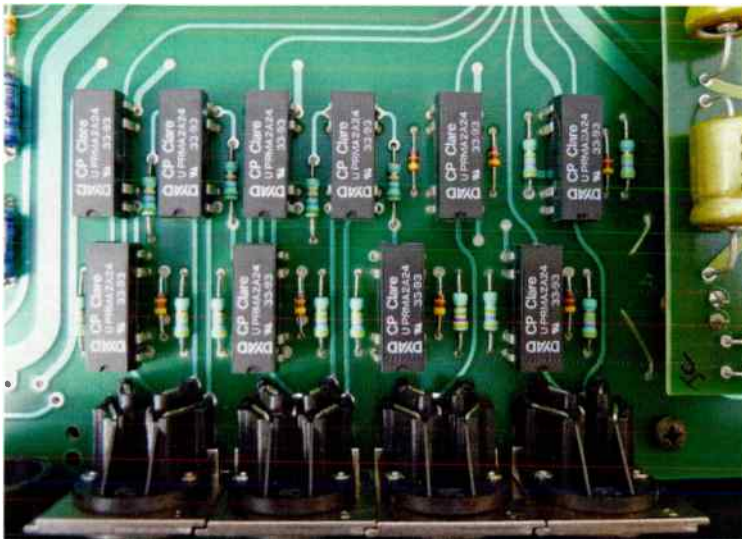
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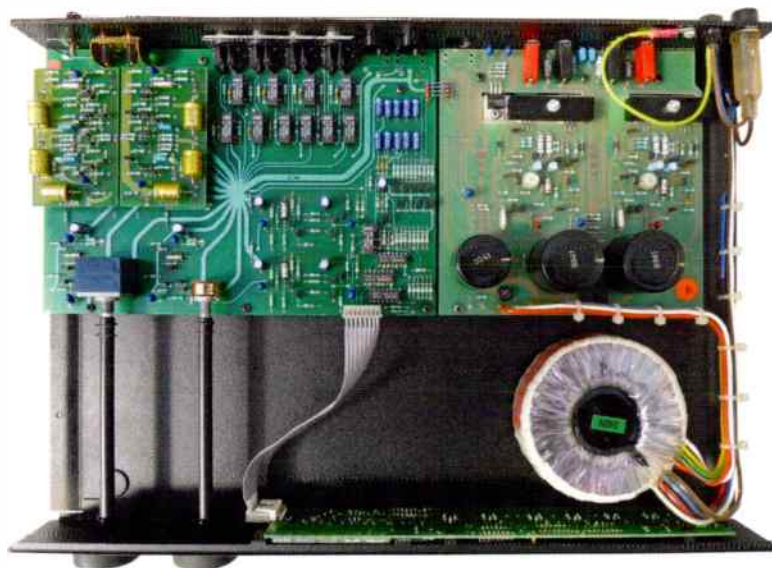
**They're not chips! Earlier versions of the NAIT used push-buttons or a rotary knob to directly-select analogue sources. The NAIT 3 changed all this for a far more reliable system in which the signals were switched via the encapsulated relays shown here.**

capacitors) have a finite life, I only switch on my NAIT 3 when it's needed – although I give it an hour to 'settle' before listening. With such treatment, it has performed impeccably since the repair.

This particular NAIT 3 spends most of its time in a smallish (12' x 10') listening room, which is separate to the one I use for home cinema. It's connected to a pair of Acoustic Energy AE109s and a variety of sources – notably a Helios X5000, and a Valhalla-era Linn LP12/Basik Plus/Ortofon 540 MkII on a Russ Andrews Torlyte platform. The former was one of the first network/disc/USB multimedia players with audiophile pretensions. It supports 24/96, and is able to handle the FLAC and AAC codecs. Between them, these two sources can cover most of my music collection.

The NAIT 3 is famous for its speed – a property that certainly appealed to the aforementioned friend, a true dance-music fanatic. And with percussively-driven material (Kraftwerk, for example), there's plenty of rhythmic snap and drive that makes for an exciting experience. It also works with rather more mainstream fare, such as the Will.i.am/ Britney Spears 'Scream and Shout' of recent times. This superb pop/dance track possesses immediacy and a highly-enjoyable bass line, which the system did justice to.

In fact, the bass performance of this amp is – certainly in conjunction with the AE109s – remarkably good. It belies the modest power output of the specification. Switch, for example,



**Neat construction and a sensible layout, coupled with proven technology implemented using high-quality components, made the NAIT 3 a sonic winner.**

to a CD of John Martyn's timeless *Solid Air*. The acoustic bass of the title track is beautifully-rendered with little colouration to speak of. Don't Want To Know, from the same album, demonstrates an ability to convey a high level of musical detail – and reveals that there are no serious faults on the imaging front, which some past critics have reckoned to be a NAIT shortcoming. May their

ideas have been prejudiced by the knowledge that a single mains toroid powers the whole thing?

One of my favourite 'atmospheric' tracks is Dire Straits' *Private Investigations* from *Love Over Gold*, heard here with the LP12. The NAIT 3 envelops you within this world – compellingly so. Another vinyl favourite is Fleetwood Mac's 'The Chain', from a 1977 pressing of *Rumours* – no sound staging problems here, either. The dobro that famously opens this song can in fact be heard throughout the first half, even as the track builds up. With lesser mass-market systems, it's lost – as are other subtleties that are here individually identifiable within the mix. And when the song's bass-driven second-half kicks off, the NAIT 3's rhythmic nature is there to do it justice.

The NAIT 3 was once described in these very pages as 'a taste of high-end audio'. It's difficult to argue with that statement, given that what we have here is a character that's agile and precise but above

all musical. Naturally, it's better suited to modestly-sized listening environments – but with this in mind I've heard amplification that is far more expensive yet nowhere near as involving. Today, you can expect to pay £300 or so for a used NAIT 3 (less without the phono stage). You would be hard-pressed to find a new solid-state amp anywhere near as good for that sort of money.

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# Extra one

Noel Keywood finds Philips Fidelio X1 headphones have something extra – real quality.



**P**hilips Fidelio X1s remind me of furry carpet slippers. They are for home listening, ideally in a comfy armchair, and they have a nice snug feel about them.

I think it is the velour covered ear pads that triggered my carpet slipper analogy though.

These 'phones are aimed at the upper end of the market; they are super accurate, luxury 'phones that sell primarily upon sound quality. Fitted with an open back to lessen reflections and colouration, they leak sound and would annoy others on public transport, and they may even annoy others listening to TV at home.

A weight of 430gms isn't light so you won't be wearing them to the gym either. All of which is to say that the X1s are not designed to fight it out with Dr Dre's finest (which isn't so fine, but that's for another review).

We're told the X1s use double layered aluminium shells, in which 50mm lightweight diaphragms are driven by powerful neodymium drivers. The detachable signal cable is made from Oxygen Free Copper and terminated with a monster 1/4in jack, with an adaptor for a 3.5mm jack (supplied). The headphone end uses a

3.5mm jack so fitting another cable is simple.

The ear pads use memory foam, for a good seal to maintain bass power. But memory foam in a plastic sheath is sweaty, hence the use of washable velour. I found them comfortable, but they do get warm; grip is firm but not strong.

## SOUND QUALITY

Unlike so many other headphones the X1s are truly accurate. They have strong bass but it is not over emphasised, as it is with Dr Dre's 'Beats', nor is it light like lightweight travelling phones, such as my Jays V-Jays. Philips say it is fast and clean and Philips are right: it was great to hear Joe Walsh singing 'Last Good Time in Town' backed by a solid and powerful drum kit that had a hard thud to it. Guitar licks – likely from Walsh – were clean and sparkingly clear. Supporting harmonies from the Eagles were spread across a wide sound stage and fine percussive details were sweetly clear.

The X1s have glorious treble that comes across as totally natural and smooth, similar to that from electrostatics. With Marta Gomez singing Lucia (24/96) the slick smoothness

of high resolution digital came across beautifully; no coarseness or jitter here. Percussive blocks stabbed out at left and accordion glided through the piece, sounding full bodied, close and real. Even the sense of space being picked up by Marta's mic was discernible.

The Minnesota orchestra playing Korsakov's 'Dance of the Tumblers' (24/96) sounded expansively powerful, kettle drums thundered and strings were delicate but finely detailed. Orchestral crescendos came across with a fine sense of power, horns blaring out loudly.

For the most part I used the Fidelio X1s on an Astell&Kern AK120 digital audio player and had enough volume. The X1s are insensitive though and don't play super loud from weaker portables.

## CONCLUSION

The Fidelio X1s offer superb quality, shaming most loudspeakers – including the best. They're that good. Their ear pads get warm and are a little over-cossetting perhaps. Otherwise, the X1s are lovely 'phones, in a league above most others. Hear them before anything else.

## PHILIPS FIDELIO X1 £270



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### VERDICT

Transparently clear, sweet sounding 'phones with great bass. Perfectly balanced – exemplary.

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- well balanced sound
- clear and dynamic
- well defined bass
- affordable

### AGAINST

- a tad warm on the ear

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# NEXT MONTH

## NOVEMBER 2013 ISSUE

First out with the new KT150 power valve are Icon Audio. They've used it in their Stereo 60 MkIII amplifier to come up with a great new model that sounds fabulous. Just look at those distinctive gherkin shaped tubes, formed to resist ringing and microphony, for a better sound. The new KT150 is a plug-in upgrade for the KT120, and it has been designed to combine quality with ruggedness. See what we think of Icon's Stereo 60 MkIII with KT150s, in our next issue.



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This is a selection of what we hope to bring you, not a complete list. Unfortunately, we regret that due to a wide range of issues, such as failure under review, we cannot guarantee all products listed above will appear.

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## BOB DYLAN

BLOOD ON THE TRACKS  
1975

the album had been created from a passion, an inner drive, a reaction against the hurt

**Y**ou know, there are many classic LPs out there but there are far fewer classic 'albums'. Let me explain, this Dylan album has just been reissued by US-based Mobile Fidelity ([www.mofi.com](http://www.mofi.com)). They have also released a batch of other albums, at the same time. One of them, Stevie Wonder's 'Fullfillingness First Finale', is a brilliant piece of work and would receive full marks from any self-respecting, retrospective review. But it is a collection of 'songs'. It doesn't really hang together as a single document.

I'm not trying to promote concept albums here but I am pushing the ideal of the album that has emerged from a single mood, a single train of thought or a single inspiration. For Bob Dylan, 'Blood On the Tracks' was created after his divorce from his wife, Sara and, as such, is often seen as the greatest break-up album of all time, integrating feelings of resentment, mourning, remorse and a search for peace. As such, it did something that just about no Dylan album had done up until that point, it helped to reveal the man to his listener.

For the fan, the content of the album made a refreshing change from the allegory and mystery that formed the majority of Dylan's lyrics up to that point. Not that it pleases Dylan much. "A lot of people tell me they enjoy that album. It's hard for me to relate to that. I mean, it, you know, people enjoying that type of pain, you know?"

In many respects, because the album had been created from a passion, an inner drive, a reaction against the hurt, that is why 'Blood On the Tracks' still sounds as fresh today as it did when it was first released.

If you take time to consider your typical 'Ooo Baby' song from the sixties, seventies and eighties, it will tend to reflect fashion and culture of the age and run the danger of sounding stale soon after because of it. 'Blood...', however, will never fall out of fashion because it echoes something that is in all of us or something of the potential within us, at any rate. Something human.

"A lot of my songs don't work," admitted Dylan, talking in the seventies. "I wrote a lot of them just by gut because my gut told me to write them and they usually don't work so good as the years go on. A lot of them do work. With those, there's some truth about every one of them. And I don't think I'd be singing if I weren't writing, you know. I would have no reason or purpose to be out there singing."

The album itself turns its eyes towards the past, in terms of style as it lowers the decibel rate, producing a low-key acoustic approach. Some observers took this delivery as a form of nostalgia for those early sixties times but this album represents more than that. When Dylan took that path, he drew upon his own inherent strengths as an artist, largely because the style is so familiar.

Dylan presents an intimate record and, at times, moving work and one that, as he himself recently confirmed during an interview in Germany, will not and cannot be replicated, "I never listen to my old stuff. I don't want to be reminded of my self or be an influence on my self. I want to go on, always go on..."

This edition, issued by Mobile Fidelity, has been pressed on 180gm vinyl and is contained within a thick, gatefold, sleeve and Mo-Fi's own anti-static, non-scratch inner sleeve (which you can buy as a pack of twenty-five for around £15 or fifty for around £26 from a range of online retailers).

The album has been produced from the original master tapes and pressed at RTI. Mo-Fi says that this is the, "...first-ever proper analogue reissue," of the title. Listening tests proved a delight, with the issue offering a true 3D soundstage and welcome clarity.

If I was going to be glib, I would offer this album as a nicely packaged suite of rent emotions, wrapped up and tied with a ribbon for your delectation but that would be to negate what Dylan has done here. In fact, he has created an artistic space and then poured the intensity of an emotional event into it. As such, 'Blood On the Tracks' offers a unique window into Dylan, the man. **PR**

# USHER

The USHER Dancer Diamond Series features the world's first amorphous DLC (diamond-like carbon) diaphragm tweeter. This is a tweeter which is second to none in the current market. To find out more, visit [www.usheraudio.com](http://www.usheraudio.com) or your nearest USHER dealer...



"2012 Editor's Choice" Awards --- AUDIO ART

## Mini-X Diamond

2-way system: 1.25" Diamond DMD dome tweeter, 7" midrange  
Sensitivity: 87 dB @ 1 watt / 1m  
Nominal impedance: 8 ohms  
Frequency response (-3 dB): 41 Hz ~ 40 kHz  
Power handling: 100 watts  
Crossover frequencies: 2.3 kHz  
Weight: 15.5 kgs/34.2 lbs. per piece  
Dimensions (w x d x h): 26 cm x 37 cm x 43.5 cm



## Behind the scenes

Dr. Joseph D'Appolito a world renowned authority in audio and acoustics designs the crossover and performs prototype testing/final fine tuning for Usher Audio. Consulting to a couple of famous audio companies, Joe always finds the tremendous value Usher Audio products represent a delightful surprise in today's high end audio world.

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