

# HI-FI WORLD

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**PINK FLOYD FEATURE**  
**PRISM CALLIA USB2 DAC** **EXCLUSIVE!**  
**GEAR4 BLACK STREAM1 SPEAKER**

NOVEMBER 2016



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**7 PAGES OF LETTERS - THE BEST WINS A PAIR OF**  
**QUAD S2 LOUDSPEAKERS! (UK ONLY)**





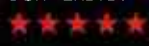
"If you have a good system and want to give it a boost these may just be the most cost-effective way to do that"

Chord Shawline Range  
Hi-Fi World October 2016



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OUR VERDICT



Chord Shawline Analogue  
Hi-Fi Choice July 2016

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Paul Rigby, Jon Myles, Martin Pipe



**F**unny thing, hi-fi. We all know what is right – and what is right is what we like. Yet in this simple landscape there are some glaring disparities. One of them is why an electrostatic loudspeaker sounds so different to a box loudspeaker, when they do basically the same job, measuring alike. My first electrostatic, Braun's version of the Quad ESL-57, I was in two minds about – until I swapped back to box loudspeakers after

getting used to them. Oh! That's when I realised everything experts said about electrostatics was true; they are a league apart. Explaining why Martin Logan's most affordable hybrid electrostatic, the Electromotion, has sold well in Britain. The company now capitalise on this success by adding an updated version, the new ESL X. See what we found when using it, in our exclusive review on p11.

Chord Electronics have, at the end of the development cycle of an entire range of DACs, released their finest: Dave. Sounds prosaic I know, but Latin scholars will be delighted to know this is no allusion to a recently departed UK prime minister, but an acronym of Digital Audio in Veritas Extremis. Inside lies a unique, UK designed digital converter chip of outstanding performance, measurement shows. See what we found when using Dave in our in-depth review on p74.

Happenstance (I should say good planning!) saw a brand new Single-Ended valve amplifier arrive in the office from Icon Audio, the Stereo 30se, at the same time as the Martin Logan ESL X electrostatic loudspeakers. Everyone who heard this combination loved it. Valve amplifiers are a perfect match for electrostatics and the two were made for each other.

Single-Ended amplifiers are a purist's dream, but they produce little power. The Stereo 30se by way of contrast uses the latest KT150 power valve to produce 28 Watts – perfect for the Martin Logans. You can read about this fabulous little amplifier on p60.

As time passes we realise that famous musicians of the 1960s still with us are all but museum pieces. A wry smile crept across my face on learning the Pink Floyd are now on display in the Victoria & Albert museum, London. I wonder if their tour van you can see on p87 is there too, 'cos it should be. Of course, the boys themselves won't actually be on display, not having yet become static exhibits, but you can see much else that lies behind fifty years of output, 1967-2017. Paul Rigby guides us through an extensive box set on p87. Who doesn't remember Atom Heart Mother (man)?

**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.



## hi-fi world

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## verdicts

- OUTSTANDING amongst the best
- EXCELLENT extremely capable
- GOOD worth auditioning
- MEDIOCRE unremarkable
- POOR flawed
- £ VALUE keenly priced

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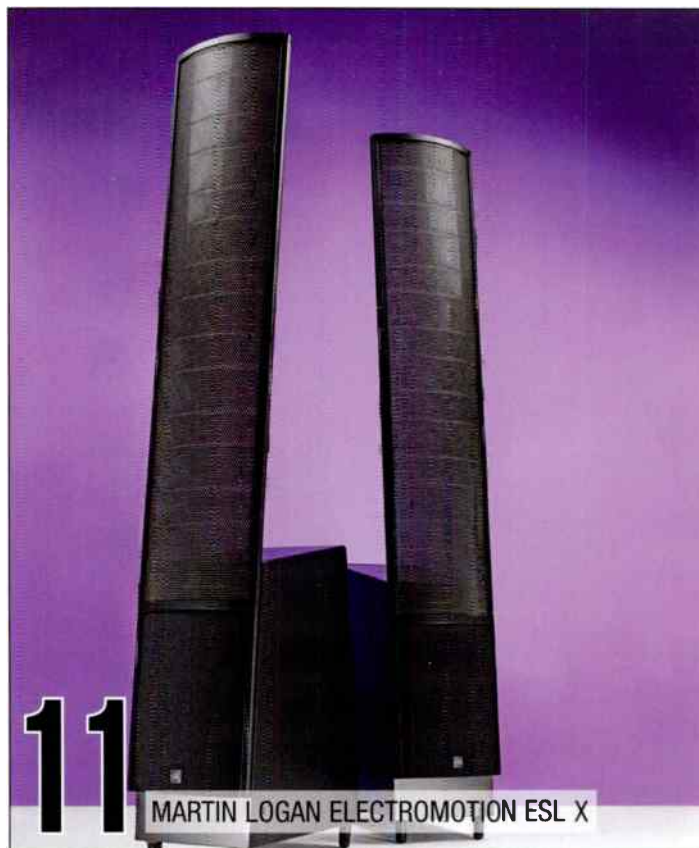
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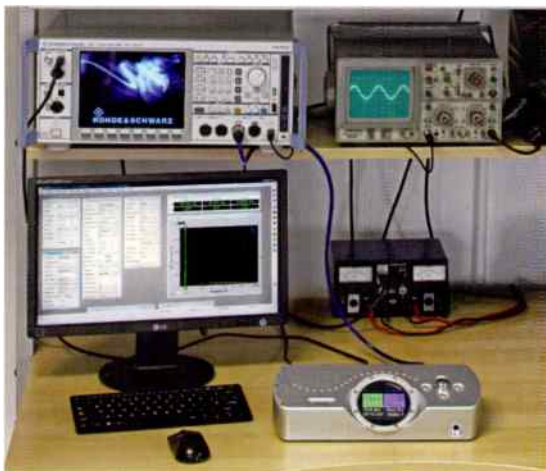
# Hi-Fi World measurement

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

**T**he products we review are tested first to ensure they work properly and meet their manufacturer's specification. Our measurements also look at factors that affect sound quality, like frequency response, distortion and dynamic range, as well as those that affect compatibility, such as output level, output power etc.

These tests are complex and can only be made using a professional audio analyser, calibrated to international ISO standards to ensure accuracy – we use the excellent Rohde&Schwarz UPV.

Loudspeakers and headphones require acoustic analysis. For this we use the well known Clio test system from Audiomatica, Italy, to provide reference standard acoustic measurements, within a very large 6000 cu ft test room. You can be sure our loudspeaker reviews, covering the full audio band from 20Hz to 20kHz, are accurate as a result.



*Modern high performance DACs nowadays have such high dynamic range few modern spectrum analysers are capable of measuring what they can achieve. Noise and distortion generated within the analyser are the reason. We use the world's most advanced audio analyser, a Rhode&Schwarz UPV, capable of recording the true dynamic range of modern hi-fi DACs, our results correlating with those of top manufacturers. As a result our measurements capture the true abilities of a super high performance DAC like the Dave, from Chord Electronics, shown being measured here.*

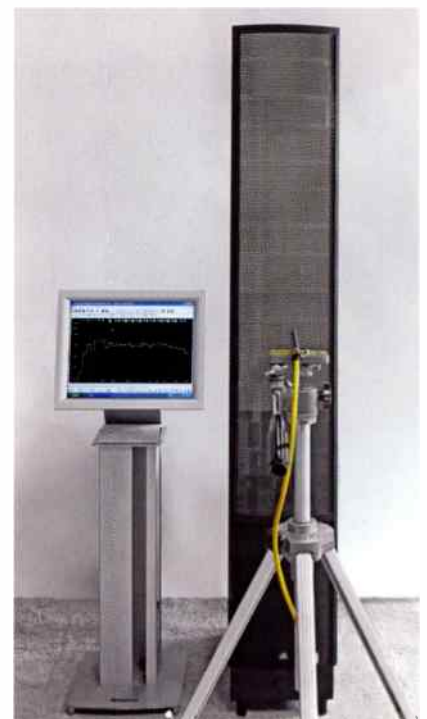
*The UPV (top left) injects a -60dB digital test signal from its generator section, and the audio output feeds the analyser's analogue input where the level of distortion and noise, below -60dB, are measured, using IEC A weighting. This figure is added to -60dB to give a final dynamic range that, with Dave, was a massive 129dB.*

*Also measured by the UPV are distortion, noise and output level.*

*Our measuring microphone on a height adjustable tripod, in front of the Martin Logan ESL X, tested in this issue. It is moved vertically, and laterally whilst measuring in real time using a music-like pink noise test signal. Large, open electrostatic panels like this demand a big room; we use an industrial space of 6000 cu ft, with sloped ceiling rising to 18ft high, that little influences accuracy. Bass performance down to 20Hz is measured.*

*A Clio measurement system (Audiomatica, Italy) applies third-octave analysis to provide a graphic illustration of frequency response, shown here on the screen at left.*

*Other measurements include gated delayed sine wave impulse response, impedance characteristic and overall impedance (modulus), d.c. resistance, sensitivity, distortion, decay spectrum over 200mS.*



email:news@hi-fiworld.co.uk

# news

## WHARFEDALE'S DIAMOND BECOMES ACTIVE

The Diamond Active Series from Wharfedale features True Wireless technology and comprises two models: the Diamond A1, a bookshelf-size speaker, and the Diamond A2 floorstander. Both include a 50W amplifier in each speaker to deliver a combined 'system power' of 100W.

Many similar stereo-paired Bluetooth speakers incorporate the amp circuitry and in one speaker, with a cable connecting this powered speaker to a second, passive speaker. Diamond Active Series speakers work differently. They include a wireless hub, to which the playback Bluetooth (with support for the aptX codec). The HI hub then conveys the left and right audio signals to the appropriate speaker.

Digital inputs are supplied in both optical and coaxial flavours, while two RCA-phono inputs cater for analogue sources. They are priced at £599.95 for the Diamond A1 and £999.95 per pair for the Diamond A2 (including the HI wireless hub). To learn more telephone +44 (0)1480 447700 or log-on to [www.wharfedale.co.uk](http://www.wharfedale.co.uk).



Bluetooth receiver  
Wharfedale's  
device is paired via  
the appropriate speaker.



## CHORD'S SPM 1050 POWER AMPLIFIERS REACHES MKII

Chord Electronics' new SPM 1050 MkII power amplifier is now available worldwide. The latest-spec MkII model offers enhanced isolation on the mains transformer and features four proprietary lateral-structure dual-die MOSFETs per channel (eight in total).

The SPM 1050 MkII provides both balanced XLR and RCA phono inputs, plus two pairs of loudspeaker outputs with gold-plated connections. A single power button includes a stand-by mode and the amplifier's status is indicated on the faceplate by a simple two-LED sequence showing power and relay functions.

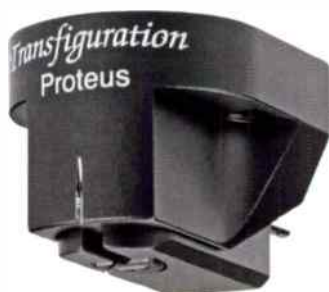
As with all Chord Electronics amplifiers, the new SPM 1050 MkII features Chord's proprietary 2kW high-frequency switch-mode power supply. The technology allows instantaneous power to be taken from both power rails simultaneously when the audio track demands. Price is £4,950. More information via +44 01622 721444 or on [www.chordelectronics.co.uk](http://www.chordelectronics.co.uk).

## PHAT AUDIO P09

Offering a 203mm full range driver, this weighty speaker (all of 80kg) from Taiwan is made from a combination of aluminium alloy and stainless steel to retain rigidity.

The central chassis, known as a compression chamber, is constructed of three concentric pipes, which was found, said the company, to be sonically superior to the standard 'folded pipe' system seen in standard speakers. At the top is a suspended radial diffuser cone made from wood. Using a silver coil, the drive unit is a 16 Ohm Lowther PM-4 double basin, paper cone, governed by a Alnico magnet and spanning around 225mm.

For more details log-on to [www.phat-audio.co.uk](http://www.phat-audio.co.uk).



## TRANSFIGURATION IMPROVES PROTEUS

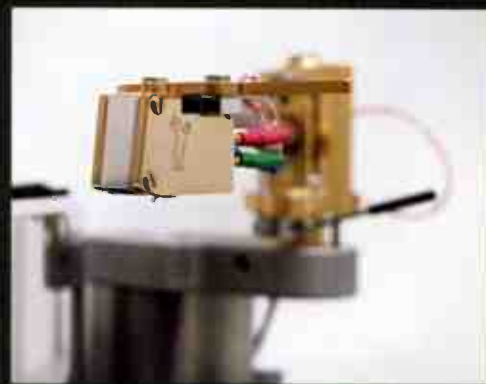
Japan-based Immutable Music's range of hand-crafted Transfiguration phono cartridges are undergoing a number of enhancements and first to arrive in the UK is the company's flagship model Proteus.

The new version changes both the dampers and the coils. The Proteus features push-pull damping, with the existing model sporting double dampers made from a specially developed stabilising compound. In the new model, the dampers have been further fine-tuned. They now feature a multi-layered design composed of different types of elastomer. At the same time, the purity of the 5N silver wire coils has also been upgraded. The new Transfiguration Proteus is priced at £3,295. See [transfigurationcartridges.co.uk](http://transfigurationcartridges.co.uk) or call 056 0205 4669.

## DAVINCIAUDIO LABS' CARTRIDGE EXPERIENCES A 'HIGH'

The high-end, gold-plated Grandezza cartridge now has a sister model to share its limelight in the form of a slightly higher output model.

DaVinciAudio Labs' Grand Reference Grandezza MC cartridge is priced around the \$8k-\$10k figure. The design offers a hefty, gold-plated body, inside which is a 'nude' stylus and magnetic engine. The very low impedance of less than 3 Ohms is matched by the very low output of just 0.17mV. Only very low noise phono amplifiers or transformers will do. So the company has now decided to produce a higher output model that hits 0.26mV with an impedance of 3.5 Ohm. To learn more go to [da-vinci-audio.com](http://da-vinci-audio.com) or call 0041 31 381 81 20.



## PIONEER'S NETWORK CD RECEIVERS

Pioneer has announced the release of a new series of network/CD receiver systems with speakers. The X-HM76, X-HM76D and X-HM86D support streaming services including TuneIn, Spotify, Tidal and Deezer. The front 3.5" LCD screen can show album art along with a range of information, while each model also includes Wi-Fi and AirPlay. High-resolution audio file support includes FLAC/AIFF/WAV up to 24bit/192kHz along with Apple Lossless and DSD up to 11.2 MHz.

The X-HM86D tops the range packing 65W per channel via its Class D amplifier.

The X-HM86D is also available without speakers (XC-HM86D) from select retailers for £400.

Both the X-HM76D and X-HM86D are equipped with a DAB/DAB+ tuner and Internet radio. For further information click [www.pioneer-audiovisual.eu](http://www.pioneer-audiovisual.eu).



## WASANBON RECORD CLEANER

Japanese firm Kashoen Co has always been known as a creator of cosmetic brushes, but the company realised it could turn its technology to vinyl record cleaning – but with a sense of style.

The cleaning system features three different brushes with a total of four processes to clean your record. A seldom used bristle was matched to the purpose-made "Sakiware" brush. It utilises synthetic hog hair which proves optimal for reaching deep into the record groove to remove fine particles of dust and debris. Price is \$100 for the set.

To learn more log-on to [www.jico-stylus.com](http://www.jico-stylus.com).

## VASARI DUAL MOVING MAGNETS

Gold Note, based in Firenze in Italy, is about to release its Vasari MM cartridge in two variants: Vasari Red and Vasari Gold. Each features a unique body design. The Gold is fully machined from a solid block of Duralumin with a rigid aluminium cantilever and featuring copper coil wire around an Alnico magnet and a custom elliptical diamond tip with a 2g tracking weight. The Red features a Delrin body with an aluminium cantilever holding a conical diamond. Vasari is available through Gold Note dealers at €195 for Vasari Red and €350 for Vasari Gold.

To learn more click on [www.goldnote.it/vasari](http://www.goldnote.it/vasari) or call 0039 0571 675005.



## HYBRID-AMT OBRIVO EAMT-1

High-end headphone company OBravo has released its new EAMT-1 in-ear monitors. A coaxial design (two driver types combined in one unit), the configuration features an implementation of Air Motion Transformer tweeters with Neodymium Dynamic Drivers. That is, an 8mm AMT with a 10mm NDD.

The diaphragm is made of a Mylar ribbon bonded with conductive aluminium strips. It is equivalent, says the company, in surface area to a conventional 178mm cone-type mid-range driver but is accordion-folded down to a compact 38mm grouping for point-source dispersion. The chassis is hand-crafted from Precision-Ceramic and weighs in at 35g. The EAMT-1 is available now for £3,699 through Audio Sanctuary. Call +44 (0)20 8942 9124 or go to [www.audiosanctuary.co.uk](http://www.audiosanctuary.co.uk).





## PIEGA COMES TO THE UK

Swiss company Piega is famed for its Linear Drive Ribbon (LDR), coaxial ribbon and Air Motion Transformer tweeters, as well as its use of aluminium housings in some of its high-end designs. The company was the first loudspeaker brand to produce a commercially available aluminium-housed speaker back in 1989.

The design of both of Piega's core ribbon HF systems is based on its development of an extremely thin, partially embossed foil diaphragm that gave rise to the company name, Piega – an Italian word meaning partially pleated or corrugated. Piega has refined this ribbon driver technology over nearly three decades.

The first series of Piega loudspeakers to hit UK shores will be the Classic line. Built using timber and fibreboard construction, the three premium models in the range feature curved, C-shaped cabinets and Piega's coaxial ribbon tweeter. Three more affordable Classic models in the line combine traditional flat-sided cabinet construction with Piega's Air Motion Transformer tweeter, the AMT-1.

Finish options include black, white or Makassar piano lacquer, with Napalette trim on premium models.

Classic series prices range from £900 per pair for the stand-mount Classic 3.0 to £12,000 per pair for the Classic 80.2 in premium Makassar piano lacquer finish.

To learn more click on [www.piega.co.uk](http://www.piega.co.uk)



## COMBAT HARDWARE COUNTERFEITING

Tellurium Q has joined with Austrian security outfit Authentic Vision to test a new anti-counterfeiting system, enabling customers to securely check the authenticity of their cables by scanning the included warranty card with the Check If Real App – free to download at the App Store for iOS or Google Play store for Android. This online system is driven from encrypted physical labels.

Authentic Vision is reportedly seeking further hi-fi industry associations with a view to standardising branding security.

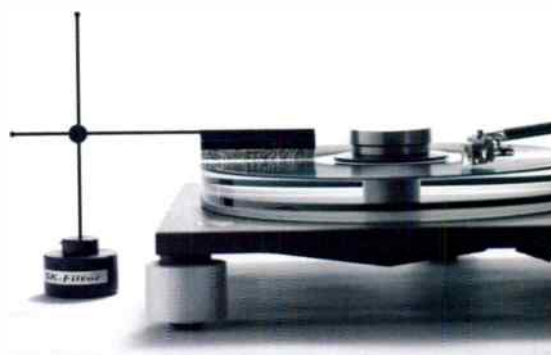
For more information contact Tellurium Q at +44 (0)1458 251 997 or click [www.telluriumq.com](http://www.telluriumq.com). Authentic Vision can be found at [www.authenticvision.com](http://www.authenticvision.com).

## FURUTECH SK-FILTER

Furutech has added to its range of static charge eliminators with the new SK-Filter, designed to remove unwanted static build-up from the surface of records as they play. As vinyl records spin on turntables, friction with the air causes them to constantly gain a static charge. In fact, according to the company, a record's level of frictional static electricity can reach up to anywhere between 3,000V and 20,000V.

Furutech's SK-Filter uses a patented material called Thunderon which consists of a very fine acrylic fibre chemically bonded with copper sulfide. The resulting conductive filament has the ability to discharge static electricity into the air whenever static-charged material approaches. The Furutech SK-Filter LP static eliminator is available now priced at £350.

For more information log-on to [www.furutech.com](http://www.furutech.com) or call +44 0118 981 4238.



## ARTNOVION'S ACOUSTIC AESTHETICS

Artnovion creates acoustic panels. Their High End collection is designed for residential and commercial properties. The range of panels include absorbers, bass traps and diffusers.

The panels offer sound proofing by controlling sound levels and shaping the way sound interacts within the room.

Artnovion has created an acoustics app called Impulso which is designed to help users tune their rooms without requiring specialist training. Room measurement is carried out in a few steps via the software's interface.

For more information, contact [info@ammonitemedia.com](mailto:info@ammonitemedia.com) or click on [www.artnovion.com](http://www.artnovion.com).



# Tellurium Q®

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**10 products of the year and most wanted components**  
in just 2 years by preserving relative phase relationships in a signal



"If you're looking for a major jump in your system's performance, I'd suggest buying a pair of these instead of considering a hardware upgrade. Before you write this advice off to cable delusion, expectation bias, or the recent Mercury retrograde phase, please take note: I have never said this in TONE's 11-year history"

**Jeff Dorgay, Tone Audio**

"Well, I have just stumbled upon a speaker cable that I'm very tempted to put in a class of its own"

**Mono & Stereo**



"Tellurium Q have surpassed themselves here. It is often said that all cables colour the sound of a system to some extent, but the Silver Diamonds do it to a lesser extent than any other product I've heard so far."

**John Myles, HiFi World**

The effect of phase distortion can be likened to smearing a beautiful picture or looking at it through frosted glass. All signal cables do this to some degree and the better you tackle the engineering challenges to combat phase distortion the more natural the sound you get.



== TQ ==

# Pure Electro

Martin Logan's new ElectroMotion ESL X electrostatic loudspeaker features a larger XStat panel and a new, more complex, bass cabinet than its budget cousin. Noel Keywood listens.

**E**lectrostatic loudspeakers are brilliant – but difficult. And expensive. Not surprising then that the budget ElectroMotion from Martin Logan has been a success. Priced around £3300 it is a justifiable and affordable purchase to many, it conspicuously delivers electrostatic quality, yet is largely free of electrostatic problems – one being size.

I use electrostatics out of choice and have been using ElectroMotions for some time. They easily fit into my typical 17ft long Victorian lounge and not only perform beautifully, but attract both attention and praise. Even non-hi-fi people latch onto their transparency and pin-sharp imaging immediately. Now, Martin Logan have introduced a model one notch up, the ElectroMotion ESL X (EM ESL X), reviewed here.

In a nutshell, this new upgraded ElectroMotion costs more at £4,498, but has stronger and deeper bass from a more complex bass cabinet. The company have also enlarged and improved the XStat electrostatic panel to sound slightly smoother.

A major drawback of electrostatics is that as panel loudspeakers, they must be large to produce bass. The ESL X is a hybrid design, using a tall, slim electro-

static midrange/treble panel that works from 400Hz upward. Lower frequencies are handled by a conventional bass cabinet fitted with cone drive units, minimising frontal area. As a result the 'speaker is just 24 cm (9.5in) wide. Producing bass in a small lower cabinet keeps size right down; as hi-fi loudspeakers go the ESL X is un-intrusive because it is narrow and mostly see-through.

But at around 5ft high, measuring 150cm (59in) in this dimension, against the 100cm (3ft) or so of most floorstanders this loudspeaker still has presence. The see-through nature of the XStat panel and its shallow depth of just 5cm do however usefully lessen visual impact. Only the bass cabinet is on the hefty side but it is hardly gargantuan, measuring 53cm (21in) deep. Weight is 23.6kgs (52lbs) apiece, making them heavy but not immovable.

The bass cabinet carries a forward-firing 8in bass midrange unit that works up to 400Hz, whilst

***The forward firing 8in bass unit reaches down to 80Hz; it does not handle low bass. A light flexible grille offers protection.***

***Note the high feet, to give the port clearance.***



behind it on the rear panel lurks another 8in unit that handles only frequencies below 100Hz, acting to increase cone area and bass acoustic power at low frequencies. They are loaded by a reflex chamber having a flared port firing downwards to the floor.

It's this subwoofer that enables the ESL X to go low, delivering subsonics our measurements showed. And it is the primary distinguishing feature between the ESL X and the less expensive ESL that I use (which has unintrusive bass). The feet are high to give the port ground clearance, and they offer the option of spikes or rubber feet.

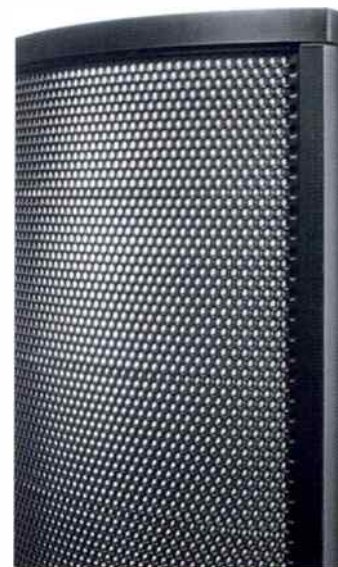
The rear connecting panel has bi-wire connections with links. The high frequency input connects to the XStat panel alone so it can be electrically isolated from the bass bin and driven bi-wired or even bi-amped if wished.

In case you are unfamiliar with electrostatics, they need a high voltage polarising power supply demanding mains connection. Martin Logan arrange this using a wall-wart power supply (100V-240V), sending low voltage (15V d.c.) through a slim, circular 3mm cross-section black cable 10ft (3m) long that can be easily concealed. A small blue LED on the rear lights blue to confirm power is on.

Although high voltage is applied to the front and rear perforated plates, they are insulated and total charge is less than that of a cathode ray TV screen, Martin Logan say – not dangerous. Peter Walker of Quad warned me long ago that it is the output of the audio step-up transformer that can bite, not the voltage on the plates – but it is not exposed.

Martin Logan's panel switches off after 4 seconds in the absence of a signal and this prevents it collecting dust, or moisture in the tropics, they say. It can be Hoovered and even punctured and continue working without sparking, unlike my Quad ESL-57s long ago, as damage (possibly from over-drive) and dust built up.

Martin Logan have banished all the issues that make an electrostatic loudspeaker 'difficult' to the average user, as opposed to the dedicated audiophile, and in so doing have brought high-end quality down to the masses – well, those



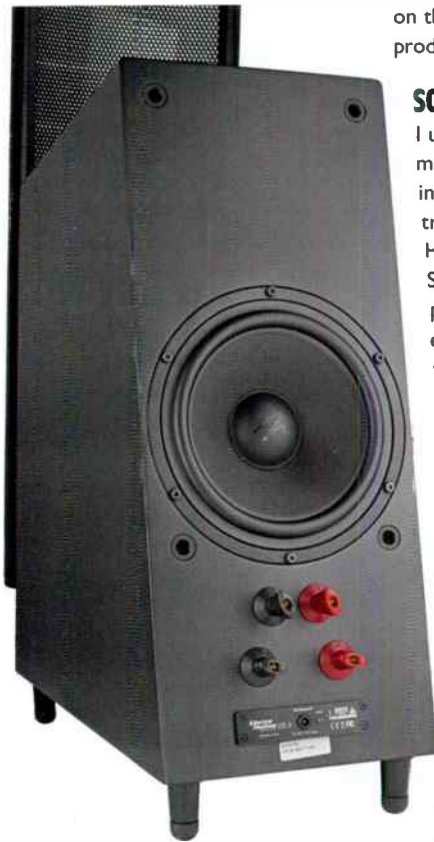
***Front and rear perforated grilles sandwich the clear electrostatically charged film, giving a see-through assembly. The plates are coated with a protective insulant.***

with £3k in their pocket. Crucially, in my experience, sound from their electrostatic film XStat panel isn't compromised by obstructive stators or protection covers.

Most people 'get' electrostatics directly they hear them, but some don't get them at all. In describing the ElectroMotion ESL X I'll cover both ways of seeing things since this helps illuminate what it does, and perhaps what such a hybrid cannot do for some listeners.

The ElectroMotion ESL X XStat electrostatic panel and box bass bin come from different worlds – and you can hear the disparity. But at the same time you can hear unique strengths too. I acclimatise to the apparent mis-match of character between the light, open airy nature of the XStat panel and the heavier, warmer box-bound bass unit, even though I have used an open-dipole Celestion SL6000 bass unit in the past, beneath Quad ESL-63s, that matched in better. Some prefer to stay with the more consistent sound of a conventional loudspeaker, but an electrostatic is so uncoloured and revealing it is in another world – and it makes reviewing a doddle!

The XStat panel of the ESL X is, even and coherent across the audio band, ignoring the 400Hz crossover, in a way no multi-driver speaker can be. And by curving the panel, Martin Logan have eliminated the phase cancellations intrinsic to a flat panel, resulting in a smooth and even sound all round, as our measurements



*The rear carries an 8in low-bass unit, bi-wire inputs that allow XStat panel and bass bin to be electrically split, and a small 15V d.c. supply input socket, with blue LED indicator to confirm power. A rear grille is supplied.*

confirm.

If you want more info on the ESL X, Martin Logan make both a brochure and the owners manual available on their website. And I see our open-dipole subwoofer DIY article, April 1996, is to be found on DIY Audio website (Google Celestion SL-6000); it gives more info



*A large port fires downwards toward the floor. This loads the rear drive unit and has an output that reaches right down to produce subsonics. The feet have rubber pads that conceal spikes that can be used as an option.*

on this little understood way of producing bass.

### SOUND QUALITY

I used our trusty Quad QMP mono block power amplifiers initially, for smooth upper treble and prodigious bass. However, the Icon Audio ST-30se single-ended valve power amplifier (reviewed elsewhere in this issue) was a delicious match in sonic terms, backing up my preference here: valves offer a smoother, timbrally sophisticated and more dimensional sound than transistor amplifiers, coming across as natural and unforced through a good electrostatic.

Sources were an Oppo BDP-105D Universal player to spin CD and act as a DAC for an Astell&Kern AK-120 digital player, delivering high-resolution digital files.

I also used our Timestep Evo tuned Technics SL-1210 Mk2 turntable, fitted with SME309 arm

"you won't hear any box loudspeaker, no matter how expensive, that sounds quite like the ESL X electrostatics"

and Ortofon A95 moving coil (MC) cartridge feeding an Icon Audio PS3 MkII all-valve phono stage. The clarity and analysis of an electrostatic loudspeaker especially suits LP.

Martin Logan's XStat panel sounds as clear as it looks. And since it covers a large part of the audio band that simply means you get stunning clarity and a complete lack of colour or the smoothing effect of dynamic drive units that erase low-level detail.

The larger XStat panel of the ESL X is undoubtedly more even sounding than the smaller and slightly sharper sounding ElectroMotion (EM ESL) yet its increased panel area delivers more treble power and in this sense it takes no prisoners, coming across as forthright and projective at high frequencies.

Fleetwood Mac's 'Dreams' (24/96) was characterised by hard cymbal crashes and very obvious leading edge treble from strummed guitar strings but the vocals of Stevie Nicks were superbly clear at centre stage in true electrostatic fashion.

With this track kick drum had depth and power, but whilst bass was well damped and followed the tune, it came across as a tad warm and heavy sounding all the same. It is near impossible to get away from this change of character between open panel and box bass in a hybrid

– subjectively the two are far apart. It doesn't especially worry me because I am used to it and have learnt to accept the mismatch in order to enjoy the unique qualities of the XStat panel. But I mention this because not everyone feels the same.

The hard cymbal crashes were in the recording, which was after all made a long time ago (1977). The point here is that the large XStat panel of the ESL X is both revealing and projective; poor recordings that may sound quite good on other loudspeakers all of a sudden have their faults revealed.

CDs that I have used as source material in the past came across as sharp and messy in their treble, the Martin Logans highlighting distortion emanating from the analogue-to-digital convertor (ADC) of the recording studio, these things being the root cause of digital's ills.

Enjoyed Worldwide.



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

Kal Rubinson, Stereophile, USA

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

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Ludwig Swanberg, HemmaBio, Sweden

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

Stephen Dawson, Audio Esoterica, Australia

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

Adrien Rouah, Québec Audio & Video, Canada

*The rear low bass unit is covered by a simple grille, for tidy appearance and some protection too.*



Even though Martin Logan have rolled down high-frequency output to reduce sound power (see Measured Performance) the large XStat panel by no means sounds warm or laid-back. However, with clean source material from top-quality CDs, hi-res or LP these loudspeakers offer sweet treble, especially through the Icon Audio ST-30se amplifier.

The complex finger picking of guitar strings in Fleetwood Mac's 'Never Going Back' was teased out in vivid detail, the lightning speed of the electrostatic panel giving lucid insight of plectrum against strings, events being cleanly delineated without blur or smear. It was a lovely performance, vivid yet natural at the same time – and also fast.

The ability to see right into string instruments, as it were, and to present them in all-of-a-piece from one drive unit, brought body and insight to Nigel Kennedy's violin. Playing Massenet's 'Meditation' he stood tall in front of me, his Strad having a looming acoustic presence centre stage because of the sheer resolving power of the XStat panel. There was no phaseiness either; I could move up or down and it affected what I heard not one jot. This brought body to the instrument, giving it a big vivacious presence.

Which brings me onto imaging, which with electrostatics is always something special. The 5ft high

XStat panel is what is known as a 'line source'; it is not a point source. A phase-coherent line source like this images very sharply across the soundstage – at any height. The soundstage remains consistent at all levels so whatever height you listen at the sound is the same – unlike multi-driver speakers – and the overall impression is one of a large canvas stretched out in front of the listener that is perfectly focussed and stable.

The ESL X does 'big'. It has a big soundstage and goes loud with ease, putting up the London Symphony Orchestra playing 'Mars', from The Planets, in massive form across the room in front of me, kettle drums thundering in convincing fashion, without boom or overhang.

There's another point to be made here: bass didn't boom even with the low damping factor of the ST-30se amplifier because of good acoustic damping within the bass bin. So whilst

bass was fulsome, helping make the speakers sound big and powerful, it was controlled too.

## CONCLUSION

The ESL X is a big electrostatic at a small price – as electrostatics go. You won't hear any box loudspeaker, no matter how expensive, that sounds quite like the ESL X. Electrostatics just sound different and the 5ft high see-through XStat panel of this 'budget' hybrid is one of the best in the business; I know because I've heard them all.

Think fabulous insight and deep detail, no colour and vivid speed. There's an airy lightness to the sound but it is inarguably accurate our measurements show – more so than most else in fact, because just one drive unit, the XStat panel, covers most of the audio band. Martin Logan have squeezed big into little with this model, almost without compromise – and that's its great strength. If your pockets go deep enough, you have to hear it.

## MEASURED PERFORMANCE

Frequency response of the ElectroMotion ESL X is shown in our third-octave analysis of pink noise. The XStat panel of the X version is smoother across the midband than its smaller cousin. It also has a distinctive slow roll off in high-frequency output above 8kHz. Put both together and the ESL X will sound less forward, smoother and more easy going. By any standard the XStat electrostatic panel gives very even output all the way from 400Hz up to 16kHz and is strong around 3kHz so detail will be made obvious.

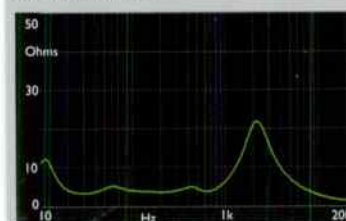
The forward firing bass unit extends output down to 80Hz. Output of the port reaches down to 20Hz, our red trace

### FREQUENCY RESPONSE

*Green - driver output  
Red - port output*



### IMPEDANCE



shows. The port is broadly tuned so will acoustically damp the rear unit strongly and this is obvious from the impedance trace that lacks residual peaks that arise from a typical narrow-tuned and resonant port. ESL X bass will be strong but well damped and tuneful, measurement suggests. The 'speaker will also produce subsonics.

Sensitivity was respectable at 88dB SPL from one nominal Watt (2.8V) at one metre, about as expected, if 3dB below Martin Logan's quoted 91dB. The 'speaker still needs only 40 Watts or so to run very loud, so high power amplifiers are not essential. Measured with music-like pink noise impedance worked out at a low 4 Ohms and our impedance trace shows 3 Ohms from 20Hz up to 800Hz with a smooth resistive characteristic so the ESL X draws current and may well highlight differences between amplifiers.

The XStat panel descends to 1.6 Ohms at 20kHz Martin Logan say and that is shown here too. Valve amps set to 4 Ohms can cope with this easily, and so can most transistor amplifiers; overload with MP3 files is a possibility at high volume.

The ElectroMotion ESL X has far greater bass output than the smaller and simpler EM ESL, as well as smoother panel output. It has been voiced to have powerful bass that is well damped and runs deep, providing an altogether smoother and bigger bodied sound. **NK**

## MARTIN LOGAN ELECTROMOTION ESL X £4,498



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"Listening to the first iteration of this technology I was supremely impressed with its clarity, openness and, most of all, level of detail on offer. One problem, however, was the cost – the Tuned ARAY first appearing in the high-end Sarum interconnects.

However, the development is now starting to trickle down throughout the Chord range and has been implemented in its new Shawline series. Analogue and digital interconnects are available as well as a dedicated loudspeaker cable. The latter features silver-plated conductors, 16 AWG multi-strand silver-plated conductors allied to a PTFE insulation.

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Taken individually the cables cost £200 for a 1 metre analogue RCA or digital interconnect while the speaker leads come in at £30 per metre with factory-fitted gold-plated banana or spade terminations provided for £100. For the analogue interconnect DIN, RCA and XLR terminations are all available.

One point to remember is that Chord always stresses that its cables are directional – with small arrows indicating the correct line of installation."

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**QUESTIONS**

- [1] What were we impressed by?  
 [a] detail  
 [b] length  
 [c] colour  
 [d] flexibility
- [2] Where did Tuned ARAY first appear?  
 [a] Goonhilly  
 [b] British Telecom  
 [c] Sarum interconnects  
 [d] Maplins
- [3] They should be deployed as -  
 [a] a modern army  
 [b] James Bond  
 [c] a big wing  
 [d] a complete loom
- [4] The conductors are plated with -  
 [a] silver  
 [b] gold  
 [c] beryllium  
 [d] synthetic diamond

**entries will be accepted on a postcard only**

**AUGUST 2016 WINNER: DALI OPTICON 2 LOUDSPEAKERS  
 Mrs. Kathryn Mclean of Dunoon, Scotland**

# One-stop shop

Is Onkyo's TX-8150 'network receiver' the musical equivalent of a supermarket? Martin Pipe thinks so – and in a good way.

In recent years, Onkyo has made an enviable name for itself in the field of multi-channel AV receivers (AVR). They are enormously complex products, packed with features and connectivity, and aimed predominantly at home-cinema enthusiasts. Manufacturers try and 'out-do' each other when it comes to the gimmicks, and inevitably there's a price to be paid as far as ease of use is concerned. There are so many options for initial configuration alone that even experienced users can be flummoxed.

As Onkyo started off in stereo,

one shouldn't be surprised to learn that the firm has now introduced a feature-rich, two-channel receiver that looks like one of its AVRs. Indeed, one could describe the TX-8150 as an 'AVR without the AVR'. And boy, do we mean features! The TX-8150 makes most other stereo receivers look pedestrian. Its tuner will receive DAB/DAB+ off-air broadcasts, but if that's not enough the network-audio function (choose from integrated Wi-fi or Ethernet) will also pull in your choice of Internet radio stations – courtesy of its TuneIn software.

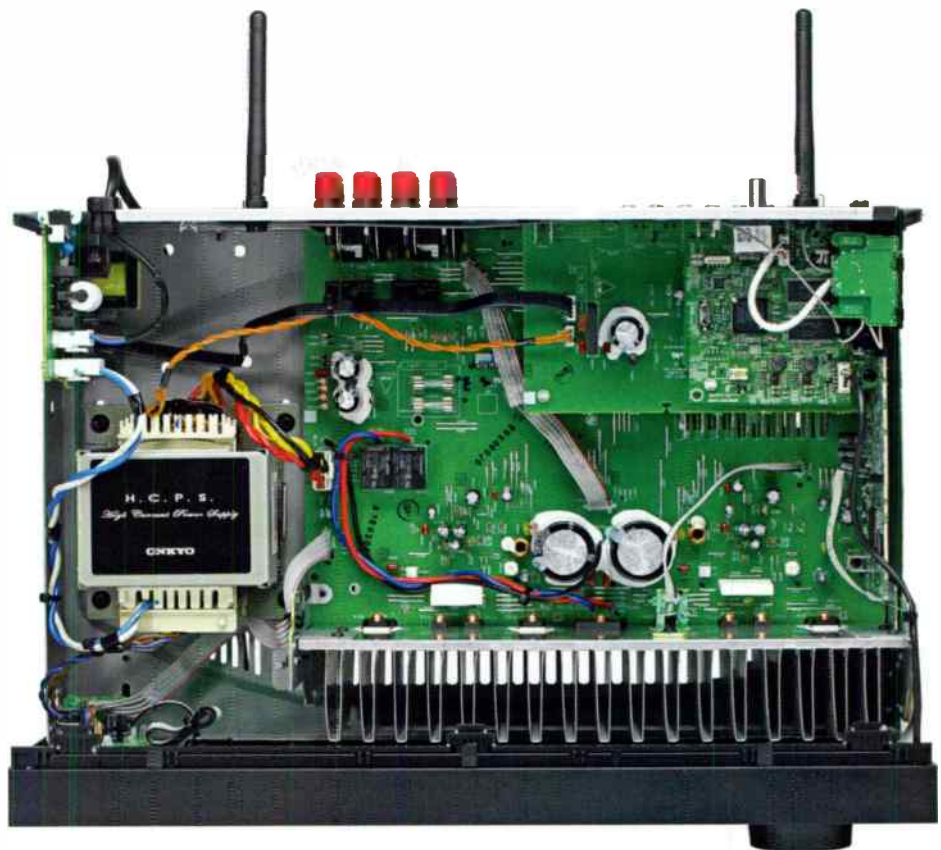
But there's more to network

audio than that. It will also play music stored on DLNA servers – among the formats supported are MP3, WAV, AAC and FLAC (the latter from CD-quality to 192/24 hi-res) – and access services like Spotify, Deezer and Pandora. Music stored on USB storage devices can be played – the necessary port lives on the unit's front panel – and if that's not enough the TX-8150 is 'made for iPod/iPhone/iPad', meaning that you can not only listen to music stored on such devices, but control them via the receiver's handset (provided, that is, you have the optional Onkyo 'dock').



Not enough? Apple's AirPlay is supported, and Bluetooth connection is available too. The TX-8150 will even wake up from standby, as soon as a previously-paired device is switched on and Bluetooth engaged. Existing digital sources, if the TX-8150 hasn't rendered them all obsolete, can be connected via four inputs – two coaxial, two optical. This isn't an AVR, and DTS and Dolby Digital soundtracks yield an unpleasant 'crackling' noise. If you connect a DVD player or digital TV set-top box to this receiver via one of those digital inputs, configure the source to deliver 'PCM' audio. You'll hear such sources (and all the others, come to think of it) through an AK4452 32/384 DAC.

So, in digital terms just about the only thing this Onkyo can't do is spin physical media. What about the analogue side of the equation? There's a basic MM RIAA-equalised phono stage for your turntable, a 6.3mm headphone jack is provided, the tuner will also handle FM, and there are bass/treble tone controls – which, as with Onkyo's AVRs, can be bypassed in one of two modes. The first, 'Direct', merely sets them to their 'zero' position. The second, 'Pure Audio', also turns off superfluous gadgetry like the display. A total of six line-level analogue inputs are offered, and although there's a line output for recording Onkyo hasn't associated it with a dedicated 'tape



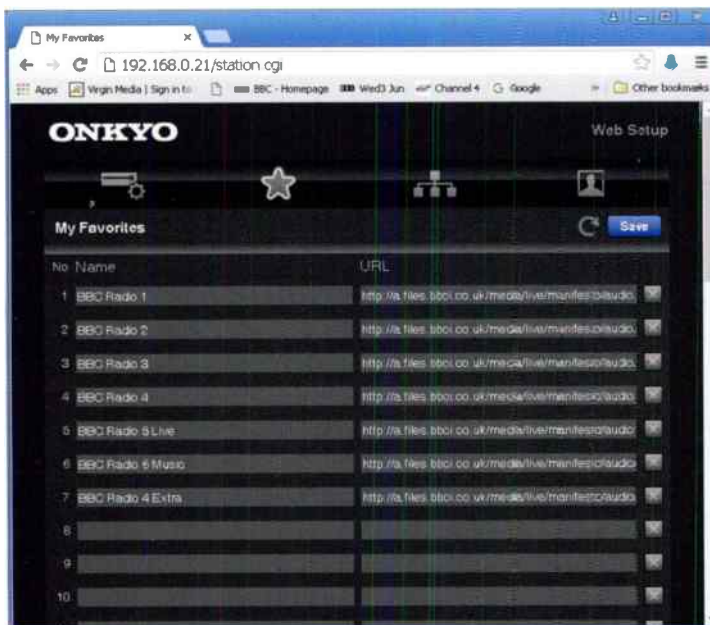
**Considering the functionality on offer, the TX-8150's interior looks rather empty. Most of the advanced functions are however provided by a handful of chips on a small digital 'daughterboard' (which can be seen in the top-right of the picture). To reduce interference the latter has its own power supply, fed by a dedicated tap on the mains transformer.**

monitor' function – something that could cause problems.

All of these connections are on the back on the unit. Onkyo hasn't bestowed the TX-8150 with a front-panel jack for personal music

players and the like. Maybe it wasn't considered necessary! Two pairs of speakers – which can be turned on or off from the remote – can be connected, and line-out provision has been made for a subwoofer. The solid-state amplification that drives your speakers – a claimed 135W of, to use Onkyo's terminology, 'hi-current, non-phase-shift' amplification – is essentially tried-and-tested Class AB. Onkyo nourishes it with a power supply built around a custom mains transformer and electrolytic smoothing capacitors.

I'm also pleased to report that the TX-8150 is easy to use - in most respects. On the downside, the controls on the front panel are bunched together and hard to make out in subdued lighting (backlighting would help). The remote looks intimidating (not as bad as an AVR one, mercifully) but is straightforward in its layout and operation. On the plus side, a large fluorescent display (shades of those famous Onkyo AVRs!) is informative. Its alphanumeric talents are essential for displaying DLNA song titles, radio-station details and menu configuration. Happily, the latter is very straightforward. Through it, I was able to get the TX-8150 communicating



**The TX-8150 even gives you a web interface, for – amongst other things – entering account details for subscription music services and managing Internet radio stations in the favourites lists (sadly, the 320kbps BBC streams shown here didn't work).**



**Socketry galore on the TX-8150's rear panel. You get six line-level inputs, four digital inputs and a phono stage. An alternative to the Ethernet port for streaming playback is Wi-Fi, the aerial of which is clearly visible (the other aerial serves the Bluetooth radio). Two pairs of speakers and a line-level subwoofer can be connected.**

with my Wi-Fi network and set it up for use with my speakers.

With the tuner 40 presets are offered, the last four of which are 'direct-dials' with dedicated buttons on the front panel. You can mix FM, DAB and Internet stations thereby making the newer forms of radio just as easy as traditional ones. The TX-8150 generates a Web interface that, amongst other things, makes it easy to add Internet stations using a locally-networked computer or smartphone. Simply plug in the streaming URL, give the station a name and you're good to go. They must use the PLS, M3U RSS (podcast) formats, which means the BBC's .m3u8 320kbps streams are currently off-limits. Hopefully, Onkyo can fix this via firmware as they currently represent the best way of listening to fantastic content put out by the likes of 6 Music and Radio 3, to name just two.

### SOUND QUALITY

Most of my listening took place using Rogers G55 speakers, which are medium-sized floorstanders. Thanks to the 'all-inclusive' nature of the TX-8150, I didn't have to hook up much off-board gear for digital – an Internet-aware network with music stored on a NAS, and a set-top box for digital TV. With analogue, though, it's a different ball game – a decent VHF aerial, and to kick things off a 1980s-vintage Kenwood Direct-Drive turntable (with Philips GP401 cart) for vinyl. You shouldn't expect miracles from a 'bundled' phono stage, and indeed you don't get them.

Spin LPs like John Foxx's *Metamatic* and Supertramp's *Crime of the Century*, and it's hard not to be impressed – especially at this level – by the strong stereo image, good sense of percussive timing and musical detail that's delivered. But on the downside, I found records to sound a little 'thin'; strangely enough, an upwards notch of the bass control helps a little. But some of that detail then goes AWOL, and a touch of congestion becomes evident relative to the preferred 'pure audio' mode. The phono stage

"mountains of ability – a veritable do-it-all device – coupled to a powerful and smooth sounding stereo amplifier"

is nevertheless praiseworthy, as it will encourage 'newbies' to get hold of a cheap turntable (bootsales, Audiojumbles or Freecycle) and play on it some equally-cheap vinyl. A great introduction to a medium that has become fashionable again...

The FM radio section can also impress, especially on Radio 3, with its clean and open presentation. I listened to the *Last Night of the Proms*, and it was hard not to be 'drawn into' the occasion! Also punching above its weight is the DAB section, which is more sensitive than some dedicated tuners I've come across. That means no horrible 'pops' or 'squeaks' and, better still, TX-8150

DAB listening wasn't plagued unduly by the dreaded 'burbles'. Switching between DAB and FM during that final 2016 Prom showed surprisingly little difference in presentation; indeed, I would go as far to say that DAB yielded a better-defined stereo image and a more spacious top-end.

Internet radio fared well, but I couldn't get the BBC's 320kbps transmissions. Higher-bitrate broadcasts from reputable sources fared well, with minimal streaming 'glitches', but sound quality is

across the board a mixed bag. In sonic terms, though, it trounces the traditional short-wave alternative.

And broadcasts of a more visual nature? If you rely on the crappy inbuilt speakers of the average flat-panel TV, hook it up to the TX-8150 and prepare to be amazed! I enjoyed the recent BBC Four (re)broadcasts of the documentary series *Music For Misfits – the Story of Indie* that occurred during my time with the TX-8150. And it did justice to the wildly-different bands and genres featured - from the angular guitar of Buzzcocks-era DIY punk, through the lucid space-drenched atmospheres added to Joy Division's output by

Martin Hannett and Two Tone's fulsome bass and brittle treble, to the analogue synth-driven soundscapes of Depeche Mode and Cabaret Voltaire. The varying sophistication of the recording techniques were laid bare too. And this was just the first programme...



Related to Internet radio is DLNA, which is alone a good reason for buying the TX-8150 – on account not only of the variety of formats

**The handset looks complex, but has a sensible layout. With an optional dock, it will also operate Apple iTunes.**

supported (note however that MQA isn't one of them), but also the sound quality available. The sheer energy and upfront nature of The Velvet Underground's White Light-White Heat (a CD rip) carried across nicely, whilst a clutch of 24/96 FLACs, among them a rip of Jethro Tull's Thick as a Brick LP, demonstrated fine resolution and a grasp of dynamics. The Tull album retained its analogue warmth, and Ian Anderson's flute bristled with vitality.

But there are bugs. I selected from my DLNA server a Blue Coast DSD64 of Garrett Brennan's Alta Powder Day, but it was ignored. Yet the track, copied to a USB stick, played beautifully. Sometimes the DLNA player could get flummoxed when selecting music, eventually grinding to an infuriating halt and 'stuttering' whatever track was playing at that time (for the record,

I use the Plex DLNA server, running reliably on a QNAP HS-251 NAS). Eventually, though, normal operation restored itself.

Finally, we come to Bluetooth. The enjoyable sonic character of the TX-8150 is retained, various dance tracks held on my Samsung smartphone in FLAC form bouncing along with the expected verve and rhythmic snap.

**CONCLUSION**

If you want to enjoy everything a modern AV receiver can do, but are uninterested in surround-sound, the TX-8150 is likely for you. At a relatively low price you get mountains of ability – a veritable do-it-all device – coupled to a powerful and smooth sounding stereo amplifier. I enjoyed using all its many functions and it worked with Onkyo efficiency. Superb.

**MEASURED PERFORMANCE**

The TX-8150 produced a 112Watts into 8 Ohms and 170 Watts into 4 Ohms, under test. It ran relatively cool.

Distortion levels were very low, reaching 0.01% at 10kHz, 1W output into 4 Ohms. Our harmonic structure analysis shows classic crossover distortion, but it is kept well under control and there is also very low output noise.

An analogue input signal caused overload above 4V (CD), unaffected by selecting Direct, so the receiver appears to have an active input. Noise was low at -97dB, falling to a very low -100dB in Direct mode. High input sensitivity of 200mV allows the Onkyo to accommodate external low gain phono stages for anyone wanting to run an MC cartridge perhaps; the phono input fitted is MM only.

Onkyo always fit a good VHF/FM tuner and this one was no exception. Frequency response measured flat to 12.5kHz (-1dB), above which treble rolled away fast due to the 19kHz mpx filter. Distortion was low at full modulation, measuring 0.1% against a usual 0.2%, so this may well be a SDR tuner. Hiss was not especially low at -60dB (IEC weighted) at full quieting, from a modest 0.8mV (p.d.) or more from the aerial. Measured IHF 50dB stereo sensitivity was good at 36uV.

The MM Phono input was accurate in equalisation, having flat frequency response across the audio band. With low noise, normal sensitivity of 4mV and high overload of 70mV it performed well all round. It has no warp filter.

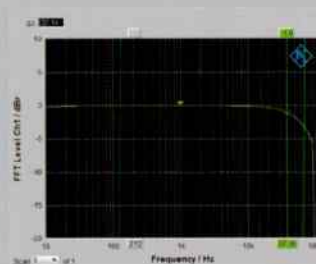
Frequency response for CD through the D/A convertors via the optical S/PDIF digital input was absolutely flat, reaching 20.3kHz (-1dB). Distortion was low, measuring 0.2% at -60dB.

With high resolution digital (24bit PCM) distortion measured 0.035% at -60dB, a good result. This, together with low noise, contributed to a very respectable dynamic range figure of 114dB (115dB via Line out), so the receiver works well in this crucial area, whilst falling behind top DACs (£1k+) that manage in excess of 120dB these

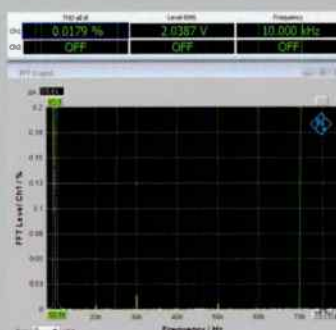
days. Unlike earlier Onkyo receivers, both optical and electrical S/PDIF inputs worked up to 192kHz sample rate.

The TX-8150 measured very well in most areas. The VHF tuner is a very good one, giving fine results all round. With CD (16/44.1 PCM) digital input performance figures were good, as is to be expected nowadays. **NK**

**FREQUENCY RESPONSE**



**DISTORTION**



<b>Power</b>	<b>112W</b>
<b>Frequency response (Direct)</b>	<b>4Hz-60kHz</b>
<b>Separation</b>	<b>88dB</b>
<b>Noise (A/D, Direct)</b>	<b>-90/-102dB</b>
<b>Distortion</b>	<b>0.01%</b>
<b>Damping factor</b>	<b>35</b>

<b>DIGITAL</b>	
<b>Frequency response (-1dB) 4Hz-41kHz (24/96)</b>	
<b>Separation</b>	<b>101dB</b>
<b>Noise</b>	<b>-114dB</b>
<b>Dynamic range (EIAJ)</b>	<b>115dB</b>
<b>Distortion (-60dB)</b>	<b>0.03%</b>

<b>VHF TUNER</b>	
<b>Frequency response</b>	<b>20Hz-12kHz</b>
<b>Stereo separation</b>	<b>56dB</b>
<b>Distortion (50% mod.)</b>	<b>0.1%</b>
<b>Hiss (CCIR)</b>	<b>-60dB</b>
<b>Signal for minimum hiss</b>	<b>0.8mV</b>
<b>Sensitivity (stereo)</b>	<b>36uV</b>

<b>PHONO</b>	
<b>Frequency response</b>	<b>10Hz-20kHz</b>
<b>Stereo separation</b>	<b>68dB</b>
<b>Distortion (50% mod.)</b>	<b>0.03%</b>
<b>Hiss</b>	<b>-82dB</b>
<b>Sensitivity</b>	<b>4mV</b>
<b>Overload</b>	<b>70mV</b>

**ONKYO TX-8150**  
**£550**



**OUTSTANDING - amongst the best.**

**VALUE - keenly priced.**

**VERDICT**  
In terms of sheer musicality, the TX-8150 doesn't quite attain the lofty standards set by Onkyo's own A-9010. But it gets close, and in any case is exceptionally versatile.

- FOR**
- Excellent connectivity - including four digital inputs and MM phono
  - Fantastic tuner and worthwhile online functionality
  - Enjoyably full-bodied and detailed sound

- AGAINST**
- No tape loop (with 'tape monitor' function)
  - The odd issue with streaming
  - Phono stage a little lean-sounding

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*Designed by David Shaw**Innovative Designs  
From Icon Audio*

Stereo 30se

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The recent introduction of the new Tung Sol KT150 valve (a relative of the popular KT88) has enabled the design of an SE amplifier of twice the power previously possible in this class. The Icon Audio ST30se is breaking new grounds in terms of power and quality. Designed especially with orchestral, jazz and acoustical fans in mind.

At 28 watts it offers twice the power available from one KT88, and 18 watts in pure triode. With average sensitivity speakers 28 watts will provide a very good volume in all but the largest rooms.

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Leicester UK

# Blue Cheer

Blue Aura's first passive loudspeaker is a budget bargain at just £169, says Jon Myles.

Cambridgeshire-based Blue Aura first attracted the attention of Hi-Fi World with its impressive active, Bluetooth-equipped floorstanding X40 loudspeakers. They were innovative and undeniably good sounding at their £599 price point.

Then came the outstanding Blackline V40 hybrid valve/transistor amplifier – priced at £449 and featuring an in-built DAC, Bluetooth connectivity plus USB and analogue RCA inputs. Again, this was an impressive performer for the money having a bouncy, infectious sound.

Now the company has moved into new territory with its first passive loudspeaker in the shape of the compact ps40. Available in gloss black or white finishes it is

a standmount/bookshelf 'speaker measuring 245mm x 145mm x 205mm (H/W/D) and weighing in at 3.5kg. So yes, it is small but it is also rather nicely finished with a gently curved fascia and grilles that attach magnetically, so there are no ugly fixing points on the front.

This 'speaker is a two-way bass reflex design with the drive units consisting of a 4.5" aluminium mid/bass allied to a 1" soft dome tweeter with a claimed frequency range of 45Hz to 20kHz (see Measured Performance for full details).

On the back there is a single pair of gold-plated 'speaker connections above which sits the port.

Priced at just £169 it's impossible to find fault with the fit and finish of the package – an area where the X40s and V40 amplifier also excelled.

Blue Aura clearly have design and quality control firmly at the forefront of their thinking.

## SOUND QUALITY

Small in stature but rather potent in performance would be the ideal way to describe the Blue Aura ps40s. They are one of a select group of loudspeakers this size that have the happy knack of punching out a bigger soundstage than you would imagine.

Position them carefully – ideally on a solid pair of stands and a good six inches away from the rear wall – and they are extremely musical and enjoyable.

Much of this is down to the well-engineered mid/bass unit which sounds even and natural, with a good sense of presence.

Initially connected to Icon Audio's





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new ST30se valve integrated amplifier (see review elsewhere this issue) the bass on Led Zeppelin's 'Kashmir' was more muscular and well-defined than I expected. More impressive, though, was the way the music floated free from the 'speakers to convey the scale of this dense, atmospheric track.

There was good separation between the instruments, allowing the volume control to be pushed upward without too much hardening of the sound.

In common with other loudspeakers equipped with aluminium-coned drive units the Blue Auras also time well with a fast, pacy nature. Listening to New Order's 'Age Of Consent' it was evident the ps40s are happy to take hold of a rhythm and drive it along.

Up top the tweeter has a forward presentation which works well in delivering detail. However, it doesn't flatter poor recordings and can sound a little edgy with compressed or badly produced tracks. An ageing CD of Led Zeppelin II sounded particularly thin with 'Whole Lotta Love' devoid of much depth. But this is how this silver disc sounds even on loudspeakers costing ten times more than the Blue Auras, which demonstrates they are giving an insightful representation of the source material.

Fed with something of good quality such as a 24bit/96kHz recording of 'The Bride' by Bat For Lashes, Natasha Khan's vocals had an intimacy and depth of focus that was

entirely realistic. The tympani on the album's 'Widow's Peak' also came into the room with surprising power.

As you might expect, due to the small size of the Blue Auras there is no seismic bass on offer and fans of bass-heavy dance music may find them a little lacking in this respect. Also, big orchestral crescendoes could sound congested when the volume was turned up, an element of boxiness creeping in.

But that's really being rather harsh on a loudspeaker that costs just £169 and does most things impressively well.

Ideally, you should pair them with a warm sounding amplifier to tame the treble response a little. In this respect I'd say Blue Aura's aforementioned V40 might be the ideal candidate – giving a cracking little system for just shy of £620.

In hi-fi terms that's good value for money and makes the ps40s a bit of a bargain.

### CONCLUSION

Blue Aura's first passive loudspeaker is an impressive performer. It



**The Blue Aura ps40s use a 4.5" aluminium mid/bass driver allied to a 1" soft dome tweeter. It's a simple but effective arrangement for a small loudspeaker.**

has a big sound for its size and is not short on detail nor musicality. A slight forwardness in the treble is offset by good bass response to give a nice balance. Pair it with a decent, mid-priced amplifier and it won't fail to provide an enjoyable listen.



**A single pair of 'speaker binding posts sit on the rear beneath the port which extends output down to 40Hz.**

### MEASURED PERFORMANCE

Frequency response of the ps40 shows a smooth characteristic with no peaks or dips, but the overall trend above 2kHz is strongly upward toward high frequencies, acoustic output being +5dB at 20kHz. A rise of this magnitude will give obviously strong treble and a bright balance, making this loudspeaker sound forward, detailed but challenging with bright sounding recordings.

Bass output is very well controlled down to 60Hz, before rolling down sharply, a fine result from a small

speaker. Clean smooth bass without boom will be delivered and near-wall placement ideal.

The port extends output down to 40Hz, the red trace in our analysis shows, low enough to give solid sounding low bass. Port output measured +14dB up at 80Hz, so the port makes a strong contribution at low bass frequencies. Bass damping is reasonable, but this is not a wide-band tuned port so the speaker will have bouncy low bass – common with small speakers where the cabinet is too small to accommodate a high acoustic resistance port.

Sensitivity was good as small speakers go, measuring 85dB – quite loud – from one nominal Watt of input (2.8V).

Overall impedance measured a high 9.6 Ohms with pink noise and our impedance trace shows this, not dropping below the DCR of 6 Ohms. The Ps40 draws little current as a result and is a light amplifier load, but this holds back sensitivity. Small loudspeakers commonly draw more current and go a little louder at any amplifier volume setting.

The ps40 will sound bright and will not flatter bad recordings or coarse MP3s. But it will sound detailed and well controlled, and have clean tuneful bass.

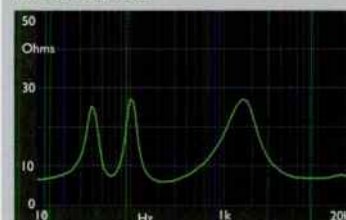
NK

#### FREQUENCY RESPONSE

Green - driver output  
Red - port output



#### IMPEDANCE



**BLUE AURA ps40**  
£169



**OUTSTANDING - amongst the best.**

**VALUE - keenly priced.**

#### VERDICT

A budget loudspeaker that punches well above its weight. Capable of forming the basis of a great-sounding system.

#### FOR

- weighty bass for its size
- clean design
- smooth mid-band

#### AGAINST

- prominent treble

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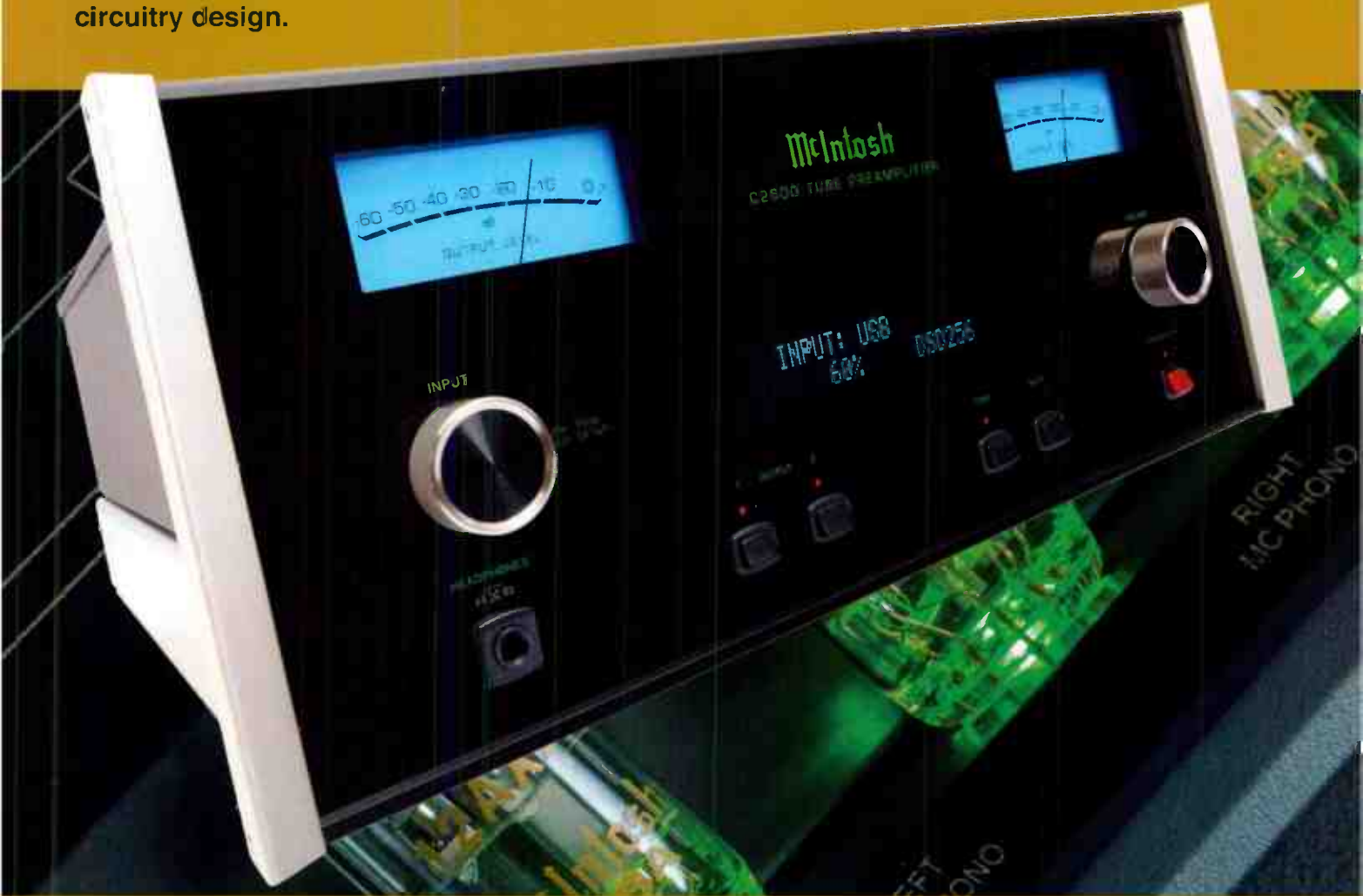
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# Mail



Visit our website at [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) or send your emails to [letters@hi-fiworld.co.uk](mailto:letters@hi-fiworld.co.uk). Letter of the month wins a pair of QUAD S2 loudspeakers.

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

## LETTER OF THE MONTH PRIZE



### QUAD S2 LOUDSPEAKERS

CHOICES OF COLOUR: **BLACK OR MAHOGANY**

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 QUAD S2 loudspeakers are on their way to EDWARD MARTIN, Letter of the Month winner in our October 2016 issue.

## Letter of the Month

### IN A SPIN

Having written to you twice before I find myself once again in need of your advice. My system at present consists of an AH! Njoe Tjoeb CD player (with all the upgrades), connected to a Conrad Johnson PV14 pre-amplifier feeding into a pair of Naim 155XS which in turn bi-amplify my Monitor Audio GR60 speakers. All the electronics are properly isolated, connected via Van Den Hul cables and energised from a PS Audio power plant premium.

I feel I have reached the limit of what I can accomplish with my existing electronics and I'm looking to upgrade. The obvious choice would be to upgrade the power amplifiers to a model further up the Naim range and whilst that may improve the existing set-up, it may just paint me into a corner when it comes to upgrading my speakers.

I'm very keen to keep the CD player, as every other digital source I have tried seems comparatively lifeless and dull. I have tried using a Musical Fidelity X40 as a source with 24-bit files which is OK, but it still seemed comparatively un-engaging.

Similarly, using the DAC section of the Musical Fidelity X40 with other digital devices didn't prove particularly appealing. If the AH! Njoe Tjoeb CD

player is the weak link in this system then I will (begrudgingly) change it, but I'm not convinced it is.

If I change the speakers I need something approximately the same size as the Monitor Audios in order to fill my room with a reasonable bass response. I know I need to listen to a range of products before I buy but I have no idea where to start on my next upgrade path.

Put simply, I want more of everything; better soundstaging, better dynamics, better timing. You know the sort of thing.

Best regards,  
**Jon  
Sheffield**

Hi Jon. You will not find a conventional solid-state CD player that sounds as dynamically engaging as the AH! Njoe Tjoeb CD player. There are alternatives in both AudioNote and Icon Audio CD players that similarly have valve output stages but I have not carried out comparisons between these players.

You mention 24bit files though, meaning high-resolution digital. If you want to play hi-res you may be best advised to purchase a modern hi-res DAC – we recommend Audiolab or



**Monitor Audio Gold Reference 60 – a popular loudspeaker with a fast punchy sound. How do I replace it, asks Jon?**



**The Monitor Audio Platinum PL300 II is a potential replacement for the GR60.**

Chord Electronics – and connect it to your Conrad Johnson PVI4 pre-amplifier. This gives a very similar circuit arrangement to that you are enjoying at present. You need something to play the hi-res files on and we commonly recommend a FiiO X3 portable player, an inexpensive unit with electrical digital output that can be connected straight into any DAC.

You can either continue to play CDs through your AH! Njoe Tjoeb CD player, or run its electrical digital output through the DAC; this does of course bypass the player's internal DAC and output stage.

Alternatively, you may like to



**The AH! Njoe Tjoeb CD player uses a valve output stage within a tweaked Marantz CD-4000, shown here. "I'm not convinced it is the weak link" says Jon.**

consider a combined CD player/DAC like the Oppo BDP-105D Universal Player, that solves just about every issue you ever thought of – and likely many you didn't. The original is about to be replaced as I write this, so clearance prices may be available. It offers a smoother and deeper sound from CD, using the superb ESS 9018 Sabre32 series DAC and you can connect a hi-res player to its digital input. This is an arrangement we commonly use in the office when reviewing with hi-res files to supplement CD.

Your Monitor Audio GR60s aren't an easy act to follow. Try and audition the new Platinum PL200 II or PL300II; the old Platinums were excellent, if a bit bright up top. Another loudspeaker to audition is the Quadral Chromium Style 8, also with ribbon tweeter. This is a very smooth and accurate loudspeaker, but one with deep insight – it's something of a favourite of ours. Then there's the Castle Avon 5 that would suit you, but see below. **NK**

Hi Jon. I'd recommend upgrading your existing amplifiers to the new Naim NAP200 DR. The 200 was always a good amp - hence its longevity - but the addition of Naim's new discrete regulator has given it a more dynamic sound with greater depth and a great deal more detail. I think you will find it a big step up from the 155XS. It also suits a wide variety of loudspeakers so I don't think you need worry there.

I use one at home with a Chord 2Qute DAC handling digital duties and can testify that 24bit files via this arrangement are a step-up from CD. If you have a Naim dealer nearby (and there are a few around the Sheffield area) I suggest you arrange an audition so you can have a listen yourself. **JM**

## MISSING CASTLE

The Castle Avon 5 is listed in *World Standards* as a worthy loudspeaker to consider, due its use of a ribbon tweeter and good matching to the average UK room. It received a favourable review in the October 2015 edition of *Hi Fi World*. Despite this however you cannot at the moment buy them.

I enquired recently with IAG, who make the Castles, as to where to buy the Avon 5 and was told that the speaker was no longer being sold in the UK for marketing reasons in favour of the Quad S Series. I am sure that the Quads, like all their products, have obvious merits but wonder how compatible the S-4 and S-5 models (the rough equivalent to the Avon 5) might be in UK living rooms with an array of three rear facing Auxiliary Bass Radiators. Placement compared to the Avon 5s would seem to be problematic with all that rear bass energy compared to the Avon. A rethink possibly needed IAG? Different products for different physical situations?

Is it possible to import the Avon 5s from outside the UK? I have checked for possible sources but found none. I have noticed a recent favourable review of the Golden Ear Triton 5 ( a Canadian company I gather) which seems to have similar properties with a folded ribbon tweeter but with side facing ABR's



**Castle Avon 5. With ribbon tweeter and transmission line bass it works well in UK rooms. But it's currently unavailable in the UK, notes Peter Graves.**



**Quad S-4. With ribbon tweeter and rear ABR bass. "All that rear bass" worries Peter Graves.**

making room placement less tricky. More expensive than the Avons as well.

Any information you can provide and your views would be appreciated. Thanks.

**Peter Graves.**

#### **IAG say -**

These days there are a lot of brands of loudspeakers all competing for a share of a small market. To date we have not been able to re-establish Castle with a series of retailers in the UK. We're working on it!

In the meantime I don't see a problem with the rear facing ABRs in Quad S series. There's a lot of nonsense talked about rear facing ports and difficulties in room placement. The fact is that low frequencies, whether from the front or back, emerge from the cabinet with 360 degree distribution of energy. Therefore it doesn't matter where the port, or ABR, is mounted as far as LF is concerned (there are other advantages to having a rear facing port, but I'm not going into that here).

**PETER COMEAU  
HEAD OF ACOUSTICS.**

Technically, low frequencies have long wavelengths and where the path length around the cabinet from back to front (i.e. depth dimension)

is much smaller than the wavelength, the cabinet becomes acoustically invisible. Since sound at 100Hz has a wavelength of 11ft and cabinet depth is typically 2ft, at frequencies much below 100Hz whether a driver is on the front or back of a cabinet makes little difference, sound wise; low frequencies propagate around small objects with little attenuation so there's no shadowing.

ABRs and ports usually work below 50Hz, wavelength 22ft, so front or back placement can be used without affecting bass quality. Ports and ABRs are commonly put on a cabinet's rear for cosmetic reasons and – importantly with ports – to avoid higher frequency box colouration emanating from the port being heard by listeners. This is consequential, but affects colouration, not bass quality. **NK**

#### **CARTRIDGE CHOICE**

I would really like some advice from you about an upgrade to my cartridge and phono stage. I currently have a Michell Gyrodec turntable with a modified Rega RB300 (Techno weight) arm, the cartridge is a Goldring 1042 and the phono stage is the Cambridge 640P. This feeds into an ART Audio VPI Pre-Amp, and ART Audio Tempo mono-blocks; the speakers are Mission 753 Freedom (the modified plinth version).

I have been using this set-up pretty much as-is from 1989, I have obviously replaced the stylus/cartridge, valves and other consumables as required but nothing else as quite frankly I never really heard anything that sounded so much better (for the price) than what I was living with, definitely a case of it

ain't broke.

My room size is 16 x 16ft with a 9ft high ceiling. I guess the only exception has been adding the Cambridge phono stage instead of using the VPI phono. I am considering changing the cartridge for either an Ortofon 2M Black or the Audio Technica AT-OC9/III.

As for the phono stage, this is a bit more of a dilemma; I have shortlisted the following: Rothwell Rialto, Graham Slee, Icon Audio PS2 and the Pro-ject Tube Box DS. I appreciate that if I were to go for the AT-OC9 the PS2 will not be an option, but I don't know if the AT-OC9 is so much 'better' than the Ortofon anyway.

The system has served me very well and I'm only really interested in a little more clarity and detail without affecting too much the overall musicality. In your opinion what would be the best combination, given that I listen to a wide range of music except for jazz and Rap? I really would appreciate your advice as listening to arm/cartridge phono combinations is damn near impossible. Best Regards,  
**Steve Allen**

Hi Steve. The difficult decision is choosing between an Ortofon 2M Black moving magnet (MM) cartridge and an Audio Technica AT-OC9/III moving coil (MC), since both are superb. The 2M Black has a user-replaceable stylus, the AT, being an MC, does not, so if you bend the stylus a replacement cartridge must be bought. However, a 2M Black stylus will not be cheap either.

If you want to get an Icon Audio PS2 that is MM only then



**Above is the Icon Audio PS2 all-valve phono stage suitable only for moving magnet (MM) cartridges.**



**Pro-Ject's Tube Box DS phono stage suits MM and MC cartridges.**

you have to choose the Ortofon, meaning a bill for £1100 or so in total. You can however use an MC input transformer with it in future upgrades, at extra cost of course.

The AT-OC9/III, like any moving coil, needs an MC phono stage and you could well use the Project Tube Box DS, in which case you will be running through a solid-state input and valve output. The bill for this will total around £900.

I prefer the Shibata stylus of the Ortofon, but the AT has strong bass and plenty of punch. It is difficult to choose between the two but I suspect either would make you happy. I would not say one was clearly better than the other; they're just different, the Ortofon being deeply insightful and sophisticated, the AT-OC9/III being fast and punchy. I hope this helps. **NK**

### VERTICAL ISSUES

*I am a born again Hi-Fi enthusiast who has wandered in the wilderness for the last 25 years because the children managed to soak up all my available cash.*

*Now they've gone off into the big wide world to live their own lives and I find I have some money to spend on toys for dad (as long as they don't find out).*

*I've visited a couple of Hi-Fi Shows, bought numerous magazines and settled on yours, so I am now a subscriber.*

*All good so far but then the September magazine appeared with the review of the Pro-Ject VTE-R.*

*I can see lots of disadvantages to vertical mounting, but no advantages.*

*Attaching to the wall is mentioned which would reduce the floor area it takes up but this sounds like a really good way getting it to pick up noise from the neighbours or traffic! Isolating a wall mounted turntable from this interference could pose a really interesting problem.*

*How does the platter bearing work? Have Linn, Michell and others been wasting their time? Theirs have gravity to assist them but this one doesn't so how does it work?*

*I can imagine a hardened surface running on a precision ball would be simple and quiet with gravity holding it together but turn it on its side and it is a whole new design problem. Surely worth a mention in a review of such a radical turntable design*

*The stylus has to track up hill. Does this result in more wear on one side of the groove and the eventual destruction of the disc or is this force countered perfectly by the preset (adjustable?) anti skating adjustment? If so surely this is also worth a mention.*

*Instead of the reasonably constant gravitational force used by most other arms this one uses a spring and grub screw to provide the tracking force. How accurate/consistent is this? It looks very primitive - no sign of anything to lock it in place once it is adjusted either.*

*Lastly, how does the anti skating device work? The arm seems to have a counterweight which surely is redundant in the vertical position so why is it there? Is this being utilised to reduce skating although for the life of me I can't see how. It looks more like it will progressively introduce skating.*

*Lots of questions - no answers but the turntable gets an "outstanding - amongst the best" rating!! I regret it but I will find it difficult to believe/trust any of your reviews after this one.*

*I realise you will never print this email and I not holding my breath for my letter of the month prize but I would*



**The Pro-Ject VTE-R vertical turntable "The stylus has to track up hill" says Jim O'Neill.**

*really like to hear your comments. This review has seriously damaged your magazines credibility for me so I hope you will reply.*

Regards

**Jim O'Neill**

Hi Jim. Yes it is a head scratcher isn't it? But I think you must have some faith in the ability of Pro-Ject to design a vertical turntable that works well, and also some faith in us to be able to decide whether it does or does not do its job well. But let's look at the problems behind going vertical, which aren't as great as they seem.

Running through your points in turn. Wall mounting was my suggestion, based on my own happy experience with a Mitsubishi LT-5V parallel tracking vertical turntable that, like the Pro-Ject, initially came supported by feet. However, in my fairly standard terraced London home, built 1910, bouncy suspended wooden floors make wall, or wall shelf mounting almost obligatory. There are places, either side of chimney breasts for example, where the floor doesn't move when people walk across the room, but wall mounting is preferable: it has significant benefits.

Whether you pick up neighbours or traffic depends upon house structure and location; in my case I suffered neither. The only drawback were difficult-to-conceal mains and signal cables, a problem that similarly afflicts modern, flat panel, wall mounted TVs.

The horizontal platter bearing can be a shaft on ball races, or a running through phosphor bronze sleeves, both of which are standard engineering solutions. Mitsubishi used a rear counterbalancing hub, to balance out the weight of the front platter, and for engaging a drive belt.

Whilst the cartridge appears to track uphill, above the arm hub is a counterweight that is going downhill, so the forces are set to balance each other out.

Applying downforce (tracking force) by a spring or a magnet has been used many times in the past, and equally you can apply bias by spring or magnet. Again, you are just applying forces here, with gravity acting in a different direction. It might all look unusual and dicey against what we are used to, but in engineering terms it is not; the forces are just acting in different directions.

So what we have then is a fairly normal belt drive turntable up-

ended, as it were. It was tested for speed accuracy and stability, the arm tested for vibrational behaviour and the cartridge for tracking, all of which it passed well, underlining the effectiveness of the design. The results of these tests were published in the review, to make clear what it was capable of. And of course we used it extensively, many people commenting on its lovely sound.

In summary then this is a reasonably 'normal' budget belt drive turntable, with respectable arm and cartridge, even if visually it does appear to do things that aren't right, like track uphill. I think we should have spent more time explaining this in the review, rather than assuming critical readers such as yourself would easily accept anything that smacked of weird! **NK**

Hi Jim. Yes, I should perhaps have spent a little more time explaining how the Pro-Ject operated but I think Noel has remedied that above! Although it looks a little gimmicky the turntable has been extremely well thought out and, as Noel says, wall-mounting can have advantages in certain situations. As you say, for tracking the tonearm has been fitted with a special spring mechanism to maintain the correct force and under test this proved extremely reliable.

Bear in mind that our ratings also take into account the price of a product and at £229 the Pro-Ject VTE-R is an excellent budget design that offers something different with the wall-mounting option. **JM**

### MIXING IT

*I enjoyed Martin Pipe's article on the Ferguson 3361 radiogram in the latest issue of Hi-Fi World very much, but I'm afraid he has made a small error on one point regarding the Garrard turntable. He says that it is not possible to mix different record sizes on the auto-change spindle, but on the 2025TC it is. Older Garrard units measured the size of the next record when it was still sat on the spindle, so a seven inch record underneath a twelve inch would confuse them. The 2025TC used a system where the record size was measured as the record actually drops and so different record sizes of the same speed could indeed be mixed.*

Sincerely,  
**J. Lewis**



**The lovely Mitsubishi LT-5V vertical turntable, a piece of sophisticated 1970s engineering from Japan. Like the Pro-Ject VTE-R vertical turntable, it came with feet that could be removed, to facilitate wall mounting.**





**Marantz PM15 S2.**  
*"The bass delivery on these amps is class leading" says Dave Tutt.*

### OLD AMPS

I have had lots of gear in the workshop of late and have had the opportunity to do some comparisons of what might seem rather odd pieces of equipment that might not seem in any way similar.

First was a Quad 303/33 which to my mind is really not worth considering as a hi-fi item any more. The compromises of their use, what with the usually worn out DIN connections, means that you have to be really keen to use one and then be happy with a sound that lacks sparkle but is ideal for those who like quiet jazz I guess.

But then second came the Ferrograph F307. Made in much the same way as the Quad although all in one box. Capacitive coupled output to the speakers just like the Quad and a couple of nasties including DIN speaker connections and very small fuses in the power amp supplies that will blow if you disturb anything that might cause a crackle at the speakers – but a brighter yet similar sound to the Quad

and of course you get phono inputs even though at this age they are just as nasty as the Quad DINs.

So what about the third amp? Well, this was very different you would think. A Technics A600 Mk2 MOS AA. A warm, very Quad like delivery for an amp that is at least 20 years younger than either of the other amps, but in much the same style. But, more power, better bass, cleaner, and faster but with that same warm style. If I was buying that sound I would be very tempted by an old Technics!

Likewise, I had two other amps in at the same time. First was a Marantz PM15 S2 with a blown output stage on one channel. Once repaired the bass delivery on these amps is class leading. This is most probably due to the huge power supply capacitors which are probably 4x bigger than a similarly specified amp would normally have. But then I received a Yamaha AX-470 and the basic sound was very much the same, albeit with slightly less bass

slam, again due to not having the same PSU build. Given the price difference when new it is strange that the basic character was so similar.

Given that there is very little difference between the basic structure of a large percentage of power amplifiers and there hasn't been for best part of 30 years; long tailed pair, current source and mirrors, driver stage and complementary output devices, I would think any amplifier could be changed in character just by altering/upgrading the power supply. I have an old Rotel amp that I may well experiment with to see what happens! It worked really well when tried with a cheap MP3 player. I'll let you know what happens.

Regards

**Dave Tutt**

**2 Maunders Close**

**Chatham**

**Kent ME5 0AU**

**07759105932**

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



*A beaten up old Quad like this one we found on the street isn't worth restoring says Dave Tutt. Those DIN sockets are worn out. The paint had worn off the volume control on "ours" so it had obviously been used heavily, meaning someone loved it.*





**Great design and fabulous build and finish – the Quad 33/303 preamp/power amp combination from 1963. It has "a sound that lacks sparkle" says Dave Tutt. "Not worth considering as a hi-fi item any more". Ouch!**

Hi Dave. I share your view. As you say, most amplifiers follow the topology you describe, which is tried and tested. Power transistor linearity and thermal tracking is one large issue, demanding use of dedicated audio transistors, and then there's component quality (resistors, capacitors etc) and power supply type and topology, Japanese companies specifically avoiding use of switch-mode supplies in quality amplifiers, for example.

With regard to Quad, a person at the top of the company admitted to me long ago that he felt their amplifiers had been compromised in their sound by poor componentry. He was suggesting the components of the day (1960s with the Quad 33/303 which I once owned and know well) were inadequate to allow the amplifiers to reach their full sonic potential, with the hint that had the company put more effort into this then-controversial area (to M.D. Peter Walker a resistor was a resistor; it did not have a sound) then the 33/303, 405 etc may well have received a more favourable reception from critics. It was all a bit sad in the end. Note that people do 33/303 re-builds to improve the lackadaisical sound. The 'net has plenty on this.

**NK**

#### PHOTOCOPYING LP

Here's a quick note to sound out your views on a

possible whole new way to hear music.

*Scan both sides of an LP (at 2400dpi minimum) and save the images. This only needs to be done once. Now – and this is the clever bit – play the scanned image by using 3D-from-2D rendering software feeding a high frequency and high bitrate DAC. Surely the hardware/software to do this could be produced/written/optimised without too much hassle these days.*

*This would lead, finally, to the ultimate goal for a lot of people; a portable vinyl-based playback system based on scanned images of LPs.*

*Yours sincerely*

**John Malcolm**

Hi John. I think from what we have cut out of your e-mail that this little

rambling was tongue-in-cheek. But there are people out there that have actually done this. The most explicit explanation of how to do it you can find at <http://arrow.dit.ie/cgi/viewcontent.cgi?article=1002&context=itbinfocon>. It's an engineering paper that outlines the difficulties on scanning an LP in 2D and trying to develop 3D from it, which is how a stylus works – from side to side and up and down, all at once in a 360 degree movement pattern. But it is possible to scan an LP and replay music from a scanned image of a groove, albeit very difficult – and not worth the hassle.

This raises the issue of the ELP laser LP player that I once reviewed. It similarly scans by light, using lasers to read the wiggles in the left and right channel groove walls. Awesome! Sadly, the sound was less than awesome. It played dust and dirt that you don't hear when an LP is played by a stylus that displaces detritus, and it had a transistor quality that I suspect came from extensive processing circuitry – not aurally beguiling. Being hugely complex and expensive, in the end there was little point.

As you are aware I'm sure, nowadays we can rip LP to a hi-res file easily enough and a good way to do it is with a Pro-Ject Essential II Digital turntable and free Audacity computer editing software. Simple, cheap and very effective. **NK**



**The ELP laser scanning turntable (<http://elpj.com>) is available today but it is expensive.**

# Top Gear

**Gear4's new Black Stream 1 wi-fi/Bluetooth loudspeaker offers multi-room music streaming at a price that won't break the bank. But how does it sound? Jon Myles listens in.**



devices together to have compression-free music around the home.

There's also Bluetooth capability and a 3.5mm Aux In socket for connecting external devices. Battery life is an estimated 8 hours – although in actual use this varied depending on volume.

Buttons on the top of the unit give access to the various controls but the best method is to download the Gear4 Stream app (available for both iOS and Android) onto a tablet or mobile. It's easy to use and intuitive, making set-up refreshingly easy. Out of the box I had the Stream 1 operating within five minutes.

## SOUND QUALITY

Connectivity and multi-room capability might be the main selling points of Gear4's Black Stream series but they also have a pleasing sound quality.

The Stream 1 doesn't over-emphasise bass or push treble too far, instead coming over as a refined performer for its price.

Streaming Death In Vegas's 'The Contino Sessions' via a wi-fi network there was a good sense of pace. Iggy Pop's vocals on 'Aisha' also sounded suitably gruff and there was a welcome lack of sibilance. Bass is a little curtailed but the presentation is fast and foot-tapping, all the same.

Placed in the corner of a medium-sized room there was enough volume to adequately fill the space without obvious sign of stress. In somewhere larger it does start to struggle a little – although moving it

into a corner does help to reinforce the sound.

Switching to Bluetooth the sonic signature remained the same. As ever with this platform there's a slight reduction in detail, but the likes of the Pet Shop Boys' 'The Last To Die' still came over as fast and punchy.

Overall the Stream 1 is a worthy addition to the growing ranks of multi-room, streaming loudspeakers. It undercuts the likes of Sonos on price but doesn't sacrifice sound quality in doing so.

Add in its portability and well thought-out control app and the Gear4 makes a very strong case for itself.

## CONCLUSION

A £99 portable wi-fi/Bluetooth loudspeaker that both looks and sounds good. If you are looking for music around the house or outdoors you'd be well advised to audition.



*The buttons on the top of the Gear4 allow full control of the unit while all connections are on the back. A free iOS Android app is also available for remote control.*

**G**ear4's new Black Stream range of wi-fi and Bluetooth-equipped loudspeakers are designed to compete against the likes of Sonos and Bose in the market for multi-room loudspeakers.

The £129.99 Gear4 Black Stream 3 (see review Hi-Fi World October 2016) proved the company had engineered a product that combined value-for-money with good sound quality and ease of use.

Now comes its partnering 'speaker – the £99 Black Stream 1. A cylindrical unit standing 21cm tall it features two 'speakers firing front and rear and has a carry handle for moving from room to room or carrying outdoors.

The standout feature, though, is the built-in router that allows it to connect to your home network, access internet radio or bring in streaming services such as Spotify via a mobile 'phone. It also allows you to pair any number of Gear4 Black

**GEAR4 BLACK  
STREAM1 £99**



**OUTSTANDING** - amongst the best

**VALUE** - keenly priced

### VERDICT

A portable network/Bluetooth loudspeaker with a sound that impresses - all for just £99.

### FOR

- built-in router
- connectivity
- multi-room capability
- superb control app

### AGAINST

- nothing at the price

[www.gear4.com](http://www.gear4.com)

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World Radio History

# Professional Education

Martin Pipe discovers that the pro-audio heritage of Prism Sound's Callia DAC/headphone amplifier is manifested in its sound.

**A** while back Prism Sound discovered that audiophiles, notably in the Far East, were buying its professional DACs for home use. 'No-compromise' devices like Lyra and Orpheus might be expensive (they're not at the top of the Prism line, either) but money is no barrier to the dedicated! This unintended market gave Prism founder and marketing director Graham Boswell the idea of producing a DAC specifically for hi-fi enthusiasts.

The result is the British-designed and made Callia (in the Prism tradition, a Greek word – here

meaning 'beautiful voice'). Its pro-gear influence is evident; the visual resemblances to the company's existing Lyra models (which also boast pro-grade ADC facilities) and Callia are obvious. Another similarity between these two compact units goes beyond skin-deep – both are intended primarily for USB use. Just as the Lyras are pitched at the modern musician who uses a laptop as a production tool, the Callia is aimed at the modern hi-fi enthusiast who uses a laptop as a playback source. In both cases, the USB interface is UAC2-compliant asynchronous with

Prism's proprietary 'CleverClox' PLL circuitry minimising jitter. In the Callia, the latter is also active on the conventional optical and coaxial S/PDIF inputs that are provided for CD transports, streamers and the like. They are selected automatically, with front-panel push-button override. The Callia's digital volume control is surrounded by a 'halo' of LEDs that indicates the current level; it can be defeated via a rear-panel DIP switch, so that the output – on unbalanced phonos and balanced XLRs – is fixed to full level, and the Callia's full dynamic potential realised.

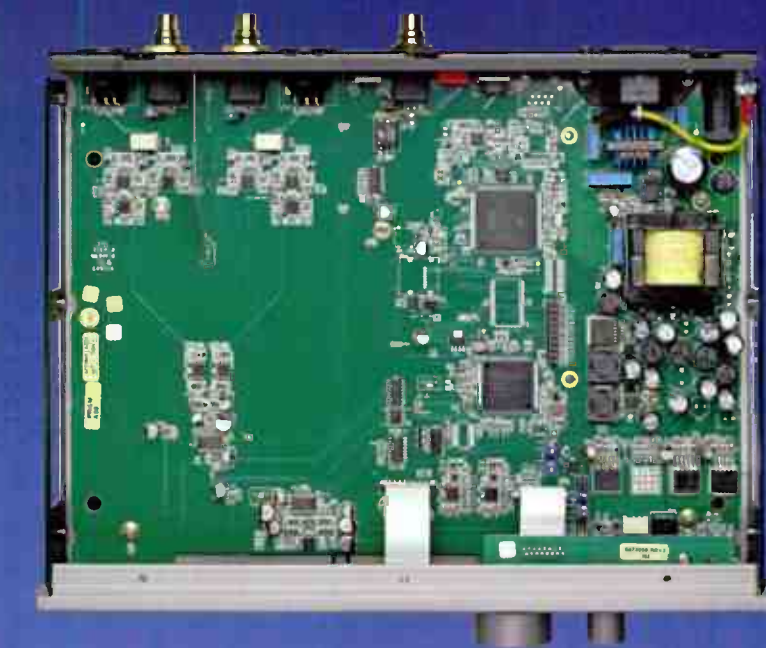
No remote handset is supplied.



However you do get an independent analogue volume control for the headphone amplifier, the sensitivity of which can be adjusted by two more DIP switches. The 6.3mm output (no provision for balanced 'cans' here) joins it on the front panel, alongside a row of LEDs that indicate the currently-selected source and the type of signal being converted. They are particularly useful when using the Callia with a computer via USB as you'll be able to troubleshoot software configuration issues and ensure that the unit is getting your music in the best possible way.

The optical and coaxial S/PDIF inputs can go as far as 24-bit/192kHz. Take the USB route, though, and you can go all the way to 32-bit/384kHz (the Callia internally 'decimates' this to 192kHz, though). Thanks to DSD-over-PCM (DoP), you can feed DSD128 (decimated too) and DSD64 material into the Callia – a feature that's not supported by Frisim's existing pro-use products. Note that DSD64 and 64x48 DSD variants can be received via S/PDIF, courtesy of DoP. Furthermore, a final DIP switch enables some types of DSD stream to be accommodated without the risk of clipping. You cannot fail to be impressed by such attention to detail.

The converter circuitry is a complex and original combination of 'standard' Cirrus CS4398 DAC (only the last section of which is used) and proprietary processing implemented



*The neat internal layout of the Callia. Prism's engineers have gone to much trouble to prevent the different sections from interfering with each other – as the spacing between them demonstrates.*

in a Xilinx Spartan FPGA chip – shades of Chord here. Another chip, based around an ARM microcontroller, looks after the USB interface – not for Prism the usual 'bought-in' XMOSS solution: Prism supplies the specially-written Windows drivers on a USB stick. Interestingly, DSD is converted into a form of PCM – a 'strange shape', says Ian Dennis – rather than being decoded directly.

The reasoning – claims of better performance – is explained in a very comprehensive 'operation manual'.

## SOUND QUALITY

Most listening took place via an Arcam A49 integrated amplifier driving Quadral Aurum Wotan VIII floorstanders; for personal listening I turned to Oppo's PM3 headphones. Primary sources



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Decoupled Double Dome tweeter





**A neat and practical layout of rear-panel connectors, given the limited real estate available. The four DIP switches set up DSD headroom, configure headphone sensitivity and determine whether or not the volume control is active.**

were a Windows 7 PC (running Foobar2000 and configured for DoP) and a Cambridge CXN streamer (connected via coaxial digital).

The first thing I noticed was just how much detail can be plucked out of a recording. My first musical selection was a DSD64 album of 1996-vintage acoustic jazz - Piltch, Davis and Friends' 'Take One'.

I got real insight into this intimate performance. Each instrument was beautifully-defined, occupying a definite space within the stereo image; the Callia bestowed upon this 20-year-old recording a living presence. Particularly noteworthy was a cover of the Steve Earle composition 'My Old Friend The Blues' - the melody of which stood out here in its beauty. And when drums entered into the equation - as they do in the Piltch-penned 'Horizontal Blue' - the various percussive timbres and their sense of timing were palpable.

Yes, I'm deliberately using 'hi-fi' terminology here. And that's



**You may not get a remote but Prism does supply this impressive 4GB USB stick containing the Windows drivers and operating manual in PDF form.**

the thing. Remember when you'd collect records that showed off the full potential of your audio equipment? The Callia is its hardware complement. It's very transparent, with no character of its own and although it allows fine recordings to shine, it lays bare mediocre ones. In all honesty, this is what you should expect from a DAC descended from studio gear. After all, musicians and recording engineers want to hear

everything - warts and all.

So if you want above all else the ability to get inside a piece of music, the Callia should be on your shortlist - for it is gifted with an analytical prowess that will be hard to match in its sub-£2k price range. It cuts through the most complex of mixes, as was discovered when playing a variety of sophisticated studio efforts from the likes of Bowie, Radiohead and ELO. I could hear what each musician is doing. I'm convinced a gentle creak from the drummer's stool would present itself if the recording made it audible! I particularly recommend using headphones for this sort of activity; on which subject the Callia's superb

headphone amp is a good match for the DAC section and has plenty of drive.

The only downside is a lack of absolute warmth. The Stranglers' 'The Gospel According To The Meninblack' was conveyed with filigree detail but the sheer punch of the synth bass line seemed somewhat subdued.

**CONCLUSION**

The Callia is a fantastic piece of equipment and should be a good match for warm-sounding amps and speakers. It's a DAC whose detail and presence puts it amongst the best in its price range, as a pro DAC able to expose what's deep inside a recording, with clinical prowess.

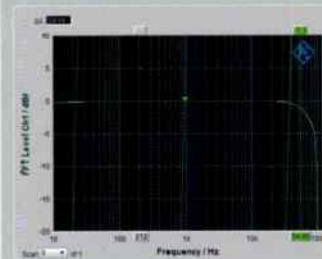
**MEASURED PERFORMANCE**

The Callia uses a Cirrus Logic CS4398 DAC that offers 120dB dynamic range in Cirrus Logic specs, 115dB in Prism's specs and 116dB under measurement, from its balanced XLR output. From the unbalanced phono socket outputs this figure fell to 115dB. The performance was maintained with S/PDIF input and

USB.

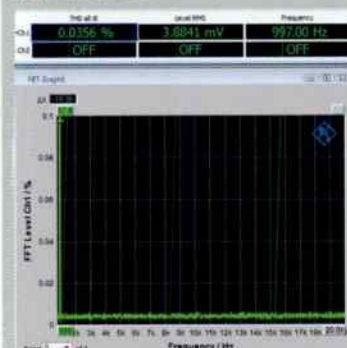
This puts Callia in the mid-range, as it were, of current hi-fi digital convertors, with regard to this critical specification. So in terms of dynamic range it offers a good result, but both the Audiolab M-DAC+ (122dB) and Chord Mojo (125dB) manage significantly better.

**FREQUENCY RESPONSE**



Distortion at -60dB was very low with 24bit, measuring 0.035% as our analysis shows and this was largely noise rather than true distortion residuals. With CD (16bit) the result was 0.22% as usual, this being from quantisation noise intrinsic to 16bit's inadequate resolution.

**IMPEDANCE**



Frequency response reached 55kHz (-1dB) with 192kHz sample rate material, falling away above this to the 96kHz upper limit, as a our analysis shows. The TOSLINK optical input accepted 192kHz sample rate, where many others still do not, allowing Callia to work with 192kHz files from Astell&Kern portable hi-res players having only optical output.

Output was 2V from the phono sockets and 3.9V from XLR. The headphone output gave a healthy 4V.

The Callia measured well all round. It offers a good set of results but isn't up with the best in measured terms. NK

**PRISM CALLIA**  
**£1800**



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

**VERDICT**

Lacking any of its own character and very revealing, the Prism Callia will appeal to music lovers of an analytical bent.

**FOR**

- a 'hi-fi' sound of breathtaking clarity and resolution
- good headphone amplifier
- great sense of timing

**AGAINST**

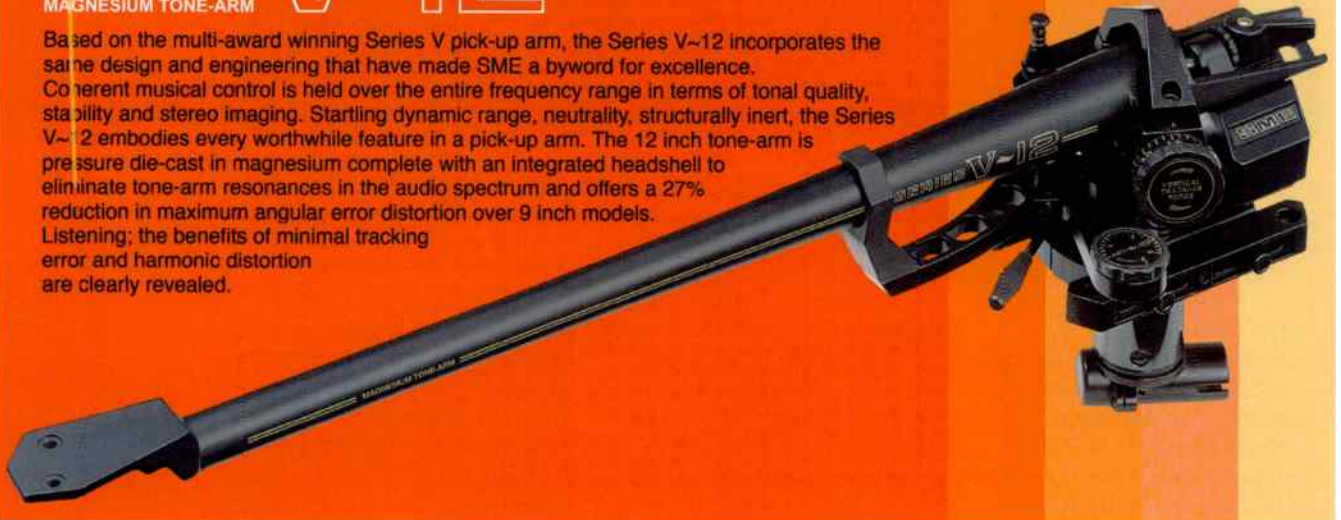
- ruthlessly-revealing
- no remote handset

Prism Sound Callia  
Prism Media Products  
+44 (0)1353 648888  
www.prismsound.com

# SERIES V~12

MAGNESIUM TONE-ARM

Based on the multi-award winning Series V pick-up arm, the Series V~12 incorporates the same design and engineering that have made SME a byword for excellence. Coherent musical control is held over the entire frequency range in terms of tonal quality, stability and stereo imaging. Startling dynamic range, neutrality, structurally inert, the Series V~12 embodies every worthwhile feature in a pick-up arm. The 12 inch tone-arm is pressure die-cast in magnesium complete with an integrated headshell to eliminate tone-arm resonances in the audio spectrum and offers a 27% reduction in maximum angular error distortion over 9 inch models. Listening; the benefits of minimal tracking error and harmonic distortion are clearly revealed.



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- |                      |   |                            |   |
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| Sharp Definition     | ✓ | Natural Decays             | ✓ |
| Spacious Ambience    | ✓ | Effortlessly Open          | ✓ |
| Musically Expressive | ✓ | Excellent Timing           | ✓ |
| Wide Imaging         | ✓ | Powerful Deep Bass         | ✓ |
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# Urban Style

**Jon Myles takes a shine to Urbanista's new Seattle over-ear portable headphones.**

**S**wedish company Urbanista's marketing slogan is "We design for life in motion". Translated, that means a range of products that majors on portable loudspeakers and earphones that can connect to mobile devices.

It also has a penchant for naming them after cities – hence the Melbourne portable Bluetooth 'speaker (see review Hi-Fi World August 2016) and the San Francisco, Oslo and Miami headphones.

No surprise then that its latest 'phones have been christened Seattle. Where they do differ from some of the other models on offer, however, is in cost and design. The in-ear San Francisco and Oslo, for example, cost just £19 – while the Seattles are over-ear and are priced at £49.

For that you get 140mm drivers with memory foam cushions, an adjustable headband plus a nylon-coated 1.2m cable with 3.5mm jacks at either end. The cable also includes an in-line microphone for hands-free operation when taking a telephone call if connected to an iPhone or Android device.

This means it all looks quite substantial when you take the 'phones from their box but they are actually rather light – weighing in at 172g which means they are ideally suited for portable use.

Slide them onto your head and it is impressive how comfortable they feel. The headband is nicely balanced, keeping a firm fit of earcups over ears, without excessive pressure.

The 'phones also hinge so you can easily fold them for stowing into a pocket or bag. However, they do not come with a bag or carry case which is rather a shame. Portable headphones usually come with a carry case.



## SOUND QUALITY

For a £49 pair of over-ear headphones positioned for portable use the Urbanistas get very little wrong in their presentation – and very much right.

The bass was nice and firm, but free of boom. Treble was also clear, if not overly extended – but that gives a nice balance. Plugged into a FiiO X3 and used on my daily commute they never failed to impress. The Libertines 'Belly Of The Beast' (24/96) had my foot tapping – mainly because the timing of these headphones is spot-on. They are fast and propulsive. The ear-cups also do a great job of blocking extraneous sound – a benefit when being used on the go.

They do, though, sound a little

congested in the midband. Absolute detail is a little lacking here so on Echo And The Bunnyman's 'The Killing Moon' I didn't get the atmosphere around the recording some more expensive headphones provide.

That said, these are a pair of £49 over-ears that fit, feel and sound rather better than some other headphones costing considerably more.

## CONCLUSION

If you are looking for a quality pair of portable over-ear headphones for under £50 the Urbanista Seattles have to be at the top of your list. They are light, comfortable and provide excellent sound quality for the price. A definite bargain.

## URBANISTA SEATTLE £49



**OUTSTANDING** - amongst the best.

**VALUE** - keenly priced.

### VERDICT

The Urbanista Seattles are one of the best buys around for good-sounding, portable, over-ear headphones for music on the go.

### FOR

- light
- balanced sound
- easy to pocket
- in-line microphone
- price

### AGAINST

- no carry case

[www.uk.urbanista.com](http://www.uk.urbanista.com)



# WORLD STANDARDS

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

## TURNTABLES

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



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



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



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

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



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



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

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



## TONEARMS

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

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

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



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

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



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

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

## CARTRIDGES

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



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

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

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

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



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



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



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

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



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

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

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



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



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

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

## PHONO PREAMPS

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

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



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



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



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



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

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

## PREAMPLIFIERS

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



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

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



## INTEGRATED AMPLIFIERS

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



**AUDIO RESEARCH VS160** £3,500  
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



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

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



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

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



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



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

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



## POWER AMPLIFIERS

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

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

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



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

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



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

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



## LOUDSPEAKER FLOORSTANDER

**B&W 803 O3** £12,500  
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

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



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

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

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

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



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



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

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



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

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



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

**TANNOY DEFINITION OC10 TI** £6,000  
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



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



## LOUDSPEAKERS STANDMOUNT

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

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



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



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

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



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



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



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



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

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



## HEADPHONE AMPLIFIERS

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

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



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



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



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

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



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



## CD PLAYERS

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



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



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

**CHORD RED REFERENCE MKIII** £16,000  
A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



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



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

**ELECTROCOMPANIET EMP-1/S £4,650**

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



**OPPO BDP-105D £1200**

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



**REGA APOLLO-R £550**

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

**ROKSAN KANDY K2 £900**

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



**TUNERS**

**CAMBRIDGE AUDIO AZUR 651T £299**

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



**CREEK DESTINY 2 £550**

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



**MAGNUM DYNALAB MD-90T £1,900**

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



**DACS**

**AUDIOLAB M-DAC £600**

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



**AUDIOLAB Q-DAC £250**

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

**ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095**

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



**CHORD 2QUTE HD £990**

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



**DCS DEBUSSY £8,000**

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

**NORTHERN FIDELITY DAC £650**

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



**METRUM OCTAVE £729**

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

**NAIM DAC £2,400**

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



**TEAC UD-501 £699**

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



**RESONESSENCE INVICTA MIRUS £4,499**

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



**NETWORK PLAYERS**

**CHORD DSX100 £7,500**

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



**CAMBRIDGE AUDIO NP30 £399**

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

**CYRUS STREAM X £1,400**

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



**ENTOTEM PLATO £2999.00**

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



**NAIM NDX £2,995**

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

**NAIM ND5XS £2,175**

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



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



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

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



**DIGITAL SOURCES**

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



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

**LOT00 PAW GOLD** £1,500  
Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



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

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



**PORTABLE SPEAKERS**

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



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

**CABLES**

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



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



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



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

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



**HEADPHONES**

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



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

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



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# Pictures from a silver disc

The CD and home cinema owe much to the laserdisc – an LP sized format that combined high-quality picture and sound. Martin Pipe explains.

**W**e now take DVD and – come to think of it – its hi-def successor Blu-ray, for granted; both are now losing traction to on-line streaming services like Amazon and Netflix.

Today concepts like decent picture and sound quality, the potential for digital multichannel audio, interactivity, subtitles, 'special feature' content, noiseless 'trick' playback (picture search, slow-motion, still-frame) and the long life associated with 'contactless' media don't raise an eyebrow.

But let's go back in time to the mid-1970s, when the world was on the cusp of a domestic video cassette revolution. Sony had just launched its Betamax format (influenced by the firm's professional U-Matic system, rapidly being adopted by

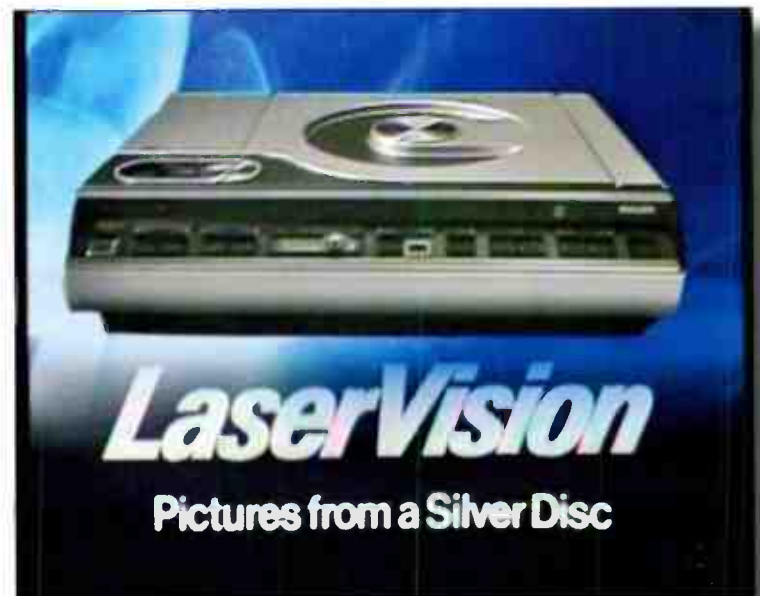
industry and education), American firm Avco's pioneering Cartrivision home-video format had been pronounced dead, and Panasonic and Sanyo had their now-forgotten systems (respectively, VX and V-Cord) on sale in the US. JVC, meanwhile, was poised to launch its VHS video cassette recorder that would eventually win the forthcoming format war. In that dim and distant past, only broadcasters had grown to take videotape for granted – as a valuable programme capture, production and distribution tool.

But videotape had its disadvantages. Of the benefits listed above, only the first was realised – in the giant, bulky and extremely expensive videotape recorders (VTRs) used by broadcasters. At the time, that usually meant the 2in. 'quadraplex' monsters invented by tape pioneer Ampex. Interestingly, another Ampex development that was to find its way into broadcast use was the instantaneous 'slow-motion' recorder.

Making 'action replays' practical for the first time, it was essentially a short duration (30 seconds) videodisc recorder that exploited the 'random-access' possibilities of disc media. In its UK-standard 625-line variant the magnetic disc revolved at 1500rpm, and was not dissimilar to that found inside a computer hard-

drive – although here it was used to store analogue video, rather than digital data. The surface of the disc was covered in concentric tracks – each of which stored a frame (a second of video is composed of 25 such frames, each of which comprises two interlaced fields). Scan one track continuously by holding the playback head stationary, and you got a still – move the playback head perpendicularly to scan multiple tracks, and you got motion at the corresponding rate.

This was the first use of discs for video, ignoring Baird's discs 50 years earlier. But it wasn't for public use. The next came courtesy of the 'Discovision' system. First demonstrated in prototypical form in 1972, Discovision received its American launch in 1978 – the players were badged 'Magnavox', Philips consumer brand-name in the US – and was quite unlike any other



*The first videodisc? Baird's original 30-line TV system, of the late 1920s and early 1930s, was of low enough bandwidth to be transmitted via medium-wave AM radio. This also meant it could also be stored on gramophone records.*



*The first use of discs for high-quality video was Ampex's HS-100, which brought slow-motion sports to television in the late 1960s.*

consumer electronics product at the time.

The optical disc, which had the same 12in. diameter of an LP record, looks like a supersized audio CD. It was scanned by a revolutionary optical system built around a helium-neon laser tube to offer between half an hour and an hour of near broadcast-quality analogue video and stereo audio per disc side (like

its spiral sequence – or track – of microscopic pits and lands

For a full-length side, the track is over 20 miles long! As with a CD, Discovision plays from the hub outwards. There are two of these polycarbonate 'information layer' discs – one for each disc side – which are metallised, and then 'glued' back-to-back. As a protective measure, the upper (i.e. laser-

carriage-mounted objective lens within guides that were perpendicular to the disc's tracks. In contrast, the VCR owner had to laboriously rewind or fast-forward to the section of interest.

Thus the second type, known as CAV (Constant Angular Velocity) or 'active-play'. This sacrificed running time for trick-playback potential of a standard that the TV industry wouldn't sniff at; each frame was addressable (a frame 'counter' display was of particular use to film buffs). CLVs were employed for an average movie as it could span the two sides of a single disc. CAVs were more common for documentary and instructional titles and multiple-disc 'special editions' of movies sold to enthusiasts. At least one disc I've come across – Paramount's 1953 version of *War of the Worlds*, released in the early 1990s – used CLV for one side and CAV on the other.

The top-loading (tray-based front-loaders were to follow) Magnavox 'Magnavision Model 8000' Discovision player had phono sockets for connection to a hi-fi system, enabling the audio potential of the FM soundtracks to be realised – great news if you were playing a disc that contained concert footage or the 'pop videos' then starting to be embraced by the record industry as promotional tools. A full range of trick-playback functions were available for the CAV discs that supported this function, and as discussed it was possible to quickly 'skip' to a specific part of the programme or movie (indeed, the content was split into 'chapters' not dissimilar to the track markers of



**To promote its players in the US, Magnavox drew on the services of Star Trek actor Leonard Nimoy. In this amusing disc, which was distributed to dealers, Nimoy interacted with a 'crystal' that glowed and beeped in response to his Laservision-related comments and questions. Quite 'logical', if you think about it...**

LPs, and unlike CDs, these discs could take advantage of double-sided operation).

The other analogue videodisc to go on general sale – CED (Capacitance Electronic Disc), also known as 'Selectavision' – was tracked by a stylus. The caddy-enclosed CEDs would wear out eventually and performance was mediocre. Not surprisingly CED sank without trace.

How were Discovision discs produced? A precision-ground glass master disc, coated with a photo-resistant material, was recorded in real-time from the video source, using a pulsed laser. One of these masters was needed for each side of the final product. The complete programme source – an analogue composite-video signal, together with frequency-modulated subcarriers containing the audio tracks, was frequency-modulated. The resulting signal was then limited to form a train of pulses that turned the mastering laser on and off, producing a sequence of pits that varied in length and spacing. This clever use of pulse-width modulation – PWM – techniques enabled the information to be reliably-stored on a disc, making the format practical. Metal stampers were then made from that glass master for replication, the result being a polycarbonate disc with

read) surfaces are coated with a transparent lacquer. During playback, the near-infrared laser and optical pickup discriminates between the pits and lands to recover the PWM stream, from which the frequency-modulated video and audio are recovered. The experience gained in the production of Discovision software must have proved useful for the comparatively-simple manufacture of CDs a few years later; most of the underlying principals are identical!

Two different varieties of Discovision were offered – and they were differentiated according not to content, but to how information was packed onto the disc. The first, sold as CLV (Constant Linear Velocity) or 'long-play', offered the longest running time. But there was little you could do in terms of 'trick playback'; not even a basic VCR-type still-frame feature was offered. However, a 'skip' type visual search could be facilitated by moving the



**In the 1980s, Laservision represented the best way of both seeing and hearing music – thanks to its broadcast-standard pictures and hi-fi stereo analogue audio. Concerts were popular choices, as were compilations of pop videos.**



**A 1982-vintage title – The BBC Videobook of British Garden Birds – was the first to take advantage of Laservision’s superior video bandwidth.**

CDs).

Discovision’s audio-visual performance may have trounced that of a contemporary home VCR but no recording facility was offered. It was the AV equivalent of the audio-only CD player that was to follow four years later – a machine whose sole purpose was play back of pre-recorded discs. As with CD, stereo sound was standard – it could also be used for bilingual presentations or multiple soundtracks.

A large variety of software was eventually made available for the Discovision system – documentaries, music discs and (perhaps most importantly) movies. Studios supporting the format included Warner Brothers, Universal, Paramount, and Disney. But at the time, some wondered why anyone would want a machine that could only play ‘video albums’. Music stood up to repeat listening but how many times, they asked, would you want

to view a movie? This was, of course, before the days of video rental – not that Discovision or its analogue-disc successors were to make an impact on the rental market.

The lack of record functionality helped to ensure that not even a publicity campaign featuring Leonard Nimoy, Star Trek’s Spock, could cement Discovision as a true mass-market proposition. But it did achieve modest success among quality-conscious users. Interestingly, the format found favour in business as a presentational tool. Firms like General Motors, IBM and RCA used them to train dealers and sell product directly. A disc could, after all, endlessly and reliably repeat a promotional video instore all day.

In time they would also end up as a component of interactive museum exhibits, an offline non-linear editing system (EditDroid) for movies conceived by Lucasfilm, video games and in the UK the BBC’s Domesday Project. The latter was an ambitiously-interactive record of life in 1980s Britain. It consisted of two discs (containing a mix of computer data, audio and video clips) that were read by a Philips laserdisc player, under the control of a modified BBC Microcomputer.

Fascinatingly, some of this private material has surfaced on some early consumer Discovision releases. Owing to their running time, some movies may only span three sides out of an available four. For technical reasons each disc had to have two usable sides and to maximise production capacity it was not uncommon to press some discs with different content on each side – and then coat the unwanted side to render it unplayable.

Philips marketed Discovision closer to home too - although it took a considerable amount of time to produce a European-standard (PAL, rather than NTSC) version.

After a frustrating number of missed deadlines and false starts, ‘pictures from a silver disc’ finally saw the light of day here (UK) in 1982. But you had to buy special PAL-format software; imported NTSC discs wouldn’t play on the Philips-branded PAL machines.

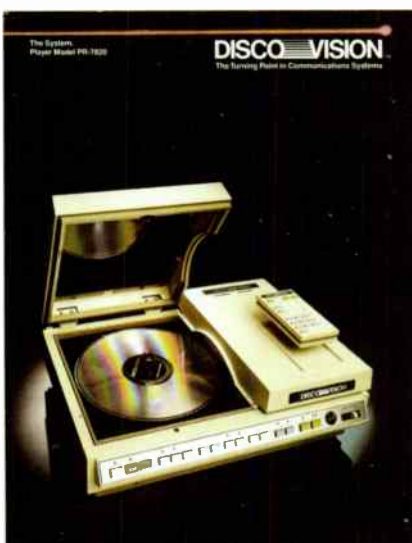
Maybe that’s why Philips initially used a different name – Video Long Play (VLP), rather than Discovision. Eventually, though, the term Laservision came into use globally.

Whatever the moniker, AV enthusiasts praised pictures and



**Discovision was also used professionally for sales and training purposes; its resilience and random-access capabilities were positive boons. This particular title taught sales techniques to General Motors dealers.**

sound that were hard to tell apart from good broadcasts. Thanks to the format’s high video bandwidth, some UK Laservision titles – notably BBC reference ‘videobooks’ – were able to carry broadcast-type teletext data too. With a suitably-equipped TV, subtitles or additional information about the featured subject could be called up. Now that analogue TV is dead, laserdiscs with teletext represent a unique time capsule for those with TVs able to ‘unlock’ this information.



**For industrial use, ruggedised professional Discovision players were introduced. This PR7820 was made by Pioneer.**



**This Dutch brochure from 1983 spells out LaserVision’s advantages and explains how its VP720 could be interfaced to TVs and hi-fis.**

**Next month: Pioneer’s input, CD-quality digital audio, surround sound and CD Video.**



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# Harmony Quickstep

Jon Myles finds Black Rhodium's new Quickstep loudspeaker cables and Harmony interconnect are a potent combination.



*Black Rhodium Quickstep.*

**B**lack Rhodium owner and chief designer Graham Nalty knows a thing or two about hi-fi cables – as evidenced by the number of awards his company's range of products have received.

The brand has built a loyal following over the years and makes much of the fact that the majority of its cables are designed and hand-built at its premises in Derby in the East Midlands.

So when Graham announced he'd come up with a new loudspeaker cable and interconnect pairing which are some of his most sophisticated yet it, obviously piqued our interest. Especially when the design is based upon the outstandingly open and clean-sounding top-of-the-range Thunder offering.

Now, a 3 metre terminated pair of Thunder cables will set you back almost £5000 while the new Black Rhodium Quickstep comes in at a more affordable £400 for the same

length. However the two do share some design elements.

Accompanying the Quickstep and designed with similar characteristics is the Harmony interconnect which costs £320 for a 0.5 metre terminated pair or £370 for a 1 metre length.

First, the Quickstep. It's available in a range of colours – black is standard but blue, green, red, white and yellow are all available for a small premium – and comes equipped with the proprietary Graham Nalty Legacy

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*Black Rhodium Harmony.*



Range GN-1 rhodium-plated straight line connectors which are eminently sturdy and provide a firm fit.

Like much of Black Rhodium's range, great emphasis is placed on the suppression of mechanical vibrations and the pick-up of radio frequency interference from the likes of radios, wi-fi networks, mobile telephones and even central heating systems.

With the Quickstep this involves

"the backing instrumentation has a depth and breadth to it - allowing you to hear exactly what the individual players are doing"

the use of two separate and complementary materials in the construction to dampen micro-vibrations which can muddy the sound as well as thicker, braided insulation than found in most loudspeaker cables and increased distance between the conductors to reduce the magnetic field in the wire.

The Harmony interconnect employs a similar construction with the internal wires insulated in silicone rubber, for its low dielectric loss. It also comes fitted with gold-plated Hourglass Silhouette RCA connectors for long-life.

All this technology means the cables are a little thicker than many similarly-priced rivals but to their credit they are flexible and easy to fit

into even the tightest spaces at the back of a hi-fi rack, making installation easy.

### SOUND QUALITY

Having listened to the range-topping Thunder cables a few months ago, I was impressed at how similar in presentation the Quicksteps are. They are not quite as crystal clear but they do share some attributes – mainly the sense that they let the

music flow in an uninhibited nature without adding too much character of their own.

Used between a Creek Evolution 100A integrated amplifier and a pair of Martin Logan ElectroMotion ESL X electrostatic loudspeakers (see Noel Keywood's review this issue) they had excellent detail and an ability to let me hear what the components were doing.

Jacques Brel's voice on 'Ne Me Quitte Pas' from the Infinite CD collection was especially well-defined. There was no sense of any smear or cloud to the vocals but instead a naturalness to the presentation. The catch in his voice when he starts the final verse also came out of an almost eerie silence,

adding to the emotional impact.

Behind that the backing instrumentation had depth and breadth, allowing me to hear exactly what the individual players were doing.

Adding the Harmony interconnects to the mix between the CD player and the Creek built on this. There was an obvious synergy as they have a similar characteristic which is open, involving and exceptionally clean.

Listening to guitar on Pierre Bensusan's 'Altiplanos', the leading edges of notes were picked out starkly, while it was easy to pick out where he had changed the tuning of his instrument on some tracks.

Not all cables at this price will give you such an insight. The only downside is that if you are looking for cables to tune a system that is perhaps not ideal, these Black Rhodiums are probably not for you.

They will not mask problems by accentuating bass or smoothing off treble response in sharp components. They are a lot more honest than that – which is a good thing if you are happy with your source, amplifier and loudspeakers as they have the ability to bring the best out of them at a reasonable price.

### CONCLUSION

Black Rhodium's new Quickstep loudspeaker cables and Harmony interconnects come highly recommended. They get out of the way of the signal in a way few others do at this price and allow you to hear the music unsullied and in all its glory.

**BLACK RHODIUM  
QUICKSTEP  
LOUDSPEAKER  
CABLE £400  
3 METRE  
TERMINATED PAIR**

**HARMONY  
INTERCONNECT  
£320  
0.5 METRE  
TERMINATED PAIR**

**OUTSTANDING - amongst  
the best.**

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- reduce smear

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# A New Icon

A single-ended valve amplifier that combines sonic poise with power. Jon Myles is captivated by Icon Audio's new ST30se.

**J**ust like vinyl, valve amplifiers are coming back into fashion to an increasing degree. The reason is simple, done well they offer a warmth, vibrancy and overall musical experience that even the best transistor-based amps find hard to match.

The drawbacks are that they can be harder to maintain, offer lower power, run hotter and - due to the use of expensive output transformers - are often dearer than a similarly-specified solid-state device.

Leicester-based Icon Audio and its chief designer and owner David Shaw have made it a mission, though, to try to square this circle by producing tube amplifiers that are as easy to use as possible, while still retaining that glorious valve sound.

At the higher end of the company's range it offers the likes of the MB 81 monoblocks featuring huge Russian-made GU81 valves producing some 200 Watts each and costing £15000.

But then there is the new pure Class A ST30se integrated amplifier - I am reviewing here that, while not offering anywhere near the same power, comes in at a rather more affordable £1999.95 - and it's easy to slot into a existing system.

Based around two gherkin-shaped Tung-Sol KT150 output valves, it is a single-ended Class A design offering a claimed 18 Watts per channel in triode mode or a more substantial 28 Watts in ultralinear operation (see Measured Performance for more information).

The driver circuit uses three double triode CV181 valves designed by David Shaw himself and used in cascode mode.

Biasing the KT150s for optimum operation is simple thanks to the illuminated meter on the front fascia. Switch it in and then use the supplied screwdriver to adjust the two small controls located next to each valve until the needle reaches its black section.

Icon Audio do suggest the bias should be checked every month or so - but as this is easy to do it's not a hardship. The meter can also be set to give an indication of output power - although in use it does seem a little vague in its response.

Away from that meter the other functions on the front consist of the



rotary volume knob, input selector plus standby switch as well as the control to switch between triode and ultralinear operation. Do bear in mind here, though, that Icon Audio do not recommend doing this on the fly to save stressing the output transformers. Instead move the amplifier into standby mode and then make the adjustment before switching it back in.

Connections on the rear allow for three analogue inputs with gold-plated 4 Ohm and 8 Ohm loudspeaker options, and there is also a switchable (high/low) gain control for matching partnering equipment. The high setting gives you 200mv sensitivity, low offering 500mv.

Size-wise the ST30se measures 240mm x 380mm x 300mm (H/W/D) and – like all valve amplifiers of this size – is heavy, so ideally needs two people to lift onto a suitably well-ventilated hi-fi rack.

In usual Icon Audio fashion the internals are all point-to-point hand-wired and the overall finish and fit is exemplary, with the standard black finish and copper-coloured top plate giving it a purposeful, no-nonsense look.

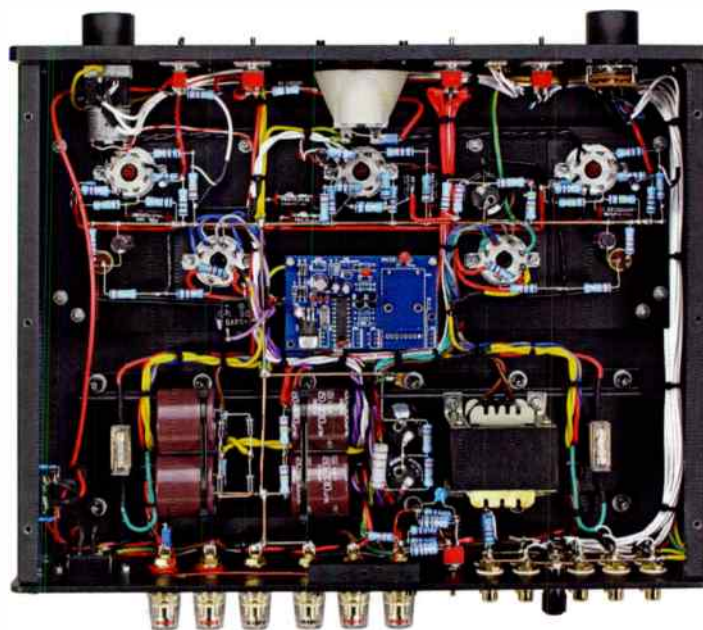
### SOUND QUALITY

Icon Audio describe the ST30se as being a medium-powered integrated amplifier capable of working with any loudspeaker of around 90dB sensitivity or more. I think they are being a little conservative here.

The use of the excellent Tung-Sol KT150 power tube - first released in 2013 - means this unit has uncommonly high power for a single-ended amplifier and in use



*The driver circuit uses three double triode CV181 valves - with Icon Audio's head man David Shaw's name etched on their front.*



*As is usual with all Icon Audio valve amplifiers, the internals are all point-to-point hand-wired giving a neat and, most importantly, robust look.*

it had no trouble driving a variety of loudspeakers from the small standmount Blue Aura ps40s (85dB sensitivity) to the larger Martin Logan ElectroMotion ESL X electrostatics.

Plugged into the latter and set to triode operation initially the ST 30se sounded crisp, clean and rather more rhythmically assured than most single-ended valve amplifiers around.

Best of all the low-end was free of any bloat, instead sounding very fast and punchy - not something associated with SE designs. Fed The Smiths' 'Barbarism Begins At Home' from a 24bit/96kHz download of 'Meat Is Murder'. Andy Rourke's bass line had exceptional power via the Martin Logans, providing a firm foundation for Johnny Marr's ringing guitar above.

This is not a warm or lush amplifier, instead having a pristine quality about it that was a little like a solid-state amplifier without the harshness and clinical nature.

Switching to the Blue Aura ps40s there was an obvious reduction in the overall soundstage with the volume control having to be pushed higher to get decent sound levels but clarity and separation between instruments was still excellent.

Moving to ultralinear operation brought a boost in power, although at the expense of the more mellifluous flow to the music that the triode setting provides. Much here will depend on your loudspeakers and individual taste - but on the whole I preferred the triode mode most times.

Used in this mode the Icon

Audio brought a vibrancy to The Allegri Quartet's 'String Quartets by Alec Roth' CD, via our reference BDP-105D Universal disc player. Timing between the various string instruments is a key to these pieces and that was one of the ST30se's main assets. On the slower pieces it exerted a firm sense of control



*The gherkin-shaped Tung-Sol KT150 Russian-made valve offers exceptional power for a single-ended design.*

but when the pace increased there was no lag, so the quality of light and shade was portrayed vividly.

Moreover, individual instruments were easy to delineate and had a refreshing timbral accuracy. During the gloriously pastoral 'On Malvern Hills' I could close my eyes and picture the bows on strings of the violin. Via the Martin Logans especially, the music came into the room with a three-dimensional nature that sounded more like a live rendition than a CD recording.

Indeed, the Icon Audio and Martin Logans made a compelling case for themselves as a combination.



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There are 4 Ohm and 8 Ohm loudspeaker taps on the rear (right) as well as CD, Aux and Tuner inputs (left).

Combined they will cost you just shy of £6500 - which may not be pocket change but in the world of true high-end audio represents value for money.

To give the combination a thorough work-out I turned to Kraftwerk's superbly recorded live opus 'Minimum-Maximum' with its blend of atmospheric, intertwined electronic synth lines and deep, propulsive bass.

Everything was there in crystal clear quality. The Icon Audio caught hold of all the elements and thrust them into the room. Detail on the likes of 'Autobahn' meant the noise of

a car door shutting at the beginning of the track sounded just as though it was parked in the room, while every blip and bleep of the electronica was picked out with absolute clarity.

If there's any reservation, I'd say those who like the slightly lush sound of some lower-powered single-ended valve amplifiers may not initially take to the ST30se. Listen longer, though, and you'll find what you are getting instead is a lot more detail and focus as well as the power to work with a much wider and more varied range of loudspeakers.

In fact, I could imagine many dedicated transistor amplifier

enthusiasts being converted to the valve camp via this new Icon Audio. It really is that good.

**CONCLUSION**

Icon Audio have really hit the mark with the new ST30se integrated amplifier. Easy to use, it combines a healthy power output with assured timing and a gorgeously open sound which is comfortable with all genres of music. Play some bass-heavy rock and it will happily pound out the bass, while with acoustic tracks it will bring out all the rich tonality of violins or double bass. Pair it with a good set of loudspeakers and you will have the heart of a system that will keep you satisfied for many years.



The supplied remote is simple - offering control of volume and mute.

**MEASURED PERFORMANCE**

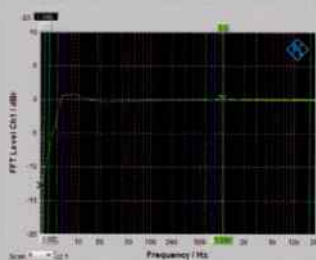
The single KT-150 pentode power valve used in each channel of the ST-30se produced a healthy (as SEs go) 28 Watts into 8 Ohms under test, in Ultralinear mode, and 21 Watts in Triode mode. These are relatively high power values for a Single-Ended (SE) amplifier, that typically come in at around 9 Watts when using something like a 300B triode. The ST-30se's power is plenty enough to drive modern, sensitive loudspeakers to high volume, since just 10 Watts or so is needed to play loud - more will play very loud.

Power was maintained well at low frequencies, where the large output transformer cores resisted magnetic saturation and overload; distortion hovered around 0.5%; bass will sound clean and undistorted as a result.

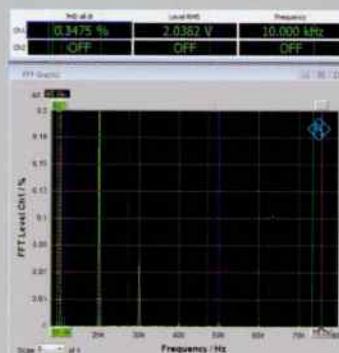
As valve amplifiers go damping factor was high at 6, due to the use of feedback. This also helped keep distortion levels reasonable at around 0.2% in Ultralinear mode and 0.4% in Triode mode, at low power outputs. Distortion rose steadily as power rose, to 1% just below clipping. However, it comprised

correlated second and third harmonics that rose and fell with the signal, unlike high feedback transistors amps where

**FREQUENCY RESPONSE**



**DISTORTION**



the distortion patterns are not correlated to the signal, behaving erratically. So SEs like this might look poor superficially, but they're not in real life listening, because of the way the ear perceives different forms of distortion.

Frequency response was wide, the upper limit being 50kHz (-1dB) at all volume control positions. The low frequency response extends down to 6Hz before falling away rapidly, the small hump being due to feedback time constants. The ST-30se will not sound dull or warm: it is flat across the audio band and even beyond.

The ST-30se produces high power as pure SEs go. It has unusually wide bandwidth too, so will not have a warm sound balance. A clean and pure, but relatively fast sound is likely. NK

Power	28W
Frequency response	6Hz-50kHz
Separation	83dB
Noise	98dB
Distortion	0.2%
Damping factor	6
Sensitivity (L/H)	800 / 400mV

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I was generally impressed with the mastering and pressing of these singles. There is a perception that 7" discs are printed from the leftover vinyl cuts swept up off the floor by the cleaner after hours, but these examples have been well produced - being quietly pressed with no crackling or spitting or excessive background noise. While the inherent format lowers the quality of the signal itself, reducing detail by degrees, that level of detail did manage to surprise.

There was a remarkable amount of instrumental separation on Jerry Lee Lewis' '[Whole] Lotta Shakin' Goin' On' with the fragile cymbal

taps easily emerging from Lewis' whole-hearted vocal and thunderous piano blows, while Little Richard's 'Lucille' remained coherent and precise despite the raucous screams of the man himself. The Everly Brothers' own 'Wake Up Little Susie', meanwhile, provided a sense of transparency that keyed into the duo's vibrant youth, giving a wholly musical, foot-tapping experience.

I'm glad my wife wasn't in range, otherwise she would have been lifted, flipped and thrown around the room, worrying our low-energy lightbulbs and mowing a heel-shaped stripe down the cat's back as she was swung around in an ambitious circle. This box set requires a health warning!

Also look out for the sister box set 'The Blues: Classic 45s', similarly presented and featuring Muddy Waters, Howlin' Wolf, Lightnin' Hopkins, Buddy Guy, Jimmy Reed, Elmore James, John Lee Hooker, Sonny Boy Williamson, B.B. King and Willie Dixon.

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THE RONETTES

Veronica  
Bear Family

Originally released as a CD in a more expanded form (17 tracks instead of the 11 tracks featured on this vinyl pressing) by Sequel in 1994. That collection was called 'The Complete Coolpix and Buddha Sessions' and that's the essence of this release. It tracks the history of the girl group before they were signed up by Phil Spector, who would place them in front of his Wall of Sound and then issue one of most romantic rock'n'roll tracks of all time in 'Be My Baby' - a song that was also Beach Boy Brian Wilson's all-time favourite single, incidentally.

This compilation tracks the sisters Veronica (aka Ronnie) and Estelle Bennett and their cousin Nedra Talley after their 1959 formation as The Darling Sisters starting with 'I Want A Boy' for Coolpix in 1961 as Ronnie & the Relatives.

The tracks released as the Ronettes include 'I'm on the Wagon', 'Silhouettes', and 'Good Girls'. All good songs but all remained regional hits.

In audiophile terms, the music has been pushed through the compression mill.

It is squeezed to increase the effect of the detail around the upper mids for those playing this music through those new fangled transistor radios and early record players at the time. As such, the mastering reflects a time and a place. You can't criticise the sound quality (well you can but it would be churlish to do so). The mastering hits all of the right nostalgia buttons.

Underneath the source mastering, though, Bear Family has done a sterling job by placing the mastering on the best available sonic platform, so you don't lose any frequency that might be in the offing.



**T**o call them a super-group would be to belittle their friendship. George Harrison, Jeff Lynne, Roy Orbison, Tom Petty and Bob Dylan just loved hanging out with each other.

This set includes both albums 'Volume 1' (the best of the two, including Orbison) and the second but oddly named 'Volume 3' (produced after Orbison had died) plus a bonus 12" disc of six tracks, large format booklet, poster and postcards.

This is rock music that is casual, easy, fun, happy and celebratory. It's a good time bathed in a simple innocence. There's no ego here. No high minded drama or concept. It's... well, just a bunch of guys. Incredibly talented with earth-shaking artistic skill sets but, even so...

In audiophile terms, the master is very good indeed with good work via engineer, Kevin Gray at RTI. The soundstage is very broad with strummed guitars falling off the end

of the left and right channels on the track, 'Where Were You Last Night?' I've heard records which are a tad quieter than this box set but I'm being very picky.

There is a slight compressive touch applied throughout but nothing to concern the listener. What is detectable is the wealth of detail present on the wonderful ensemble piece 'New Blue Moon' which offers attractive vocal harmonies while still allowing the individual voices to be recognised. The secondary percussion plus additional saxophone also adds a busy, layered aspect to the presentation. What is readily apparent from this box set is the sense of togetherness and fun that emanates from the songs. It's a very inclusive box set, a 'welcome to the party, get yourself a drink and enjoy yourself' kinda compilation. Thoroughly recommended. If you do pour yourself a glass when listening, please raise it in acknowledgement of lost friends.



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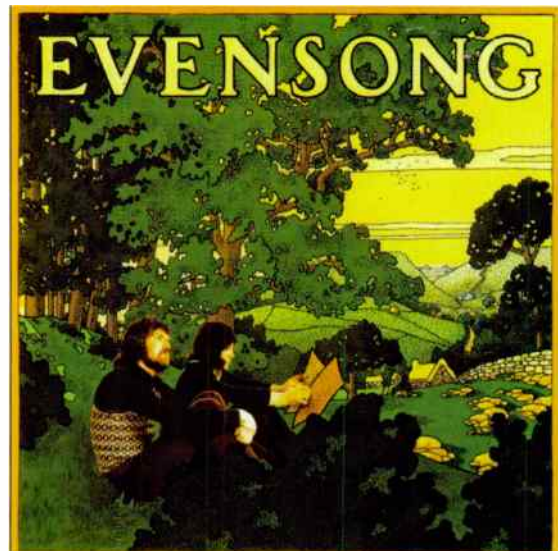
**E**vensong were Tony Hulme and Mike Lawson, a folk pop duo from Birmingham. This, the duo's self-titled album, was originally released in 1972 on the Philips Phonogram label. The album does add a few session players but their quality is beyond question. How about Clem Cattini, B. J. Cole and Herbie Flowers plus a selection of string arrangements from former Spencer Davis Group guitarist Ray Fenwick?

The songs themselves were, "...written at either my flat or Mick's in Wandsworth, Birmingham" said Hulme. "We'd meet several times a week and put ideas down onto Mick's reel-to-reel Revox (he still has it...and it still works!)"

Those songs, even though they are accompanied, feel sparse, simple, and carefully crafted. The arrangements are often straightforward, unpretentious and natural in style.

In audiophile terms, this is a well crafted master that sits in front of a very quiet background, allowing a wealth of detail to reach your ears unencumbered. The reason for that is because the album has been remastered from the original source tapes. Not just that though, it has been remastered by Roger Wake who was the original producer.

Hence, the ever-present acoustic guitar, especially when the strings are picked, has been closely mic'ed, giving an intimate yet informal aspect to the songs. The spacious nature of the performance, which often consists of two voices and a well-spaced instrumental accompaniment, takes full advantage of a broad soundstage. The production is busy yet never overblown and so allows all instruments time and space to perform. Because of this, the better your hi-fi chain, the more you will discover. **PR**



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World Radio History

# "Wireless loudspeakers could be less intrusive and offer better sound quality"



Noel Keywood

**T**he future lies in wireless. Not in its original incarnation, where a morse key was needed, but in its latest meaning, the elimination of wires – courtesy of Bluetooth. Apple have put some oomph into publicising this possibility with the release of the iPhone 7 that transmits to battery powered AirPods. And I've just walked past John Lewis flagship Oxford Street store in London to see a whole window display devoted to wire free headphones. Yes, the electromagnetic force is upon us: we are to go wireless. I have a prediction to make here though, one that is potentially resurrectional to hi-fi.

Hi-fi has two major problems: wires and boxes. All the rest is sweet, unless you make a Van den Hull Grasshopper hop across your records – an expensive accident. Such accidents aside, if wires and boxes can be reduced or eliminated, then pure music – even from high speed analogue master tapes – might then start to sneak into more people's homes and lives. I believe it can be done and I look forward to it being done. Here's how.

The wires problem is all but solved. Bluetooth is a short-range radio link that was developed to communicate large amounts of data over short distances. It has been recently upgraded to be able to cope with high-quality audio. Old Bluetooth used aptX to disguise its bandwidth limitation. All this is changing. Take a look at Qualcomm's AllPlay smart media platform, as they term it, that supports up to 24/192 digital uncompressed, if you are interested in knowing more about what is on offer now in this area and appearing in products already.

It's the boxes bit that interests

me, though. Can we eliminate large box loudspeakers from the home? Everything from vibrating panels (NXT) to pulsating spheres (MBL) has been tried and found wanting so the answer is at present 'no' it seems. It may just be possible that Eminent Technology's rotary subwoofer could be adapted to cover the audio band and driven by a gas turbine to produce enough acoustic power – but I suspect other problems may arise.

What we can do instead is make loudspeakers wall-standing so they don't get in the way, or otherwise intrude. This not only clears valuable floor space it also makes bigger boxes possible. That's one potential benefit straight away. But the use of wireless connection to a wall stander via Bluetooth raises other interesting and attractive possibilities.

A Bluetooth loudspeaker must be both mains powered and have power amplifiers on-board. So we still have a cables problem but in most modern well-socketed homes, running mains power to speakers is likely to be less intrusive than running speaker cables, especially in a surround-sound system where the rear speakers demand a long cable run and often there's a door in the way.

Also, Bluetooth connection allows the source components of a system to be placed anywhere, not necessarily close to the loudspeakers – a convenience.

But other benefits can be extracted from this arrangement. Connection via a digital Bluetooth link opens up the possibility of using a digital signal processor (DSP) to ameliorate the room boom that afflicts wall standing.

There are many ways to do this and some argument over which is best. Boffins tend to prefer full on computer tuning, or room correction

as it is often termed, but it is complex. Take a look at miniDSP ([www.minidsp.com](http://www.minidsp.com)) for one example of this approach.

A set of simple-to-use tuning controls can sufficiently ameliorate room boom I have found, to usefully reduce subjective annoyance. A low-bass tone control (below 200Hz) that offers lift or cut, accompanied by at least one tuneable parametric notch filter to lessen energy in the length mode that a wall-stander aggravates, would do the job. Such a system will cope with what is usually the strongest mode and make a useful improvement in the sound for relatively little complexity.

Another possibility is the use of a room measuring mic as found on AV receivers, either in the loudspeaker to sense the room's main modal frequency, or in the listening position as per AV receiver practice.

Larger cabinet size means lower bass, better bass power handling and less overhang – in all then, better bass quality. There's nothing like a good, big 'un, as they used to say about 1970s monsters such as the Leak 2075.

Increasing cabinet volume by making it deeper, which you can more readily do with a wall-stander, pushes the tweeter forward. A prominently placed ribbon tweeter, perhaps in a handed-pair, will ensure good imaging is retained, since wall-standing can degrade the precision of images. Asymmetric positioning of a tweeter relative to boundaries and a contoured cabinet front face helps too.

Wireless in its new incarnation is slowly gaining ground on us. After wireless headphones I believe we will finally see successful wireless loudspeakers in the home and, cleverly engineered, they could well take up less space, be less intrusive and offer better sound quality. ●

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# "New Order bassist Peter Hook stormed off in a huff a good few years ago"



Paul Rigby

**Y**ou know, age is a weird thing. Getting old, which is a subtly but arguably more important difference, is weirder still. I'm 52 which, today, is not old at all. Yet, I realise that I have quirks and my little ways. My likes and dislikes, my habits and traditions. Silly things that make me smile. Sillier things that make me grumpy. Age is primarily the reason for that.

Well, it is and it isn't. Maybe it's more to do with experience... although that is inextricably linked to age too, of course.

As you go through life you tend to filter everything you see, say and do. When you come across something new, you're very open to ideas and strange methods and the like. You haven't experienced it before.

Once you repeat the process, go to the same place a few times, see the same thing, listen to the same music, whatever it is, then you begin to make decisions, you make choices, you filter.

So, if you are walking towards your favourite cafe, you already know which table you want because it is out of the sun in the summer/by the radiator in the winter, well away from families with screaming kids, you know which drinks and food to go for and avoid because that cafe produces those drinks/dishes well/badly and you know that it's a Tuesday so that fool of a waiter you sometimes see won't be in that day.

Filters are important. They are also divisive, if your friends, colleagues, wife, husband or family don't agree. Especially, if their filters have taken them into another direction. It's age.

It's life. It's about growing up. It's about deciding what is best for us. It's about being selfish (and why not, if it doesn't hurt others?)

Look into the eyes of a new band after their first promo photo shoot. They're young, they're happy to be there, everything is new, nothing is too much trouble, they'll all go out of their way to help, they'll accept just about everything, they'll go anywhere and, within reason, do anything.

Look into the same eyes if they have survived the 35 years to become a major recording artist – and it's a big 'if' because they will have been damned lucky, determined and talented – and in that order – to still be there.

They're older (grey hair, wrinkles, etc), the last place they want to be is sitting in front of the camera, everything has been done... again...and again, everything is too much trouble. In fact, they get someone else to do things for them, they won't do anything unless you pay them over the odds, their agent and lawyers have checked it out first and their calendar is empty – and they won't go anywhere...unless it's by private jet or helicopter.

Older people hate being pushed around. Older people hate having their freedom restricted.

More to the point, older people, on many occasions but especially if they've been in a band for most of their lives, hate having do something that the other guy wants to do.

Take New Order, the band that blossomed from post-punk legends Joy Division. The band that explored dark indie rock and then evolved into acid house. The band that not only made music but also put their money behind a legendary nightclub with Factory Records in the shape of The Hacienda.

New Order should have all of the above pasted into their music biography.

I've just received a new four-LP vinyl box set produced by the band.

It's a lovely thing, actually, called 'Singles'. Remastered and updated it features classic music such as 'Blue Monday', 'State of the Nation', 'World in Motion', 'True Faith', 'Confusion' and, as they say, "much more".

Age. Age means looking at the latest line up and thinking, "Ah, there they are but...who's that bloke on guitar? And that one on bass?" Why? Because famed New Order bassist Peter Hook stormed off in a huff a good few years ago.

Lead singer Bernard Sumner recently revealed that "Hook's said some unforgivable things, disgraceful. He was angry – he's an angry man – and the anger was inside the band. And a lot of the anger was focused on me and that isn't very nice to have to deal with on a day-to-day basis. He was jealous of me".

But the clincher is this bit, I think, "He's said it himself, he'd got to an age where he felt he couldn't compromise. He wanted things done his way or not at all. In a way, he was right to leave".

And it's this one point that splits bands. Always has done, always will do.

Forget your major artistic differences or the silly spats that start over nothing. The core and root of all of this is age and not having to 'make do' any more.

Stronger personalities manifest this feeling more visibly and possibly with more rancour than more submissive individuals. It's happened to The Beatles, it's happened to Pink Floyd and Led Zeppelin and it's happened to New Order...many times.

Which is why, when you find yourself with an absolutely brilliant band, you really, really need to get them in the studio and record their backsides off super quick before the inevitable rot sets in! ●



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World Radio History



# “The law has failed to keep up with the rapid pace of technological development”



Jon Myles

**T**he smartphone is undoubtedly a wonder of the modern age. Since the launch of the iPhone way back in 2007 their computing power and capabilities have developed exponentially.

Now, these devices can talk to you, listen to your voice, answer questions, recognise your fingerprint or iris pattern, enable you to access the internet from almost anywhere, buy and store books, music and films, play games and even give directions to your destination when walking or driving. Download dedicated applications and you can also control your hi-fi or stream music to a Bluetooth device.

On top of that they even let you speak to family and friends and (annoyingly) get calls from marketing companies you've never heard of before.

All of this is contained in a package smaller than a paperback book containing more computer processing power than was used in the Apollo 11 mission that put the first man on the moon.

There's one problem, though - the more information we store on our 'phones the more attractive that cache becomes to criminal elements or various intrusive governments. Triangulation (mapping the location of a mobile 'phone via three different masts or simply GPS) already means your network operator knows exactly where you are at any given time and where you have been. But there are more sinister implications in the ability to gain control of a smartphone.

Apple's recent forced upgrade of its iOS operating system was prompted by the revelation that a piece of malware sold entirely legally by a security company had been used to hack into an iPhone in the United Arab Emirates.

Mobile security company Lookout

and internet watchdog group Citizen Lab uncovered the hack after a failed attempt to break into human rights activist Ahmed Mansoor's smartphone.

Mansoor received a suspicious text that said "New secrets about torture of Emiratis in state prisons" alongside a link. He was suspicious and so forwarded the message to a researcher at Citizen Lab who clicked on the link and analysed the hack as it unfolded.

Put simply, it revealed that once installed the link allowed the controller complete access to everything the smartphone was used for - contacts, all messages whether they were text, chat or e-mails, plus calendars as well as the potential to listen to voice conversations.

It was later discovered that the same malware could also infect Apple desktop and laptop computers running the El Capitan and Yosemite operating systems and the Silicon Valley giant quietly released a new patch for these operating systems as well as its Safari browser.

But this isn't just an Apple problem. Google's vastly more popular Android operating system regularly releases security updates when potential hacks are found but not all manufacturers implement them as standard. Nexus, LG and most Samsung models do automatically - but others do not relying on the user to protect themselves.

Of course all of this isn't new. The likes of Apple and Google know their operating systems will be constantly under attack which is why they have to issue security updates when they are discovered.

No wonder, then, that there is a booming market in companies that look to find vulnerabilities in smartphone operating systems and then sell the technology for a handsome profit.

Look around the internet and

you can find no end of programmes that can be installed on other people's 'phones clandestinely so you can track where they are at any particular time without them knowing. This problem has become so acute some refugees for abused women have resorted to banning smartphones from their premises.

Then there is the problem of so-called ransomware - which encrypts and steals all of a user's data and will only release it on payment of a certain amount.

Some 28 National Health Service Trusts admitted they had been targeted in this way last year raising the prospect that sensitive data on patients and employees could have been compromised. None of these trusts admitted to paying out to the hackers but the implications are clear and raise obvious concerns.

The problem here is that the law has failed to keep up with the rapid pace of technological development. There is at present no international convention that outlaws the writing or exploitation of malware. The rather larger question is whether this problem will ever be solved. At present it seems not because the problem crosses national borders and involves co-operation between various law enforcement agencies in a multitude of countries.

As someone who regularly uses a tablet, iPhone and laptop to access my home wireless network and stream music to the hi-fi the fact that these vulnerabilities exist in the system are rather frightening. But, then again, perhaps that is just part of the price we pay for the progress of technology.

In the meantime, perhaps I'll just go back to using a basic infrared remote control for my amplifier, CD player and radio. It may seem old technology but at least they cannot be hacked into and don't store information which others can access! ●

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# "Why not consider digitising your LPs at half-speed?"



Martin Pipe

**N**oel's observations on the digitising of LPs – inspired by his review of the budget Audio-Technica AT-LP5 turntable – got me thinking.

Yes, it's great to listen to LPs in the 'traditional' manner. There's a definite connection with the music that goes beyond the nostalgia felt by those of us who remember the pre-CD era – the ritual of flipping the record over at the end of a side, being adept with the cueing lever and (certainly for the majority of audiophiles with a manual turntable) trying not to be sent to sleep by the continuous 'click...click' warning us that stylus and lead-out groove alike are slowly being ground to oblivion...

But vinyl records, compelling though they are, suffer from fragility. As a 'contact' medium, they will wear a little more with every play – and this can be particularly worrisome if the LP is a long-deleted one. In my younger days, I used to dub newly-acquired vinyl LPs onto good-quality cassettes. The LPs would then be stored carefully, away from dust and the high temperatures that could cause warps.

If the tape wore out, or got damaged, I simply dug out the relevant LP and made another copy. And such occurrences weren't as irregular as you might expect; cassettes were useful for in-car playback and, of course, the Walkman – neither of which are predictable environments. The record industry would, no doubt, have wanted me to buy the pre-recorded cassettes of these albums.

My own recordings sounded far better than the official product, though, which is hardly surprising given that the commercial efforts were duplicated at high speed onto tape of questionable quality. In any case, why should I have to swell their

coffers when I already had the LPs?

But despite the efforts of the aforementioned Audio-Technica and cumbersome ghetto blasters with inbuilt turntables, vinyl was never really a practical mobile-music option. CD, if you could afford it, was much better suited to that sort of thing. Of course, those cassettes and tapes have since spooled into history. Portable listening is now done with digital players and unless you're prepared to duplicate your vinyl on CD or hi-res download, then you'll need to convert it into compatible digital form.

I can sympathise with Noel's observations that 16-bit audio from cheap consumer ADCs, as fitted to that Audio-Technica turntable, can impart a rather coarse character. In other words, the difference between source and recording can be obvious. Far better to use 24-bit resolution – if your digitisation gear and/or players support it. For the final result, always use lossless FLAC rather than lossy MP3s; storage capacity is cheap nowadays!

That said, I'm no fan of unnecessary waste; FLAC gives you a useful halving of file-size relative to uncompressed PCM WAV (or, for Mac users, AIFF) files. And in my experience, there is no audible difference between FLAC and the original PCM file – in contrast, even high-bitrate MP3s can demonstrate a distinct sonic deterioration.

You may own audiophile LPs, in which the source and lathe were operated at half-speed. They sound cleaner, more detailed and better in terms of rhythmic drive. The latter can be laid at the door of a superior transient response (the improvement is particularly noticeable with 'fast' percussive sounds). After all, the cutting-head's stylus doesn't have to accelerate as quickly. So if you want the best possible transfer,

why not consider digitising your LPs at half-speed? To do this with LPs, you'll need a turntable capable of operating at 16.5rpm (like the Thorens TD125 or Goldring GL75) or a deck that can be modified. Next is a 'straight' preamplifier – i.e. one without RIAA equalisation. At a pinch, an old cassette deck's microphone inputs will do.

Naturally, you'll also need a USB ADC capable of working from a line-level source and a computer to use it with. Furutech and Luxman, amongst others, sell USB DACs with handy inbuilt 24-bit ADCs. The idea is to play the record at half-speed, and record it – unequalised – using software like the versatile Audacity.

I recommend using 24-bit resolution and a sampling rate of 48kHz. Export the file to a WAV, and then edit the 'header' of the file so that playback – or editing software – is essentially 'fooled' into thinking that your recording has a sampling rate of 96kHz. The (Windows) software I tried for this is the free Header Investigator (from <http://www.railjonrogut.com/HeaderInvestigator.htm>).

If you attempt to play the file, it will now do so at double the rate of the original recording – in other words, the correct speed. But it will sound very 'toppy' and lacking in bass, owing to the lack of RIAA correction. This is where Audacity comes in – you'll be able to apply the equalisation curve in software so that the correct tonal balance is achieved. A starting point is the relevant Audacity wiki page (<http://wiki.audacityteam.org/wiki/EQCurvesDownload>). Be prepared to play around with the settings, though. Initial 'rough-and-ready' experiments have been promising, the resulting sound exhibiting some clear improvements relative to direct 'real-time' transfer. ●

# Dave Strikes a Chord

**Chord Electronics' new Dave DAC/pre-amp/headphone amplifier is a tour-de-force of digital engineering, says Jon Myles.**

**C**hord's recently released Dave DAC has to be one of the most highly-anticipated standalone digital-to-analogue converters to come around in a long time. First announced to much fanfare at last year's Munich High-End Show enthusiasts have been waiting for it with bated breath ever since.

Not surprising, really, as the Kent-based company has its own take on getting the best out of digital audio. That means it eschews the usual path of buying in DAC chips from other manufacturers and instead uses bespoke designs from renowned digital guru Rob Watts.

These are based around an FPGA (field programmable gate array) chip that can be loaded with Chord's own proprietary software to achieve the best possible sound. Allied to this is the Watts Time Aligned (WTA) filter which has formed the basis of Chord's

digital products for the past 15 years but has been steadily improved and upgraded over that time.

Put more simply, instead of buying an off-the-shelf DAC chip and designing a circuit around it (as most manufacturers at all sorts of price levels do) Chord's approach is to take control of all elements themselves - especially the all-important conversion of digital to analogue.

Dave is the most sophisticated example of this philosophy they have ever produced. The FPGA chip, for example, is the LX 75 version of Xilinx's Spartan-6 - which is said to have around ten times the processing power of that used in Chord's previous QBD76

flagship.

This, in turn, allows for the most advanced iteration of the WTA filter - with 164000 taps making use of 166 DSF taps.

It's all neady stuff and allows Dave to accept just about any size of digital file you currently have or may purchase in the future. The four electrical S/PDIF co-axial inputs on the rear accept sample rates up to 384kHz, while the Toslink handles up to 96kHz and USB can process PCM at 768kHz. The latter may not sound very useful at the moment - but who knows in the future?

It will also process DSD64, 128, 256 and 512, plus there's a (rarely provided on domestic equipment) AES/





**The raised rotary dial in the centre controls volume when the Chord is used in pre-amp mode while the four buttons around it control input and the various selection settings.**

EBU balanced digital input.

Alongside all these inputs there are single-ended and balanced outputs - which both provide a healthy voltage (see Measured Performance for more information). There's also what are described as 2x ultra-high-speed coax 768kHz dual-data mode connectors which Chord says are for use with forthcoming but as yet unannounced products. Intriguing, to say the least.

Dave is not simply a digital-to-analogue convertor, though. It also contains a volume control, meaning you can plug it straight into a power amplifier if you fancy, and there is a headphone circuit with a 6.3mm jack on the front.

The styling of the whole unit is typical Chord - a superbly-finished brushed aluminium casing which is both weighty and immaculately constructed. At the centre is a large display window which serves to let you see what settings you have selected, plus incoming sample rate. You can dial through four different displays, one of which is basic black and white, two others which are rather more colourful and a final one which goes off after 30 seconds. Personally I preferred the basic one for its pure simplicity.

The slanted front panel also contains four control buttons for navigation around menu options as well as the volume button if the Dave is being used as a pre-amp.

A supplied remote control replicates all these functions and is, frankly, much easier to use. The reason? Chord has decided not to label any of the buttons (nor the inputs on the rear, by the way) so a thorough read of the instruction book is essential to find your way around.

Other facilities include a switch to select positive or negative phase

depending on your system and tastes, a high-frequency filter to reduce noise plus a four-level Crossfeed system on the headphone output which blends information between the left and right channels to move the presentation away from the typical stark left/right in-your-head balance of most headphones to present something closer to that of a traditional stereo loudspeaker set-up. You can even configure Dave to prioritise its processing for PCM or DSD signals depending which type of file you are playing. Not surprisingly, it does sound better when this is correctly dialled-in.

Chord rendered this instrument - one that is notoriously difficult to recreate realistically through digital equipment.

But using Dave in its pre-amp mode driving a pair of Quad's powerful QMP monoblocks with Martin Logan ElectroMotion ESL X electrostatics there was a body, depth and timbre to the piano notes. Jarrett's complicated syncopation and his changes of pressure on the keys could be made out.

Soundstaging was precise, layered and I was able to pick apart tracks with ease. The various elements of Led Zeppelin's dense 'When The



**There are four different options for the screen display on the front of Dave. Here is one of the more colourful ones - but the basic black and white version is easier to read.**

As you can probably guess, all this digital engineering expertise and build quality doesn't come cheap, Chord Dave costing £7950 - although anyone looking at its specifications and distinctive styling may well guess at a much higher price.

Oh, and as for the name - if you didn't know it is an acronym for Digital to Analogue Veritas in Extremis. Meaning, in Chord's own words, this is the closest you can get to hearing the true digital signal from your files.

So, is it...?

## SOUND QUALITY

That Dave acronym might sound like a piece of marketing waffle but the Latin word Veritas (meaning truth) is a pretty accurate description of the new Chord.

It only takes a few minutes to realise Dave has a remarkable ability to convey music with timing, realism and exceptional detail, giving a truly lifelike presentation. This holds true whether you are playing standard Red Book CD or feeding it some of your higher-resolution files.

Playing Keith Jarrett's Paris/London: Testament, I was immediately impressed at just how well the

Levee Breaks' (24/96) were laid out before me - guitar, drums, bass vocals and wailing harmonica each occupying their own space. But it's not done in a clinical manner. Instead, Dave propels the track along with all verve it deserves, despite the slightly laid-back demeanour of the Quads.

It's a quality I kept noting throughout the listening period; the Chord always sounds incredibly fast and meaty. It's undoubtedly a factor of the amount of detail it extracts from files but also the fact that its tonal balance is even-handed with no element of the frequency spectrum emphasised over another. Hence there's no sluggish bass, no searing treble and a deliciously open and clear midband.

Those qualities come through no matter what the source material - be it CD, high-res of whatever flavour or DSD. Indeed Michael Tilson Thomas and the San Francisco Symphony's DSD recording of 'Mahler's No 1' sounded better than I'd ever heard it before. Not only did the Chord deliver the crescendos with complete authority,



**The supplied Chord system remote is probably the best way to control Dave given its comprehensive nature.**

## Summer Clearance

	Retail	Clearance
Bryston 28B SST2 1000W amplifiers (pair)	£19,000	£7,599
Burson Audio Conductor and Timekeeper	£3,449	£2,299
Burson Audio Conductor SL9018	£1,199	£999
Chord Chordette Maxx amplifier	£989	£799
Cyrus 8, DAC QX (Quartz Silver)	£1,970	£1,549
Cyrus DAC XP Signature (Black)	£2,995	£2,249
Devialet 120	£3,990	£2,899
Devialet 200	£5,490	£4,399
Devialet 250 Companion	£7,990	£5,499
Focal Diablo Utopia and stands (White Carrara)	£9,898	£6,499
Focal Scala Utopia V2 (Black Lacquer)	£21,399	£12,749
Focal Stella Utopia Reference (Imperial Red)	£65,000	£32,499
HRT iStreamer	£209	£149
KEF R100 (Gloss White)	£600	£449
KEF R300 (Gloss Black)	£1,000	£749
KEF R500 (Walnut)	£1,500	£1,149
KEF R700 (Rosewood)	£2,000	£1,549
KEF R900 (Gloss White)	£2,750	£2,099
Linn Aktiv System (3xAV5140s with LK100s)	£4,500	£999
Linn Akubarik Exakt speakers (Walnut)	£23,000	£14,499
Linn Akurate 212 (Rosenut)	£4,380	£3,299
Mark Levinson No32 Reference Preamp	£15,000	£7,499
Naim DAC V1	£1,390	£1,049
Naim NAC552 and NAPS552 DR	£19,755	£13,999
Naim Nait XS2	£1,770	£1,299
Naim NAP500	£20,080	£14,249
Naim NDS	£7,280	£5,099
Naim Uniti 2	£3,140	£2,349
Naim Unitilite (with DAB/FM tuner)	£2,055	£1,549
PMC Fact 12 (Tiger Ebony)	£12,995	£9,749
PMC Fact 8 (Graphite Poplar)	£6,495	£4,849
PMC Twenty 21 (Oak)	£1,390	£1,049
PMC Twenty 24 (Diamond Black)	£3,200	£2,399
PMC Twenty 26 (Oak)	£5,350	£3,999
Proac Tablette Anniversary (Ebony)	£1,425	£1,049
Quad Elite CDX CD Player	£1,199	£849
Raidho D1 (Walnut Burl) and stands	£15,125	£10,599
Raidho X1 (Gloss White) and stands	£4,485	£3,349
Sennheiser IE800 headphones	£599	£499
Sim2 HT5000 projector	£42,500	£7,499
Sonus Faber Olympica II (Graphite)	£6,398	£5,049
Sonus Faber Olympica III (Walnut)	£8,998	£6,799
Sonus Faber Venere 1.5 and stands (Gloss Black)	£1,298	£999
Spendor D1 (Dark Ebony)	£1,995	£1,499
Spendor D7 (Spendor Dark)	£4,295	£3,199
Torus RM16 Power conditioner	£7,900	£1,999
Wilson Benesch Square 2 Mk2 (Gloss Walnut)	£2,950	£1,499

We are having our annual summer clearance sale, where we have great prices on ex-demo and customer trade-in stock from the last year. You can help us make space for the amazing new models and brands we are bringing in.

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**A full set of digital inputs on the rear plus RCA and balanced outputs. Interestingly, on the right there are also four co-axial digital outputs which are said to be for use with forthcoming (but as yet unannounced) Chord products.**

it also switched between the quiet and loud sections with total fluidity and assurance. In this it becomes one of a select few DACs around that I can honestly say simply lets the music breathe.

Turning the digital pre-amplifier off - hold down the left and right buttons on the top to do this - and using Dave as a DAC only into Icon Audio's new ST-30se single-ended valve amplifier (see review this issue) showed a subtle difference between the pre-amp sections of the two products. Via this method the sound was creamier and richer with a subtle extra warmth. The guitar on Bruce Springsteen's 'Atlantic City', for example, had a little less bite than

through the Chord's own pre-amp section but was rather silkier. There is no right or wrong here - just what you may prefer.

Switching to headphone mode it was obvious this section is no mere afterthought on Chord's part. Plug in a set of 'phones and the main output is automatically muted while the Crossfeed function can be accessed from the remote control, or the buttons on the unit itself.

I'm not usually a fan of this sort of digital signal processing but on Dave, Chord seem to have got it just about right. Playing John Coltrane's live 'One Down, One Up: Live At The Half Note' and moving the Crossfeed setting up to three really did get rid of some of

the harsh channel separation in this recording and bring a much more lifelike out-of-the-head experience through a pair of AKG 'phones.

But that's the way of the Chord Dave DAC/digital pre-amp/headphone amplifier - whatever you ask it to do it performs in a way only a select few products can match.

**CONCLUSION**

The Chord Dave is a remarkable piece of design that quite probably sets the benchmark for just what a DAC is capable of at present. From the quality of its handcrafted casework to the sheer engineering prowess of the proprietary electronics inside this is quite simply an outstanding product. Yes, £7950 is a decent amount of cash in anyone's language but if you can afford it you'd be daft not to try it out. Even if you can't, it's still worth listening to for an indication of just how good state-of-the-art digital replay can be nowadays. And of course Chord Electronics have less expensive versions...

**MEASURED PERFORMANCE**

Dynamic range is a crucial metric for DACs and - worldwide - there are only two DAC manufacturers, ESS of the USA and Chord Electronics of the UK, conspicuously ahead in the game. Where the best DACs today can manage 119dB or so, ESS DACs start at 122dB and reach 133dB.

Chord Electronics reply with Dave, that managed a massive 129dB under measurement - ahead of most else. Its unusually high dynamic range value is a clear indicator of its advanced nature.

This value was obtained at +3dB on the volume control, which avoids output overload occurring with a full level (0dB) digital signal, and was via AES/EBU balanced digital input and the balanced analogue XLR output. The unbalanced phono-socket output, that is usually derived from the balanced line, was just -1.5dB worse, with digital input via optical.

Dave's designer, Rob Watts, insists distortion is more important than dynamic range (which sums distortion and noise). In this area Dave was all but distortion free with 24bit, measuring 0.0015% our analysis shows, at -60dB - lower than all else. With CD it was 0.21%, the usual figure that is a measure of 16bit quantisation noise, not convertor linearity. So Dave has less distortion than all other DACs.

Output from XLR was a massive 12V, and from the unbalanced phono sockets 6V - 3x higher than usual. The headphone socket gave 6V output, more than enough for any headphone.

The volume control of Dave is unusual in controlling level early in the signal chain. Turning it up too far will cause overload on musical peaks, but it

also improves effective dynamic range. Chord have given it a 0dB safety value that avoids overload, but measurement showed +3dB can be used - and this setting was used for all measurements. Far more gain is available - up to +19dB, but overload is likely to become obvious, except when playing very low level recordings.

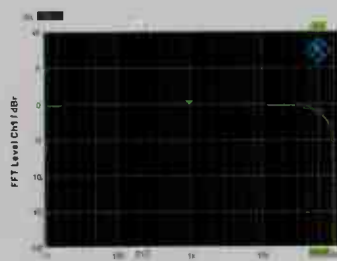
Frequency response measured flat to 55kHz (-1dB) with a 192kHz sample rate signal, our analysis shows, filter out. With the filter in output starts to fall above 22kHz, again with a 192kHz sample rate signal. So the filter will barely be audible in effect, serving to reduce supersonics and likely improve impulse response. With CD the filter has little effect.

The optical inputs will not accept sample rates above 96kHz, falling silent with any higher input, so Astell&Kern players will not work with Dave when playing 176.4k or 192k files - disappointing in such an expensive item.

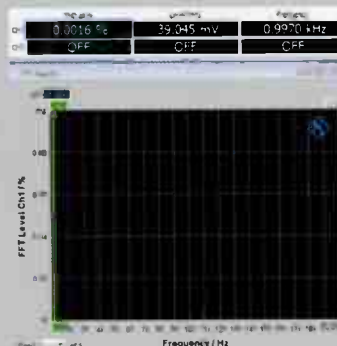
The USB input worked up to 768kHz sample rate with Mac's El Capitan operating system (OSX-10.11.3) and dynamic range via USB was also 129dB, so Dave is not noisy through USB.

Measurement showed Dave is one of the world's most advanced DACs. A low 96kHz sample rate limit via optical is the only limitation. NK

**FREQUENCY RESPONSE**



**DISTORTION**



**CHORD DAVE**  
£7950



**OUTSTANDING - amongst the best**

**VERDICT**

A veritable tour-de-force of digital engineering - has the ability to transform your CDs and high-resolution files.

**FOR**

- exceptional sound quality
- rhythmic ability
- superb build
- comprehensive features

**AGAINST:**

- controls take a little getting used to

Chord Electronics  
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www.chordelectronics.co.uk

We do not sell these products. It is for your information only.

# WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

## TURNTABLES

**EAT FORTE** 2009 £12,500  
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



**FUNK FIRM VECTOR II** 2009 £860  
Innovative engineering gives a nimble, pacey and musical sound that's one of the best at the price.

**REGA P2** 2008 £300  
Excellent value for money engineering, easy set up and fine sound.

**MCINTOSH MT10** 2008 £8,995  
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

**REGA P3-24** 2008 £405  
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

**ACOUSTIC SOLID ONE** 2007 £4,050  
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

**AVID VOLVERE SEQUEL** 2007 £4,600  
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

**MICHELL GYRODEC SE** 2005 £1,115  
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

**MARANTZ TT-15S1** 2005 £1,299  
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound/plug and play package at this price point.

**MICHELL TECNDDEC** 2003 £579  
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



**MICHELL ORBE** 1995 £2,500  
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

**SME MODEL 10A** 1995 £4,700  
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

**LINN AXIS** 1987 £253  
Cut-price version of the Sondek with LVX arm. Elegant and decently performing package. Later version with Akito tonearm better.

**TECHNICS SL-P1200** 1987 £800  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

**ROKSAN XERXES** 1984 £550  
Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a dubious used buy.

**DUAL CS505** 1982 £75  
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

**MICHELL GYRODEC** 1981 £599  
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

**TOWNSHEND ROCK** 1979 £ N/A  
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**MARANTZ TT1000** 1978 £ N/A  
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



**REGA PLANAR 3** 1978 £79  
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

**SONY PS-B80** 1978 £800  
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarily complicated and with no spares support - buy with caution!

**TRID LO-7D** 1978 £600  
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**ADC ACCUTRAC 4000** 1976 £300  
Bonkers 1970s direct drive that uses an infra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

**PIONEER PLC-590** 1976 £600  
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

**PIONEER PL12D** 1973 £36  
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



**TECHNICS SP10** 1973 £400  
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**LINN SONDEK LP12** 1973 £86  
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price

**ARISTON RD11S** 1972 £94  
Modern evolution of Thorens' original belt drive paradigm. Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

**GOLDRING LENCED GL75** 1970 £15.6S  
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

**GARRARD 301/401** 1953 £19  
Tremendously strong and articulate with only a veiled treble to let it down.



**THORENS TD124** 1959 £ N/A  
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass

## TO NEARMS

**REGA RB251** 2009 £136  
Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.

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

**AUDIO ORIGAMI PU7** 2007 £1,300  
The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.



**GRAHAM PHANTOM** 2006 £3,160  
Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

**TRI-PLANAR PRECISION** 2006 £3,600  
Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

**MICHELL TECNOARM A** 2003 £442  
Clever reworking of the Rega theme, using blasting, drilling and rewiring!

**SME 309** 1989 £767  
Mid-price SME comes complete with cost-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

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

**SME SERIES V** 1987 £2,390  
Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

**NAIM ARO** 1986 £875  
Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



**ALPHASON HR100S** 1981 £150  
First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

**SME SERIES III** 1979 £113  
Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

**TECHNICS EPA-501** 1979 £ N/A  
Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

**LINN ITTOK LVII** 1978 £253  
Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

**AUDIO TECHNICA AT 1120** 1978 £75  
Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

**HADCOCK GH228** 1976 £46  
Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.

**ACOS LUSTRE GST-1** 1975 £46  
The archetypal S-shaped seventies arm; good, propulsive and involving sound in its day, but ragged and undynamic now.

**SME 3009** 1959 £18  
Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

## PHONO STAGES

**CREEK OBH-8 SE** 1996 £180  
Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

**MICHELL ISO** 1988 £ N/A  
This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



**LINN LINNK** 1984 £149  
Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

## INTEGRATED AMPLIFIERS

**NAIM NAIT XS** 2009 £1,250  
With much of the sound of the Supremat at half the price, this is powerful, articulate and smooth beyond class expectations.

**MUSICAL FIDELITY PRIMO** 2009 £7,900  
Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

**SUGDEN A21A S2** 2008 £1,469  
Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

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

**CAMBRIDGE 840A V2** 2007 £750  
Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

**SUGDEN IA4** 2007 £3,650  
Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

**NUFORCE P-9** 2007 £2,200  
Impressive two box preamp with superb resolution and an engaging sound.

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

**AUDIOLAB 8000S** 2006 £400  
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, powerful and tidy sound.

**MCINTOSH MA6800** 1995 £3735  
Effortlessly sweet, strong and powerful with seminal styling to match.

**DELTEC** 1987 £1900  
Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

**EXPOSURE VII/VIII** 1985 £625  
Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



**AUDIOLAB 8000A** 1985 £495  
Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

**VTL MINIMAL/50W MONOBLOCK** 1985 £1,300  
Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

**MUSICAL FIDELITY A1** 1985 £350  
Beguiling Class A integrated with exquisite styling. Questionable reliability.

**MISSION CYRUS 2** 1984 £299  
Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



**NAIM NAIT** 1984 £350  
Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

**CREEK CAS4040** 1983 £150  
More musical than any budget amp before it; CAS4140 loses tone controls, gains grip

**MYST TMA3** 1983 £300  
Madcap eighties minimalism, but a strong and tight performer all the same.

**ROTEL RA-820BX** 1983 £139  
Lively and clean budget integrated that arguably started the move to minimalism.

**NAD 3020** 1979 £69  
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

**ROGERS A75** 1978 £220  
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

**A&R A60** 1977 £115  
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



**SUGDEN C51/P51** 1976 £130  
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

**SUGDEN A21** 1969 £ N/A  
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**ROGERS CADET III** 1965 £34  
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves

**CHAPMAN 305** 1960 £40  
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

**POWER AMPLIFIERS**

**ELECTROCOMPANET NEMO** 2009 £4,995 (EACH)

Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

**NUFORCE REFERENCE 9SE V2** 2006 £1,750  
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

**QUAD II-80** 2005 £6,000 PER PAIR

Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



**QUAD 909** 2001 £900  
Current-dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same.

**NAIM NAP 500** 2000 £17,950  
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

**MARANTZ MODEL 9** 1997 £8000  
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

**MICHELL ALECTO** 1997 £1989  
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



**MUSICAL FIDELITY XA200** 1996 £1000  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

**PIONEER M-73** 1988 £1,200  
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class B operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

**KRELL KMA100 II** 1987 £5,750  
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

**RADFORD STA25 RENAISSANCE** 1986 £977  
This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

**QUAD 405** 1978 £115  
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

**HH ELECTRONICS TPA-50D AMPLIFIERS** 1973 £110  
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain

**LECSON AP1** 1973 £ N/A  
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

**QUAD 303** 1968 £55  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**LEAK STEREO 20** 1958 £31  
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



**LEAK STEREO 60** 1958 £N/A  
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

**QUAD II** 1952 £22  
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly



**LEAK POINT ONE, TL10, TL12.1, TL12 PLUS** 1949 £28  
Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

**PRE AMPLIFIERS**

**AUDIOLAB 8000C** 1991 £499  
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



**CROFT MICRO** 1986 £150  
Budget valve pre-amp with exceptionally transparent performance.

**CONRAD JOHNSON MOTIV MC-8** 1986 £2,500  
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a spry, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

**AUDIO RESEARCH SP-8** 1982 £1,400  
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

**LINN LK-1** 1986 £499  
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

**NAIM NAC 32.5** 1978 £ N/A  
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**LECSON AC-1** 1973 £ N/A  
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

**QUAD 33** 1968 £43  
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



**LEAK POINT ONE STEREO** 1958 £ N/A  
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest-fil!



**QUAD 22** 1958 £25  
The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for anacrophiles only.

**LOUDSPEAKERS**

**WHARFEDALE DIAMOND 10.3** 2010 £290  
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



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

**USHER BE-10** 2009 £10,500  
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



**SPENDOR A5** 2009 £1,695  
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

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



**MARTIN LOGAN SOURCE** 2008 £1,600  
Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

**PMC OB11** 2008 £2,950  
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**ISOPHON GALILEO** 2007 £2,100  
Big standmounters that really grip the music and offer quite startling dynamics and grip.

**ONE THING AUDIO ESL57** 2007 £1,450  
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

**MOWGAN AUDIO MABON** 2007 £3,995  
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

**B&W BEOLAB 9** 2007 £5,000  
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



**ISOPHON CASSIANO** 2007 £12,900  
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

**B&W 686** 2007 £299  
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

**QUAO ESL-2905** 2006 £5,995  
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

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



**REVOLVER CYGNIS** 2006 £5,999  
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

**USHER BE-718** 2007 £1,600  
Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

**USHER S-520** 2006 £350  
Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

**ACOUSTIC ENERGY AE1 CLASSIC** 2006 £845  
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



**MISSION X-SPACE** 1999 £499  
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

**MISSION 752** 1995 £495  
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

**TANNOY WESTMINSTER** 1985 £4500  
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



**CELESTION SL6** 1984 £350  
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...

**HEYBROOK HB1** 1982 £130  
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic



**QUAD ESL63** 1980 £1200  
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

**MISSION 770** 1980 £375  
Back in its day, it was an innovative product and one of the first of the polypropylene designs. Warm, smooth, clean and powerful sound,

**ACOUSTIC RESEARCH AR18S** 1978 £125  
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

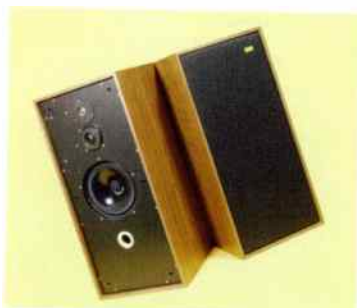
**YAMAHA NS1000** 1977 £532  
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



**JR 149** 1977 £120  
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging,

**KEF R105** 1977 £785  
Three way Bextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

**SPENDOR BC1** 1976 £240  
 Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



**IMF TLS80** 1976 £550  
 Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

**HH ELECTRONICS TPA-50D AMPLIFIERS** 1973 £110  
 Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however.

**8BC LS3/5A** 1972 £88  
 Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence.

**LEAK SANDWICH** 1961 £39 EACH  
 Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

**QUAD ESL57** 1956 £45 EACH  
 Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters.

## SYSTEMS

**MERIDIAN SOOLOOS 2.1** 2010 £6,990  
 Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers.



**NAIM UNITIQUE** 2010 £995  
 Great little half width one-box system with truly impressive sound allied to a wealth of source options.

**ARCAM SOLO MINI** 2008 £650  
 Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother.

**MERIDIAN F80** 2007 £1,500  
 Fantastically built and versatile DVD/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.

**SHANLING MC-30** 2007 £650  
 Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



**AURA NOTE PREMIER** 2007 £1,500  
 Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



**MARANTZ 'LEGEND'** 2007 £22,000  
 The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance.

**ARCAM SOLO NEO** 2006 £1,100  
 Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

**PEACHTREE AUDIO IDECCO** £1,000  
 Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



## TUNERS

**ARCAM FMJ T32** 2009 £600  
 Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



**MAGNUM DYNALAB MD-100T** 2006 £1,895  
 One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package.

**MYRYAD MXT4000** 2005 £1,000  
 Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.

**NAIM NAT03** 1993 £595  
 The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

**CREEK CAS3140** 1985 £199  
 Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

**QUAD FM4** 1983 £240  
 Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**NAD 4040** 1979 £79  
 Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.

**MARANTZ ST-8** 1978 £353  
 Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

**YAMAHA CT7000** 1977 £444  
 Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

**SONY ST-5950** 1977 £222  
 One of the first Dolby FM-equipped tuners, a format that came to nought. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics.



**ROGERS T75** 1977 £125  
 Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality.

**SANSUI TU-9900** 1976 £300  
 A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound.



**TECHNICS ST-8080** 1976 £180  
 Superb FM stage makes for a clean and smooth listen.

**REVOX B760** 1975 £520  
 The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?

**SEQUERRA MODEL 1** 1973 £1300  
 Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.

**LEAK TROUGHLINE** 1956 £25  
 Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality.

**HEADPHONE AMPLIFIERS**

**GRAHAM SLEE NOVO** 2009 £255

Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



**MUSICAL FIDELITY X-CAN V8** 2008 £350  
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

**CD PLAYER/RECORDERS**

**MUSICAL FIDELITY TRIVISTA** 2002 £4000

When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

**MARANTZ SA-1** 2000 £5,000

The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



**SONY MDS-JE555ES** 2000 £900

The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

**PIONEER PDR-555RW** 1999 £480

For a moment, this was the CD recorder to have. Clean and detailed.

**MARANTZ DR-17** 1999 £1100

Probably the best sounding CD recorder made; built like a brick with a true audiophile sound and HDCD compatibility.



**CAMBRIDGE AUDIO CD4SE** 1998 £200

A touch soft in the treble and tonally light, but outstanding in every other respect.

**SONY TCD-8 DATMAN** 1996 £599

Super clean sound makes this an amazing portable, but fragile.

**LINN KARIK III** 1995 £1775

The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**NAIM CDS** 1990 £ N/A

Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

**MARANTZ CD73** 1983 £700

A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC -super musical



**MERIDIAN 207** 1988 £995

Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

**SONY CDP-R1/DAS-R1** 1987 £3,000

Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

**CAMBRIDGE AUDIO CD1** 1986 £1500

Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



**MERIDIAN MCD** 1984 £600

The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.

**SONY CDP-701ES** 1984 £890

Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

**YAMAHA CD-X1** 1983 £340

Nicely built 16x2 machine with a very sharp and detailed sound; sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

**SONY CDP-101** 1982 £800

The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



**ANALOGUE RECORDERS**

**AIWA XD-009** 1989 £600

Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

**NAKAMICHI CR-7E** 1987 £800

The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



**SONY WM-D6C** 1985 £290

Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.

**PIONEER CTF-950** 1978 £400

Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

**YAMAHA TC-800GL** 1977 £179

Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

**SONY TC-377** 1972 £N/A

A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards

**REVOX A77** 1968 £145

The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

**COMPACT DISC TRANSPORTS**

**ESOTERIC P0** 1997 £8,000

The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

**TEAC VRDS-T1** 1994 £600

Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

**KENWOOD 9010** 1986 £600

The first discrete Jap transport was beautifully done and responds well to re-clocking.

**DACs**

**DCS ELGAR** 1997 £8500

Extremely open and natural performer, albeit extremely pricey - superb.

**DPA LITTLE BIT 3** 1996 £299

Rich, clean, rhythmic and punchy sound transforms budget CD players.

**CAMBRIDGE AUDIO DAC MAGIC** 1995 £99

Good value upgrade for budget CD players with extensive facilities and detailed sonics.

**PINK TRIANGLE DACAPO** 1993 £ N/A

Exquisite; the warmest and most lyrical 16bit digital audio we have ever heard.

**QED DIGIT** 1991 £90

Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**CABLES**

**MISSING LINK CRYO REFERENCE** 2008

£495/0.5M

High end' interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

**TECHLINK WIRES XS** 2007 £20

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

**VDH ULTIMATE THE FIRST** 2004 £250

Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



**WIREWORLD OASIS 5** 2003 £99/M

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

**TCI CONSTRICTOR 13A-6 BLOCK** 2003 £120

Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.

# vinyl section

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Paul Rigby looks at what lies within this extensive new release.

### SOUNDBYTES : ELUSIVE AUDIO ACRYSS MAT AND ISOLATION FEET 93

#### THE MELVINS HOUDINI 91

A little known but seminal Grunge band from the US, by Paul Rigby.

#### JOHN FOXX CATHEDRAL OCEANS 98

Paul Rigby looks at ambient music from ex-Ultravox front man.

### CRAZY HORSE

The band's fourth album, 1978's 'Crazy Moon' (*Dust Bug; www.dustbugrecords.com*) with Neil Young

appearing on guitar for five of the eleven tracks (you can hear his then new 'Whizzer' distortion pedal in action) and the addition of Frank

Sampedro, replacing the late Danny Whitten plus more than the usual songwriting contributions from Billy Talbot and Ralph Molina. The band's first LP in six years, it is a return to form full of easy rock vibes, attractive harmonies and raunchy Young guitar.



## news

### TIME TO ROCK

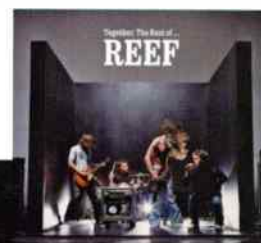
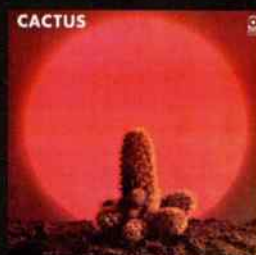
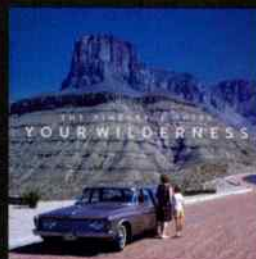
We begin this column in a high energy frame of mind with The Pineapple Thief's 'Your Wilderness' (*Kscope; kscipemusic.com*) and a return to their prog style, backed by the critical, extended musicianship of Gavin Harrison (Porcupine Tree/King Crimson) plus Supertramp's John Halliwell on clarinet. Despite the monotone-styled songs, the inventive instrumental sequences add much needed life and lift.

Now a bunch of releases from Music on Vinyl ([www.musiconvinyl.com](http://www.musiconvinyl.com)). The Allman Brothers' 'Brothers of the Road' (1981) has been reissued. Bit too glossy? Pop-like? Damp squib?

The highlight of the bunch is Cactus' self-titled 1970 debut, a supergroup of sorts featuring members of Vanilla Fudge, Detroit Wheels and Amboy Dukes. A short-lived project but still one of the best hard rock albums of the seventies.

Jefferson Airplane side project, Hot Tuna (originally Hot S\*\*t), via Jack Casady and Jorma Kaukonen. 'Pair of dice Found' is a later, 1990, release designed to 'go commercial'. It failed miserably as it ripped out the band's very soul.

Also look out for Reef's 2003 release, 'Together. The Best of...' (but a compilation of just two albums...why?); Stevie Ray Vaughan's 1992 release 'In the Beginning', when he was just Stevie Vaughan. A raw, primitive, unpolished LP for fans only; Bush's 'The Science of Things' (1999) is sincere but, with few hooks, offers little impact; while the Little River Band's 1975 debut offers a Doobie Brothers-like harmonic presentation with a suite of enjoyable rock songs fronted by 'It's A Long Way There'.



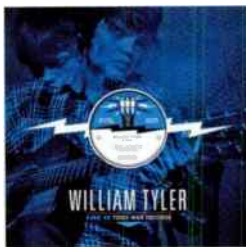


## LEFT FIELD

Moving towards the avant-garde is Painkiller's 'Execution Ground' (*Karl; [www.karlrecords.net](http://www.karlrecords.net)*), featuring John Zorn, Bill Laswell and Mick Harris that follows sonic extremities, reverb-laden percussion, jazz improv and industrial constructions.

Ranging from primitive percussive creations ('LI') to electronic guitar explorations ('A Constant') to pseudo hardcore guitar blues ('The Train I Ride'). Paul Wirkus' 'Carmen et Error' (*Edition Beides; [paulwirkus.bandcamp.com](http://paulwirkus.bandcamp.com)*) is more String Journey than String Theory.

Finally, Bader Motor's 'Dreidreidrei' (*Les Disques en Rotin; [disques.rotin.free.fr](http://disques.rotin.free.fr)*) offers a modern day twist on the classic krautrock sound, adding insistent beats, groove-laden/reverb drench guitar with fractured vocal flavours.



## THIRD MAN

Three from Jack White's label (*[thirdmanrecords.com](http://thirdmanrecords.com)*) includes three 'direct to disc' live cuts from its 'Live At Third Man Records' series. The first is via Coupler who offers a repetitive techno beat underlying a slow moving and evolving digital flow of soundscape colours, varying in tone and mood.

William Tyler's guitar skills are blissful. From the John Fahey-esque picking of Missionary Ridge to a more complex, layered arrangement of the same heard on Going Clear to the guitar folk of Tears and Saints. Beautiful.

Finally, Ultimate Painting or James Hoare of Veronica Falls and Jack Cooper of Mazes. Two relaxed, easy guitarists offering a simple, straightforward and rolling arrangement.

## ...AND FINALLY

Layla McCalla does lovely things with and to a cello. Her 'A Day For The Hunter, A Day For The Prey' (*Jazz Village; [jazzvillagemusic.com](http://jazzvillagemusic.com)*) is an evocative modern vocal blues arrangement with a crossover jazz/classical attitude.

Lola Cole's 'Twist Through Fire' (*Black Tigress; [www.loloacolt.com](http://www.loloacolt.com)*) combines Floyd-esque psychedelia, swamp rock sleaze and drunken indie rock.

Dekatron IV's self-titled underground electronic LP (*Geometrik; [www.geometrikrecords.com](http://www.geometrikrecords.com)*) is a multi-layered, soundscape easy, busy affair that reflects classic creations of the seventies and eighties.

Rival Sons' 'Hollow Bones' (*Earache; [www.earache.com](http://www.earache.com)*) is a fifth album by the American hard rock outfit. Tightly written, riff heavy with a blues veneer.

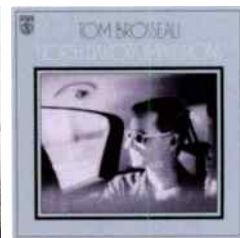
Indie folk man from North Dakota, Tom Brousseau's 'North Dakota Impression' (*Crossbill; [www.crossbillrecords.com](http://www.crossbillrecords.com)*) infuses his high toned pure vocal delivery with an old time bluegrass foundation. Strangely addictive.

Carina Round's 'Derange To Divine' (*Dehisce; [www.carinaround.com](http://www.carinaround.com)*) is a fifteen year retrospective compilation with a touch of the 4ADs about it. Bit of indie ethereal and orchestral filigree plugs into a dream state.

## SCOTT WALKER

'The Childhood of a Leader' (4AD; [www.4ad.com](http://www.4ad.com)) is an original soundtrack about a fictional, nine-year old, dictator. Walker's score is ambitious, innovative, complex, brutal, romantic, uncompromising and wholly brilliant.

When the music has finished you will realise that you are tense, expectant, wary and most probably perspiring a bit. Hear it attached to the movie and it makes more sense, I have to say, while it forges an umbilical chord with the moving images, enlarging the film scope and size. As it should do. This is not a five minute side project lash up. Walker has poured himself into it.



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# Pink Floyd's Mortal Remains

**The subject of a major new exhibition at the Victoria and Albert museum, a vinyl reissue campaign and an impressive rarities-based box set, Paul Rigby copes with a Pink tsunami.**

**P**ink Floyd have launched a strategic assault on the music market with a three-pronged attack that will run for the rest of this year and well into 2017. The first prong is already underway. That is, the group's reissue of their remastered discography on heavyweight vinyl. The first batch of vinyl ('The Piper at the Gates of Dawn', 'A Saucerful Of Secrets', 'More' and 'Ummagumma') has already been released into retail and we are waiting for the second batch ('Atom Heart Mother', 'Meddle'

and 'Obscured By Clouds') towards the run-up to Christmas.

Next up is a major exhibition at London's Victoria and Albert Museum. The first major international retrospective of Pink Floyd that has been created to mark 50 years since the band released their first single, 'Arnold Layne'.

Officially called, 'The Pink Floyd Exhibition: Their Mortal Remains' the museum calls it, "...an immersive, multi-sensory and theatrical journey through Pink Floyd's extraordinary world." What we know is that the exhibition will chronicle the music, iconic visuals and staging of the band, from the underground psychedelic scene in 1960s London to the present day, illustrating their use of special effects, sonic experimentation, powerful imagery and social commentary. Apparently, all of the remaining members of the band have collaborated on this event.

It will feature more than 350 objects and artefacts including never-before-seen material such as set and construction pieces from some of Pink Floyd's album covers and stage performances, instruments, music technology, original designs,

architectural drawings, handwritten lyrics and psychedelic prints and posters.

At the exhibition, visitors will have the opportunity to experience never-before-seen Pink Floyd concert footage and a custom-designed laser light show.

The exhibition is curated at the V&A by a team led by Victoria Broackes, alongside Aubrey 'Po' Powell of Hipgnosis, the Creative Director of Pink Floyd, and Paula Stainton.

Before that event opens its doors, though, a more immediate matter is almost at hand. 'The Early Years 1965-1972' is an enormous multi-format box set. Spanning twenty-seven discs (twelve and a half hours of audio) and seven individual book-style packages, the



*Floyd invade the Victoria & Albert Museum, London with their airborne pig.*



**V&A COO Tim Reeve, Pink Floyd's Nick Mason, V&A Director Martin Roth, Exhibition Curator Victoria Broackes, Iconic Entertainment Studios Promoter Michael Cohl, outside the Victoria & Albert museum.**

price will be an equally enormous £360 and you can buy it from 11 November 2016 from all the usual retail outlets, plus Pink Floyd's own site ([www.pinkfloyd.com](http://www.pinkfloyd.com)) where you can also purchase accompanying T-Shirts and mugs in multiple colours.

Meanwhile, 'The Pink Floyd Exhibition: Their Mortal Remains' opens on 13 May 2017 for 20 weeks. Tickets are available now and the museum is recommending that you book a ticket as soon as possible because of the expected demand. Admission will be £20 (Monday-Friday), £24 (Saturday-Sunday) with concessions available. V&A Members go free. Tickets are available in person at the V&A, online at [vam.ac.uk/pinkfloyd](http://vam.ac.uk/pinkfloyd) or by calling 0800 912 6961 (booking fee applies). You can also approach the museum's ticketing partners LOVETheatre, Ticketmaster, See Tickets and Encore.



**Pink Floyd before the advent of colour photography.**



**The new box set features their early years from 1965-1972, when supported by a lavish Bedford tour van. The rest of the group are on the left...behind the window.**

set includes unreleased demos and outtakes, BBC sessions, TV appearances and live footage from the Pink Floyd archives, "over twenty" unreleased songs (twenty-one, perhaps?) including 1967's 'Vegetable Man' and 'In the Beechwoods', plus remixed and updated versions of the music from 'Zabriskie Point'. There will be fifteen hours of video with seven hours of that being previously unreleased including rare concert performances, interviews and three feature films.

A batch of 7" singles in replica sleeves will be included plus collectable memorabilia. The



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## 1965-1967:

### CAMBRIDGE ST/ATION

Covering Syd Barrett's time with the band, from the pre-EMI demos, through the non-album hit singles and related tracks, the first volume also features previously unreleased tracks like Vegetable Man and In The Beechwoods (newly mixed), plus BBC session recordings.

### 1968: GERMINATION

This volume explores the time immediately after Syd Barrett's departure, when Pink Floyd were still writing singles and at the same time developing their own more instrumentally-based style. There are non-album single releases plus a recently discovered session at Capitol Records studios in Los Angeles, BBC sessions and other tracks.

### 1969: DRAMATIS/ATION

In 1969 Pink Floyd unveiled their two-part conceptual live production of 'The Man' and 'The Journey', covering a 24-hour period of dreaming, waking and other activities. Never released in that form, some of

the songs were used on the 'More' soundtrack and the 'Ummagumma' album.

### 1970: DEVIATION

At the end of 1969 and in the early part of 1970, Pink Floyd recorded and mixed their contribution to Michelangelo Antonioni's alternative view of US society, 'Zabriskie Point'. Three songs were released on the soundtrack album, and a further four in the expanded CD edition in 1997. Never released on one Pink Floyd disc, this volume compiles remixed and updated versions of the 'Zabriskie Point' audio material.

### 1971: REVERBER/ATION

In 1971 Pink Floyd recorded the 'Meddle' album, containing the LP side-long 'Echoes', regarded by many as laying the groundwork for 'The Dark Side Of The Moon' and, as such, is an important part of the



Pink Floyd canon. This package includes part of the original demos, when the project gestated from 'Nothing' to 'Return Of The Son Of Nothing', as well as a contemporary BBC session recording.

### 1972: OBFUSC/ATION

In 1972 Pink Floyd travelled to Hérouville, north of Paris, to record at Strawberry Studios there, based in the town's Chateau. In two weeks they wrote and recorded one of their most cohesive albums, 'Obscured By Clouds', the soundtrack to Barbet Schroeder's 'La Vallée'.

### BONUS: CONTINU/ATION

(Exclusive to 'The Early Years 1965-1972' box set)

A bonus CD/DVD/Blu-ray disc package includes a CD of early BBC radio sessions, the audio tracks from the film 'The Committee', Pink Floyd's live soundtrack to the 1969 NASA moon landings and more.



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# MELVINS

HOUDINI  
1993

It was the literary hero Gustave Flaubert who said "Be regular and orderly in your life, like a bourgeois, so that you may be violent and original in your work". He could have been describing this band, the Melvins.

Stemming from America, specifically Aberdeen, Washington (same town as the grunge legends Nirvana's Kurt Cobain and Krist Novoselic), the Melvins took the slower doom-laden rock product from Black Sabbath and revelled in it, like a hippo in mud. Heavy, slow and rather suffocating in nature, the Melvins removed the silly lyric content and the annoying guitar solos and left the rest to mature and rot right in front of your ears.

First releasing their debut back in 1987, the band was and remains prolific in their output, releasing almost an LP per year (plus EPs, side projects, solo ventures and more). The resultant work proved to be incredibly influential for later grunge outfits such as Nirvana, Soundgarden and Mudhoney (which featured the former Melvins' bassist Matt Lukin. Unfortunately, though, like most pioneers in all subjects and genres, it was this second wave of bands that grabbed all the fame and made all of the money while the Melvins have since earned themselves a steady job and a cult following who are, it has to be said, loyal to a fault.

So, who are the Melvins? The basis of the group is two people: Buzz Osborne (AKA King Buzzo who plays guitar and handles the vocals) plus Dale Crover on drums.

Often, one particular band slot is jinxed in so much as it can be a revolving door, seeing a high turnover of band members. In the Melvins' case, that slot is bass guitar. To date, the Melvins' bass has been played by the aforementioned Matt Lukin, Lori Black, the punk-rocking daughter of Shirley Temple, Mark Deutrom and Kevin Rutmanis. But that was not all. He left in 2005 to be replaced by Jared Warren from sludge-rockers Big Business.

The band is considered, politely, as "unpredictable". They can also be viewed as pranksters with a sense of humour all of their own. This can be a good thing (if you get it) or not (if you don't). Nevertheless, this album is arguably the one to go for if you are looking

for a project that represents the band's ethic in terms of the style of music, their approach to life and the downright odd and weird approach they often have towards their output.

This release was the first of a series of top-quality albums that also coincided with their brief, three-album, tenure on the major label Atlantic: forged with a little help from their biggest fan, Kurt Cobain.

Cobain, in fact, co-produced this album although, as Osborne has commented, "...Kurt wasn't a producer. What I was looking for from Kurt was musical input, not knob-twiddling input. I was burnt-out at the time, and thought another creative collaborator would help out. But it didn't really happen. Dale [Crover, Melvins drummer] and I did most of that album ourselves".

Musical highlights from this album include the track 'Night Goat', which crawls over the floor in a slimy, sludgy fashion before it can even be bothered to raise itself towards your ears. Also listen out for 'Joan of Arc', a head nodder in extremis ditty, and 'Honey Bucket' which is a piece of pure energy, coated with thrash and doused in sludge.

Fans will delight in the new vinyl reissue of this album from Third Man Records, which appears in a gatefold sleeve. In terms of the master, I was happy to discover that the oppressive claustrophobia of the music was accompanied by space and air on the soundstage which gave the music an added dimension and, in fact, freed up the music from any possible 'default' engineering template.

That is, just because the arrangement is 'closed in', doesn't mean that the output necessarily has to be too. This gives the ear a chance to walk around and examine the songs while alerting you to subtleties in terms of vocal nuance and emphasis that might have otherwise been missed.

Percussion, which can sound like a block of bass on poor masters, has a far more organic and lively presentation here. The overall effect is to prise apart the songs to give each an intriguing suite of layers.

Look out for more Melvins releases from Third Man ([thirdmanrecords.com](http://thirdmanrecords.com)) including the 1994 LP 'Stoner Witch' and the 1996 album 'Stag'. Both are worthy follow-ups. **PR**



"The band is considered as unpredictable. They can also be viewed as pranksters with a sense of humour all of their own"

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### ELUSIVE AUDIO ACRYSS MAT £24.99 (3MM)/£29.99 (5MM)

The Elusive Audio AcrySS (EAA) offers a split medium design of a platter mat. The larger, outer section is constructed from acrylic while the centre portion is produced from stainless steel to aid precision and wear in and around the spindle hole.

I began sound testing with Nat King Cole's 'When My Sugar Walks Down The Street' from the 1974 album 'Love is Here to Stay' with an orchestral backing consisting of a lively brass section, organ solo and

plenty of low-key instruments in the rear of the mix and Origin Live's neutral sounding platter mat as a reference.

This mat is available in two thicknesses. My reference Wilson Benesch Circle turntable preferred the 3mm option but there is a 5mm version mat available too.

If you use the wrong thickness, then the VTA of your cartridge will be affected and sound quality will suffer. Of course, if your turntable, like my Circle reference, provides easy alteration of VTA then this is

less of a problem.

During play, I was impressed by the open and spacious nature of the presentation.

Cole's vocal delivery was light, airy, full of bounce and vitality but texture and nuance too. There was a period, mid-song, when his voice experienced a rare strain as he put extra emphasis into a word: the EAA picked this up easily.

Brass was smooth yet detailed, subtle guitar strums were highlighted and bass was strong without being overwhelming.

Playing the post rock of Pipedream's 1998 'Twilight Runner', the EAA tracked the deep reverb of the slow yet closely mic'd drums yet managed to maintain attention on the fragile cymbal splashes and never allowed the synth distortion to bloom unnecessarily.

The Elusive Audio AcrySS offers an expansive and airy presentation, allowing music to breath and giving a good presentation.

[Elusive Audio (search Elusive Audio on [www.ebay.co.uk](http://www.ebay.co.uk))] PR

# SOUNDBITES

### ELUSIVE AUDIO AUDIO GRADE SORBOTHANE ISOLATION FEET, SET OF FOUR: £9.85 (30 X 14MM) / £15.95 (38 X 20MM)

Four large, squishy fruit pastilles. That's what they look like, at any rate. Elusive Audio say that, unlike the competition, its Sorbothane iteration is designed for tiny impacts. Offered in two sizes, the 'feet' can be placed under any piece of equipment. According to the company, the 14mm model can support 4.5kg (set of three) and 6kg (set of four) while the larger 20mm models can support 8kg (set of three) and 11kg (set of four).

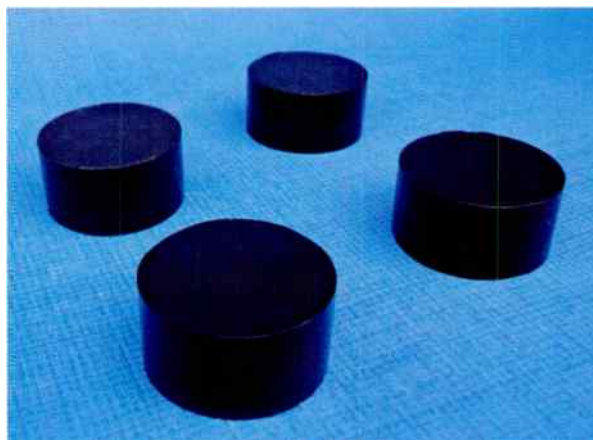
There are reports that one user currently uses the 20mm variant underneath a pair of 50kg speakers (although that is not recommended). Simple they might be but I liked the fact that each is tacky to the touch which will prevent slipping. Essential if you wish to use them underneath a turntable, as I did, placing four 14mm models under my Wilson Benesch Circle.

Playing Nat King Cole's 'When My Sugar Walks Down The Street' with its big orchestral backing, I was impressed by the reduction in noise across the soundstage.

Cole's voice sounded relaxed, rich and textured while the orchestra fronted an inky silence that made detail pop from the back of the master, allowing subtle elements such as the low key piano and guitar to range forth.

Meanwhile, on the post rock of Pipedream's 1998 track 'Twilight Runner' the slow, deep close mic'd percussion sounded portentous and powerful while the delicate treble was set apart yet fragile and precise.

Possibly the most cost effective and best value for money 'upgrade'



you can utilise to improve overall sound quality in and around your hi-fi chain, these feet are simple but brilliant.

I recommend putting them under everything you can find to reduce noise including the cat, the dog and the partner – but use them under hi-fi components for best effect!

[Elusive Audio (search Elusive Audio on [www.ebay.co.uk](http://www.ebay.co.uk))] PR



Above: Quad Artera Play, Quad Artera Stereo and Quad Z-3 Loudspeakers

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WANTED: AVI S2000 MC Reference 24bit CD player. Tel: 01275 872 777 (North Somerset)

HI-FI WORLD Magazines, January 2007 to December 2012. Total 72 copies. £25. Technoarm with mounting for Michell Orbe SE, used once, £420. Buyer collects only. Tel: 020 8590 8530

CELEF DOMESTIC II Super speakers, £60. Creek 4040 amplifier, £55. Aiwa Excellia 009 cassette deck, £250. Musical Fidelity E100 amplifier, E600 CD, E50 tuner, remotes, instructions, mint, £550. Tel: 01708 457 691

CYRUS 8 XPD QX, excellent unit. The QX DAC board is superb. Upgrading to mono's. Boxed. £750 ono. Tel: 07964 057 807

PROJECT XPRESSION II carbon fibre arm, Ortofon cartridge, 4 isolation pods kill vibration. Record cleaner, Shure pressure gauge. Selection of quality records. Just 4 hours use. £200. Tel: David 01904 863 239

WANTED: LOWTHER Super Acousta loudspeaker cabinet, drive units not really wanted. Tel: Jeff 020 8220 0380 (Barking, East London)

LINN LPI2, Origin Live D.C. motor, Conqueror arm, Ortofon 2M Black, Sharkwire Cone Feet, £900. Akai 4000 DS, tapes, £80. Revolver R45 loudspeakers, £450. Sugden A21-AL amp. Tel: 01253 782 704 or 07948 708 599

QUAD QC24 pre-amplifier, £400 ono. Quad S2 speakers, latest spec, black finish, original owner, light use only, boxed, £350 ono. Tel Richard after 5pm. 01708 386 018 (Romford)

ARCAM CD73 CD Player & T61 FM Tuner. Both as new condition with leads and remotes £120 the pair or will split Ideally collect from Sussex area Email: eadymike@gmail.com 07710256440

REVOX FOR spares or repair. B215-S, Hi-PR99-II. Working PR99-II ASC. A77-IV. B205-REM. Quad 909 II-L-2. Gamut L3+. Partington stands. Thorens TD-2030. Koetsu Red. Please call for details. Tel: 01474 326 220 (Kent)

AUDIOVECTOR M3 cherry floor standing loudspeakers (photo's available) with original packaging, £300 or offers. Email: andrewriley1957@gmail.com (East Yorkshire)

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MUSICAL FIDELITY A3.2 RDS tuner £195 Absolutely spotless, remote, original box. Kept covered and clean. Beautiful. Mike (Cheshire) imeldayates@hotmail.com 07500804700

CYRUS PSX-R, silver/grey, in excellent condition and working order, £125 ovo. B&W DM11 in first class condition and order, £45. Rogers DB101, mahogany finish, excellent condition and working order, £65. Contact Rob on 07796878504. Buyers collect from South London.

MUSICAL FIDELITY M6i integrated amplifier plus B&W 685 S2 speakers both mint condition with all packaging happy to demonstrate will split rrp £3000 - £1500. Pictures on request. Tel: 01902 884694 Email: jukey39@yahoo.co.uk

ASTINTREW 5000 plus power new boxed (£900) £395. B&W CDM2 speakers rosewood excellent £195. Astintrew 5000 power mint £325. Linn LK100 £195. Quad 306 £145. Exposure Eight £170. Tel: 01243-863371 (Bognor Regis).

WILMSLOW AUDIO Home Studio Monitors. D2905/930000 tweeter (£100). Volt BM2208 bass (£150) Crossovers separate. Offers. Used with Naim NA-IXO crossover. Boxed, manual and receipts. Mint. £250. Can Demo. (Nottingham). 01159 877 567, 07783 327 689, Email: spinkray.rs@gmail.com Instructions/Review.

FOR SALE all I owner except for last item: Arcam Alpha CD boxed £50.00 Cyrus I amplifier boxed £100.00 Mission 780 speakers in black ash with black mission stands £80.00 Will also throw in Cyrus flat speaker cable 7m pairs if all above purchased. Arcam CD 72 CD boxed £100.00 Open to reasonable offers! Pick up preferred for all, but especially Speakers & stands. Tel 07917221033 Email nigelsach42@tiscali.co.uk Items reside on the Wirral.

AUDIO RESEARCH D115 Mk2 valve power amp, 17 valves 35 kg. £1450. ATC PI dual mono power amp. Boxed 3 weeks old. ATC guaranteed. £1595. 01432 275203. mack.entrepose@talktalk.net

NEAT MOTIVE I Loudspeakers for sale Cherrywood excellent speakers, excellent sound can dem, only £600! London 07957384795

WORLD-WD88VAXLKT88 built on two chassis, power supply enclosed. Plus remote volume control excellent condition. Superb sound sacrifice £300 collect only VVWilts. Email: trevorhall510@btinternet.com

MUSICAL FIDELITY M6i integrated amplifier in silver mint condition less than 50 hours use Hence practically new with all packaging happy to demonstrate rrp £2500 - £1200. Pictures on request. Tel: 01902 884694 Email: jukey39@yahoo.co.uk

CHORD MOJO virtually unused and reason for sale, purchased 27/2/16 receipt/box available. Wanted £330 inclusive of postage RMSD to UK, tel Andy @ 07508035671 or Email: gz00@gmx.com

INSPIRE APOLLO turntable with Inspire isolation platform, outboard psu and puka weight. No arm. £350. Possible delivery. 07402299243 or email frank8bush@ntlworld.com Cardiff (South Glamorgan)

PROJECT THE Genie turntable, 'S' shaped tonearm. Ortofon OM cartridge. Mint condition, one owner. Wanted: Kef RPM1 speaker. Tel: 0204 263 5702 after 7pm. 07505 057 414 anytime.

ARCAM FMJ CD36 CD player (new factory-installed laser assembly 3 years ago) in black, vgc, £235. Musical Fidelity M1 HPAP headphone amplifier in black, as new, £225. Trichord Diablo (serial no. 0104-4185) MM/MC phonostage in silver, vgc, £325. Philips Fidelio X1 headphones (£270), barely used £115. Sennheiser HD598 headphones (£200) barely used, £80. All in original packaging. Tel/text Richard on (07772) 711432, /01494 269889 (Bucks) or Email richard.schofield@kcl.ac.uk.

# NEXT MONTH

## DECEMBER 2016 ISSUE

### LUXMAN PD-171A TURNTABLE

Luxman of Japan are renowned for glorious engineering – and that's what you can see here. Their new PD-171A belt drive turntable is beautiful to behold. But is it beautiful to hear? We are testing it right now to find out for the next issue – December 2016. Here is – potentially – a Japanese classic in the making. Find out whether it reaches that status in our next issue.

Also, we hope to bring you –

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WOODEN BULL GRIPMAT TURNTABLE MAT

FINAL F7200 EARPHONES

...and much more



This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, such as failure under review, we cannot guarantee that all products listed above will appear.

**PICK UP THE DECEMBER 2016 ISSUE OF *HI-FI WORLD* ON SALE OCTOBER 28TH 2016, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: SEE PAGE 36**



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# JOHN FOXX

## CATHEDRAL OCEANS DEMON



"This suite of ambient music builds layers but then shimmers and disappears, only to be replaced by a new flow"

**S**ome music fans will see the name John Foxx and immediately associate the figure with the early days of the group, Ultravox (or Ultravox! as was). As its original frontman, he oversaw the group's progress with a distinct post-punk flavour then left to form a solo career in 1979, which has been notable for its experimentation and exploration. His ideas might regularly take flight but they always do so with electronics as the central hub, the frame of the message or even the tools that provide his sonic palette.

Musically, Foxx never stays still for too long, transforming his style and approach on a regular basis. For a time, though, in 1995, 2003 and 2005 he looked towards ambient music as a canvas to paint as he produced three works under the Cathedral Oceans monicker. The albums, 'Cathedral Oceans I', 'Cathedral Oceans II' and 'Cathedral Oceans III' were a time to muse, contemplate and pause. The tranquil and restful nature of the soundscapes within each volume hinted at such. The music itself mused upon the idea of a London overgrown by plants. A city slowly being subsumed beneath Nature.

There was a resonance from within, though. A reason, a rebellion, even. One that realised itself when he visited Italy.

"I lived in Finsbury Park. London, at that time, was very bleak" Foxx explained to AtomicDuster magazine. "I was between there and Chorley and Manchester most of the time, so basically it was the difference between having everything heavy and grey or sunny, warm and comfortable. No contest. I felt like I'd reconnected to parts of myself I'd almost forgotten about and it was great to enjoy the air for a change. It was like escaping from a concentration camp.

Then, of course, there was all the cultural stuff I picked up. You know, the history, the renaissance painters, the architecture...and I loved getting lost in Venice.

I found this place called Bormozo near Rome as well, which was this lost medieval garden – and it really took me back to my childhood. That's probably because I grew up in Lancashire when all the mills were falling apart and it reminded me of an era that's passed. I

felt a strong emotional charge there. I really connected with it".

The inner peace and cultural uplift that Foxx experienced at this time connected well with the music that would flow from these times. The use of the Gregorian chant samples, for example, only serve to rubber stamp the sense of the pastoral. An escape. A time to recharge batteries and a time for healing.

"The music is...made of layers of echoes and reverberations. The form of chant now known as Early Music was allowed by large-scale architecture, through harmonies which occur when a human voice responds to its own delayed reflections from the walls of churches and cathedrals" said Foxx, explaining how the music was built and how space and time became important to him and the creation of this now ambient classic.

In fact, the music achieved a sort of physicality by becoming the soundtrack to a series of installations that first appeared, appropriately enough, in churches and botanical gardens around Europe. "We simply did a few concerts at various locations chosen almost at random, from Pevsner's Guides" said Foxx. "Only local publicity was used, posters in the post office, etc. The idea was to see if I could make some sort of an alternative way to play music live. A cross between an 'Installation' and a performance. Some sort of contemplative place, where you could stop by informally and leave the push and shove behind for a while".

Now, fans of Foxx and the 'Cathedral Oceans' projects can enjoy the music again but in an analogue format because the entire collection is being released in its entirety, for the first time, on vinyl within a five LP, luxury book-like, boxed set. Each disc slips into a cover 'page' complete with art on the rear.

The set is accompanied by a large format art print and a book containing Foxx's evocative images and passages from his novel 'The Quiet Man'. Limited to 750 copies, each collection will be hand numbered.

This suite of ambient music builds layers but then shimmers and disappears, only to be replaced by a new flow. The only issue I have with this music is not its inherent quality but whether you'll be in any condition to get up from your chair to turn over record. **PR**



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