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JANUARY 2019

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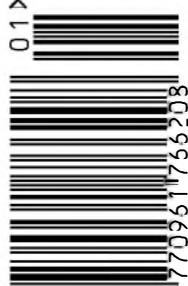
QUAD



IMR



JANUARY 2019



ROHDE & SCHWARZ MEASUREMENT



SPENDOR A1 LOUDSPEAKERS * ARCAM CDS50 CD/SACD * CHRISTMAS CROSSWORD * CHRISTMAS QUIZ * BENCHMARK HPA4 HEADPHONE AMPLIFIER * AUDIO TECHNICA VM95 SERIES CARTRIDGES

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Hi-Fi World Dec 2015

"It's rare that something truly different comes along in the world of loud-speaker cables - but Chord's new Sarum T is just that."

Chord Sarum T Speaker Cable
Hi-Fi World Dec 2017

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CHORD[™]
COMPANY

welcome

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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

ELECTRONIC MAGAZINE

Go to our website www.hi-fiworld.co.uk to buy an electronic version of this magazine, individual issues, back issues or a subscription.



The best of the best. This Awards issue features the products that wowed us in 2018, the ones we loved listening to and also loved using, sometimes for reasons difficult to identify. Elegant simplicity, especially at the user interface as in Naim's Uniti Atom/Core, can make for an easy experience; who wants to fight with dim controls and obscure menus late at night after a hard day at work, just to listen to a few favourite tracks?

Then there's the magic of sturdy build quality and attractive styling. Prosaic pressed steel cases and mean looking displays woo no one. Go down this path and you become another faceless box in consumer electronics. By way of contrast Quad's Artera Play+ was beautifully built, conferring pleasure and bringing value, making it less likely the unit will ever be uncaringly discarded. Reviving and re-using sturdy old products of merit – think Garrard 401 turntable – was considered peculiar, possibly sad in the early 1990s but now I think we all get it. Quality has many purposes.

Top build quality is all but essential in a benchmark such as the Technics SP-10R turntable – also a 2018 Award winner – since it is basically a mechanical device for professional use, providing you ignore the fact that low speed d.c. motors are electronically controlled. There's little to compare with this turntable in finish and build quality – it was stunning to see and to use. The LP demands visually intriguing things that spin around and around – and in the SP-10R Technics bring us the quintessence.

Then there are KEF's wonderful little LS50 loudspeakers that stream music from the internet! Who would have thought this would ever come about? We had to make them an Award winner for 2018 since everyone at Hi-Fi World loved them. The LS50s are arguably high fidelity for those who don't want high fidelity as a domestic intrusion. A great solution all round for high quality music in the home.

I hope you enjoy this World Awards for 2018 issue. It brings you the best of what you can buy and enjoy today – and may be classic tomorrow.

Noel Keywood
Editor



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

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

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

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

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.



Distributed by Select Publisher Services Ltd. P.O. Box 6337, Bournemouth, BH1 9EH UK Tel +44 (0) 1202 586848
Printed by Precision Colour Printing Halesfield 1, Stirchley, Telford TF7 4QQ, United Kingdom Tel: +44 (0) 1952 585585

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news

SMALLER KEFS

KEF has shrunk its Hi-Fi World award-winning LS50 Wireless loudspeakers down to a smaller size – with a lower price.

The new KEF LSX retails at £1000 but still features the renowned UniQ driver array in which the tweeter sits in the centre of the mid-bass driver to provide a point source – although the new unit is smaller than in its sibling.

However, the LSX still boasts 200Watts of Class D power amplification as well as dual-band wi-fi and the ability to stream music via DLNA or Tidal. It's an impressive little loudspeaker for those who want an all-in-one unit.

There are a variety of finishes on offer and the new loudspeakers are in the shops now.

Visit www.kef.com for more information.



THE ULTIMA(TE) CHOICE?

In recent times, Chord Electronics' unique DACs have stolen the limelight but, lest we forget, its name was forged as a producer of serious (and visually-distinctive) amplifiers. So it's perhaps quite fitting that, to celebrate its 30th birthday, Chord has announced their cost-no-object Ultima flagship amplifier. Billed as the "finest high-performance, ultra-fast, ultra-high-power amplifier technology available today", it comprises a reference-quality preamp and two monoblock power amplifiers – each of which will set you back £30,000.

Preamp connectivity includes six pairs of outputs (three balanced) and eight inputs (four balanced). Among the features are six-step input-gain adjustment, separate equalisation controls for each channel, AV bypass, front-panel VU meters and two high-spec front-panel headphone outputs. Each 86kg monoblock, based on a dual-feed-forward error-correction topology, employs no fewer than 64 proprietary power MOSFETs to deliver an incredible 780 watts into 8 ohm loads...

Contact: Chord Electronics, +44 (0)1622 721444. www.chordelectronics.co.uk



CHORD COMPANY

Chord Company has trickled down its XLPE dielectric from the high-end Signature cables to its Rumour and Shawline cables.

The new RumourX and ShawlineX – which replace the existing Rumour and Shawline versions – bring XLPE down to £18 per metre and £30 per metre respectively.

The RumourX uses silver-plated OFC conductors in a twisted-pair configuration with a PVC outer jacket while the ShawlineX features an upgraded conductor layout and shielding. Both cables also come with Chord's new ChordOhmic speaker plugs specifically designed to bring both the electrical and sonic benefits of silver to speaker cables.

Visit www.chord.co.uk.

AUDIOLAB MINI MARVEL

Audiolab has unveiled its smallest headphone amp/DAC yet – the M-Dac Nano. And when we say small we mean it. Around the size of a matchbox, it is designed to improve headphone listening on the go. The unit connects wirelessly to Android and iPhones via Bluetooth, handling file sizes up to 32bit/384kHz.

Supporting aptX and AAC codecs, volume is adjusted using a side-mounted, 64-step rotary control. This also has a press function, which can be used to pause content and skip forward or back. It measures just 44mmx44mmx14mm and weighs 28g so is easy to slip into a pocket. It is available now priced at £149.

For more information visit www.audiolab.co.uk.



CABASSE PEARL

French manufacturer Cabasse has unveiled a new more affordable model of its spherical active coaxial speakers. The Pearl is just 32cm-tall and has a new 25cm bass driver and coaxial midrange and tweeter configuration. The in-built Class D amplifier is said to give unrivalled sound levels while wi-fi connectivity, DLNA, internet radio and streaming from Spotify, Qobuz, Napster, Deezer and Tidal are all included. File support goes to 24-bit/192kHz and there is also Bluetooth as well as optical and analogue inputs.

The Pearl costs £2599 and is available in metallic black with pure chromium rings or pearl white with silver rings.

Visit www.cabasse.com.



ELIPSON AMP

Small but interesting. Elipson's new MC Mini amplifier is an all-in-one unit with an 80 Watt Class D output, Bluetooth, RCA and 3.5mm inputs and a line-out connector.

NEW HANAS

Japanese cartridge specialist Hana has upgraded its range of products, their new ML and MH models coming to market at £995. Both are moving coil, the ML featuring low output and the MH high output.

As usual with Hana, standard of construction is superb. Look out for a review in Hi-Fi World soon or log-on to UK distributor www.airaudio.co.uk for more information.



SILVER SERVICE

Cologne-based Vision Ears has unveiled a range-topping Erlkonig set of in-ear headphones. They cost £4199 but come with a headshell made out of silver with 13 drivers in each – four for bass, four for midrange, four for treble and a so-called super tweeter.

DVD DAYS ARE NUMBERED?

Has DVD hit the end of the road? John Lewis has announced it will stop selling players after a 40% slide in sales over the past year. Richer Sounds has also slashed its prices – with DVD units available for as low as £29.99.




BBC
SOUNDS

BBC SOUNDS

The BBC has launched a new app that brings together all its podcasts, radio shows and adds an array of customisation options.

Named BBC Sounds it is intended to replace the corporation's iPlayer Radio and designed to appeal to a younger audience profile.

The app offers 80,000 hours of BBC audio, will host more content than iPlayer and is aimed at giving users a more personalised listening experience.

As part of the project podcasts are becoming more important – with their availability being promoted frequently across the BBC. Music is also available and the app works across Android and Apple platforms.

Visit www.bbc.co.uk/sounds.

MOON PHONOSTAGE

New from Canadian manufacturer Moon comes the I10LP v2 – a dedicated phono pre-amplifier.

It has gain settings for both MM and MC cartridges (40dB, 50dB, 54dB, 60dB and 66dB) and adjustable settings for impedance loading. Priced at £399 it could be rather special.



POLK E-SERIES

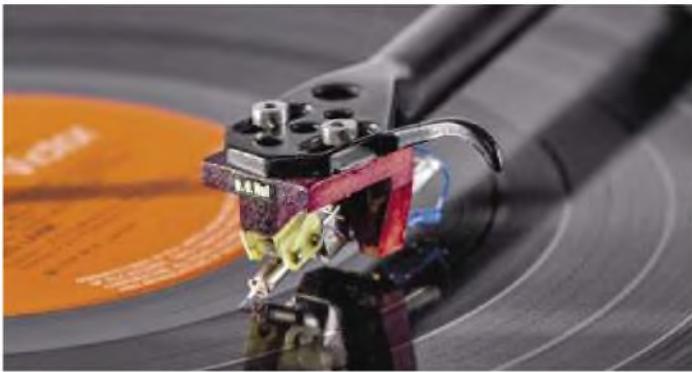
Polk has launched a new Signature E Series of loudspeakers – an updated version of its original Signature Series.

The new collection comprises S60e, S55e and S50e floorstanders as well as S20e, S15e and S10e standmounts.

The floorstanders feature 2.54cm Terylene tweeters with a variety of mid/bass drivers depending on the size.

Pricing is competitive, ranging from £199 for the standmounts to £999 for the range-topping S60e floorstanders.

Visit www.polkaudio.com



AS RICH AS STRADIVARI?

Serious vinyl enthusiasts will be aware of the uber high-end Colibri moving-coil cartridges that A.J. van den Hul has been hand-building and tuning since the mid-1990s. The latest incarnation is the 7.8g Colibri XGW Signature Stradivarius, which can be yours for a mere £4,750. It's crafted from cross-grained Brazilian Pau wood, as used for the bows of stringed instruments. However, the cart's name actually refers to the three-layer "Stradivarius formula" lacquer that "destroys the standing waves inside the softer body, reducing unwanted resonance". The generator assembly it hosts, which is based around a powerful magnet and six-layer 24-karat gold coils, is attached to a solid-boron cantilever and proprietary vdH type 1's 2x85µm stylus. Claimed advantages include a "high 1.10mV output, incredible dynamic range and detailed retrieval".

Contact: *Decent Audio*, +44 (0)5602 054669. www.decentaudio.co.uk



MUSICAL FIDELITY

Musical Fidelity – the brand acquired earlier this year by Pro-ject – has unveiled the first fruits of its new ownership. It's called the M2 range and comprises the M2si stereo amplifier and M2sCD silver disc player.

The M2si amplifier incorporates technology derived from Musical Fidelity's flagship Titan power amplifier, with 76 Watts per channel output and a Class-A preamp stage with its own independent power supply. It's a pure analogue design with no digital inputs but six line-level inputs.

The matching M2sCD player has a mains choke filter – a well-known feature of Musical Fidelity products – and also a digital filter to reduce jitter.

Both products are housed in heavy metal enclosures with aluminium fascias and retail at £799 each.

IFI CAN DO

iFi has expanded its portable series of players with the xCAN – an analogue headphone amplifier with the added convenience of Bluetooth.

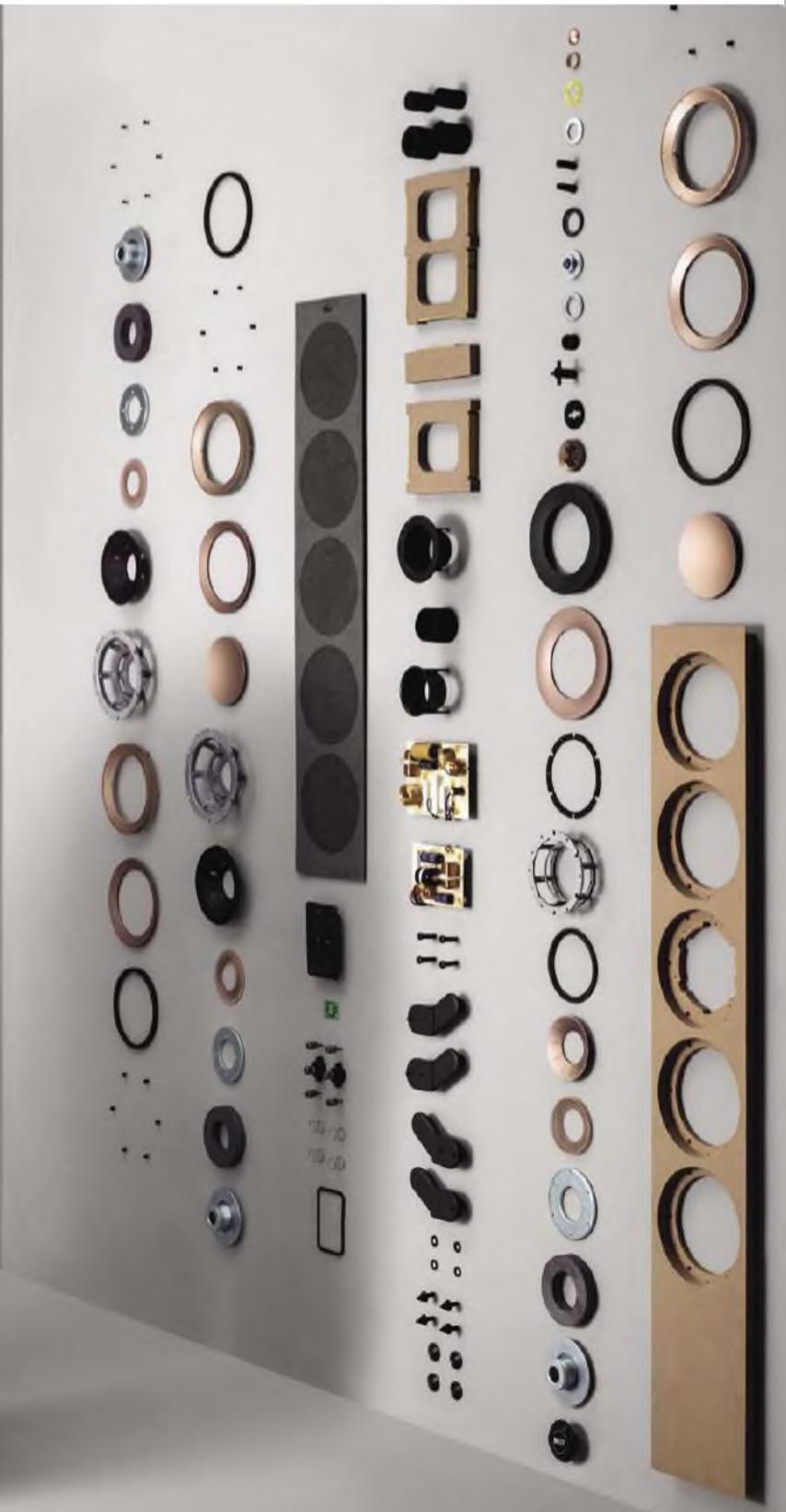
At the xCAN's heart is a high-spec, low-noise, dual-mono headphone amplifier of proprietary design, capable of delivering 1000mV per channel to make the most of any headphone type, from sensitive in-ear monitors to high-impedance on-ear or over-ear designs.

Balanced (2.5mm) and single-ended (3.5mm) analogue inputs and outputs are provided while inside there is an ESS Sabre DAC with iFi's proprietary circuitry.

The xCAN's built-in battery charges via a USB-C port and offers eight hours playing time per charge.

The iFi xCAN portable headphone amp is available now at a price of £299. For more information contact www.iflfi-audio.com.





The new R Series. The only thing to remain the same is the name.

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KEF.COM/RSERIES



OBSESSED WITH HIGH RESOLUTION

★ HI-FI WORLD AWARDS 2018



Welcome to Hi-Fi World's 2018 Awards. Our expert review team tests hundreds of products each year to bring you the best from the world of hi-fi. Some shine just a little brighter than others - be it for sheer sound quality, great innovation or simply outstanding value for money. So here's our pick of the top products from the past 12 months...

AWARDS 2018	WINNER
BEST LOUDSPEAKER	p12
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 **BEST
LOUDSPEAKER**

**FOCAL KANTA
N°2**



Reviewed: June 2018 issue

Focal's Kanta No2 loudspeakers feature an unusual mix of flax main drivers with a beryllium tweeter, housed in an elegantly-shaped cabinet. In theory perhaps not an ideal match of materials – but they work astonishingly well.

Most impressively the Focals sounded immensely authoritative. We couldn't help but be impressed with the scale and scope of these loudspeakers. They went very loud with only a few Watts but sounded smooth and sophisticated – as well as having sturdy punch at the low-end. With James Blake's 'Limit To Your Love' everything fell into place – bass was low and powerful, vocals high and accurate yet the whole track was pieced together with a superb sense of rhythm and timing. This was why the Focals were exceptional: they have the scale of a floorstander yet the delicacy of a great standmount.

Put together this made the Kanta No2s a class act able to seduce anyone who listens to them.



★ BEST AMPLIFIER

VINCENT SV-237MK HYBRID AMPLIFIER

Reviewed: October 2018 issue

Combining a Class A/B transistor output stage with valve pre-amplifier, the Vincent SV-237MK is certainly different. Bass reproduction was strong yet note perfect and its easy-going nature a joy to hear. Few amplifiers we've reviewed can match its beguiling sound.

With a power output of 153 Watts there was enough grunt to drive even the most demanding of loudspeakers. You also get tone controls - but we used the defeat button to by-pass them and hear the amplifier in all its unalloyed glory.

With Rimsky-Korsakov's 'The Snow Maiden, Dance of the Tumblers' (24/96) the Minnesota Orchestra stretched wide across a soundstage graced by depth and populated by rich sounding strings. Strikes against kettle drum had power and resonance, standing well apart from other instruments. In short this amplifier imposes strong dynamic separation. A great sound – it wowed us all.





BEST CD PLAYER

QUAD ARTERA PLAY+



Reviewed: December 2018 issue

Premium CD players are becoming few and far between nowadays – but Quad's latest is rather special. Based around an ESS Sabre DAC and incorporating a pre-amplifier section, it had a sound that seduced.

A high-quality linear power supply as well as audiophile-honed circuitry together ensure the Artera Play+ gets the most out of every CD. Pushing in a disc of Arcadi Volodos playing Schubert piano works (Sony Mastersound recording) into the Quad's slot drive brought home just how much detail it can retrieve. There was tonal colour, depth and breadth with a presentation few other CD players can manage. Added to that was the usual Quad smoothness and sense of ease. Anyone with a large CD collection looking to get the best out of their discs really should take a listen to this exceptional player. Everything we played through it sounded clean, vibrant and simply lovely.



★ BEST NETWORK PLAYER

NAIM UNITI ATOM
NAIM UNITI CORE

Reviewed: January 2018 issue

The Atom is a streaming device, DAC and amplifier all housed in a 10cm x 25cm x 27cm chassis (H/W/D). It wirelessly supports UPnP devices such as NAS drives, Google Chromecast, Apple Airplay and Bluetooth aptX, as well as having built-in support for Tidal and Spotify Connect from the internet. The Class A/B amplifier is derived from the company's Nait series of integrated amplifiers and rated at 40 Watts per channel. The fascia has a 5in LCD colour screen able to show album artworks. On top sits a volume control but there is also a remote and an app. The Core is a CD player and ripper.

Listening to Bruce Springsteen's 'Born In The USA' through the Naim was a revelation - power, punch and utter detail. This amplifier sounded more powerful than its rated 40 Watts.

What the Atom does best, though, is make music come alive. It is totally convincing and a real bargain.





★ BEST WIRELESS LOUDSPEAKER

KEF LS50



Reviewed: February 2018 issue

A pair of active standmount loudspeakers with in-built amplifiers, plus Ethernet connection for accessing internet streaming services, with Spotify and Tidal compatibility. The LS50s can also find music on a home network – as well as being able to deliver tracks from smart devices via Bluetooth. Amazing!

KEF's Uni-Q drive unit has a 25mm aluminium dome tweeter sitting in the centre of a 13cm magnesium/aluminium mid/bass cone to provide point source delivery. Wherever you position them the LS50s sound both consistent and much bigger than they look.

The curved front fascia contributes to wide dispersion - but the great thing about the KEFs is their sense of refinement allied to bass definition, mid-range smoothness and treble – able to better loudspeakers costing way above their price.

These are absolutely outstanding loudspeakers – the best actives we have heard for a very long time.



★ BEST TURNTABLE

TECHNICS SP-10R DIRECT DRIVE

Reviewed: August 2018 issue

The SP-10R is a low volume, highly specialised professional turntable. Its weight is high at 18.2kgs (40.2lbs) and ours with Technics plinth weighed 31kgs (68lbs) – barely liftable.

Dimensions are 365mm x 109mm x 365mm. But being direct drive its speed stability is exceptional.

Reviewer Noel Keywood found the SP-10R had supreme grip on pace and timing. With Marianne Thorsen playing Mozart violin concertos her performance was brought forward on the soundstage and spot-lit to an extent that her every small dance of bow on strings was made brutally clear. Here the SP-10R gave a fabulous purity of tone within the strings of her violin.

Summing it up we concluded this new Technics deck can stand comparison with any turntable on offer at the moment. Admittedly, at £9000 it is not exactly cheap - but if you love good vinyl playback perhaps it is time to start checking the piggy bank!





★ BEST PHONOSTAGE

CAMBRIDGE DUO



Reviewed: June 2018 issue

Small, unassuming yet extremely sophisticated. The Cambridge Audio Duo offers both MM and MC compatibility. Connected to a Technics turntable with Ortofon Cadenza Bronze MC cartridge Noel Keywood found the Duo came across as easy going but at the same time provided a silky open sound stage with plenty of depth, fully revealing the qualities of the Bronze where budget phono-stages commonly mask its abilities.

In his words: "Although seemingly simple the Duo is in fact technologically sophisticated, using logic controlled switching of small-signal relays to give slick, thump-free operation. Few rivals at any price can compete. With a svelte sound that ably reveals the qualities of a good MC cartridge, and also gets the best from high quality MMs, it is the one to go for – especially at the price".



★ BEST PORTABLE HIGH-RESOLUTION PLAYER

COWON PLENUE V

Reviewed: September 2018 issue

It looks nothing like most other high-resolution digital audio players (DAPs), having a sculpted shape that sits superbly in the hand. Everything can be controlled from the large touch screen on the front. Best of all though is its punchy, powerful sound – from a DAP that costs just £270.

There was a lack of digital harshness on high-resolution music, well-recorded tracks having vibrancy and a sense of detail. Listening to Sinead O'Connor's 'Nothing Compares 2 U' the Plenue V brought out the huge emotion in her voice with the echo in the recording well relayed.

This stayed firm no matter what headphones were used: from £49 in-ears to £200 over-ears – a testament to just how accurate and revealing this little player is.

It goes loud easily and handles bass with a distinct grip. The mid-range is smooth and even, giving an overall balanced presentation.





★ BEST IN-EAR MONITORS

IMR ACOUSTICS RI



Reviewed: March 2018 issue

MR Acoustics is a new name in the world of in-ear monitors. But the company's first product is decidedly different and very impressive. At its heart is a 13mm custom-made hybrid driver consisting of two materials - ceramic and beryllium.

The large headshell is constructed from an all-aluminium body. It looks heavy but in use is remarkably light. Also included are five custom filters which alter bass, mid-range and treble detail.

Added to that is a unique arrangement comprising a knurled wheel on the back that allows the RIs to be used closed or open-backed.

These ear-phones are hugely dynamic, detailed and revealing. What we also liked was their ability to bring the best out of source material. Play a high-resolution track via a good player and you can hear the extra detail.

All this makes the IMRs totally adaptable to individual tastes and very easy to use.



★ BEST LOUDSPEAKER CABLE

HiDIAMOND 7

Reviewed: June 2018 issue

A new entrant to the UK market - but Italian company HiDiamond's 7s impressed with their open, honest sound.

These are not cables that impose too much of their own character into the replay chain. Instead they enable you to hear just what your source and loudspeakers are doing - which is just what a cable should do.

Playing Bruce Springsteen's 'Badlands' through a McIntosh power amplifier connected to Tannoy loudspeakers the bass pumped forcefully, Clarence Clemons' saxophone soared while Springsteen's guitar bit deep. There was a complete sense of naturalness about the whole sound.

Used in a variety of systems these cables never failed to impress - and they also boast superb construction. They will suit all systems but truly shine in top-notch set-ups.



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HI-FI WORLD

2018 AWARDS
ORIGINAL REVIEWS



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Focal Vision

Focal's new Kanta N^o2 loudspeakers feature an unusual mix of flax main drivers with a beryllium tweeter. Jon Myles sits back and enjoys the sound.



French loudspeaker giant Focal has a long history of innovation since its initial foundation back in 1979.

It was only the second company – after Yamaha – to use a beryllium tweeter in its home hi-fi products. More recently it introduced new main drivers consisting of flax fibres (France being the main producer of flax) encased by two thin layers of glass fibre.

Put the two together and what do you get? Focal's latest floorstander the £6999 Kanta N^o2, the first of what, presumably, will be an expanding range.

Some loudspeakers look decidedly ordinary, others make you sit back and admire. Put the Focal Kanta N^o2 into the latter category. Unboxing them I couldn't help but be impressed by their unique design. The front of the 'speaker is made from a single curved piece of high-density polymer with rounded edges to minimise diffraction. This is joined to a heavily-braced plywood rear section with an elegant glass top that gives the 'speakers an air of luxury. The curvature is designed to time-align the drivers for a smoother sound.

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There's also an array of colours to be had for that front panel. Our review sample came in Gauloise Blue but there's also Solar Yellow and Carrara White on offer, as well as different options for the finish of the rear cabinet.

A heavy out-rigger style metal alloy plinth attaches to the bottom of the cabinet for stability, fitted with screw-down knurled nuts for easy levelling. Also included are magnetically-attached grilles for the mid-range and bass drivers although I (as ever) left these off for listening purposes.

As to those drivers, flax and beryllium is a combination which, as far as I know, has never been tried before in a domestic product. But, as Focal controls the entire design and manufacturing process from its base in Saint Etienne, you can be assured the Kantas have gone through some rigorous testing. Indeed, the company says these loudspeakers spent three years in development from the initial concept to the final product.

They are a three-way design with two 165mm bass/mid drivers above and below the tweeter in a classic D'Appolito arrangement, augmented by a bass unit below to improve power handling and lower bass distortion by increasing cone area and reducing cone travel.

The tweeter uses Focal's IAL (Infinite Acoustic Loading) and IHL (Infinite Horn Loading) techniques to absorb rear radiation while also saving space within the cabinet. Beryllium has many advantages, being extremely light and very stiff. However it is difficult to work with, having high toxicity during manufacture. For this reason Focal has its own dedicated chamber with specially-trained staff to produce its inverted dome model.

Two reflex ports – one at the front and one at the rear – add to bass extension (see Measured Performance for full details).

Dimensions-wise these are relatively slim loudspeakers, measuring 1118mm x 321mm x 477mm (H/W/D). Focal recommend they can be used in rooms measuring up to 750 sq ft – but say they work best in smaller spaces of around 350 sq ft.

SOUND QUALITY

Initially the Kantas took a while to come on song, sounding a little boxy and muddled at first. However, after a thorough run-in they started to shine.



The front of the cabinet features a specially-moulded high density polymer fascia which is curved to time-align the four drivers. It certainly gives the Focals a distinctive look and works well.

The first thing to note is that they will go loud – as in very loud – from just a few watts of power, making them ideal for valve amplifiers.

Pressing our trusty Icon Audio Stereo 30SE single-ended Class A amplifier into service in triode mode just a small turn of the volume control brought out a powerful, well-balanced rendition of New Order's 'Bizarre Love Triangle'.

Bass was firm and controlled having a pleasingly propulsive character that reminded me of the clean sound of Spendor's excellent D7s.

Up top the beryllium tweeter has excellent detail. With Bjork's 'Human Behaviour' (24/96) the vocals were stunningly realistic with no edge or harshness to them. Underneath the bouncing timpani riff had a fulsome quality with excellent body to it.

Any doubts about how well the combination of flax cones and

beryllium could integrate was quickly dispelled with a run-through of Mahler's 'Symphony No2' by the San Francisco Symphony under the direction of Michael Tilson Thomas. Here the orchestra was projected full into the room with striking power but on the quieter, vocal passages there was a delicacy at work that sent shivers down my spine.

There was wonderful synergy between the drive units; I had no sense of listening to four different units. Instead the music came over as a seamless whole, flowing freely and unimpeded.

Upping the ante a little with my favourite bass-heavy track of James Blake's 'Limit To Your Love' revealed the Kantas don't plumb the sub-sonic depths. This song really does have some room-shaking bass but the Focals do not have the size of drivers to bring out to flesh out the bottom octaves.

That said, the scale of the piece was still well-portrayed and unless you've heard it on larger and, invariably, more expensive loudspeakers the lack of sub-sonics would be of little consequence as the Focals captured the essence of the music with a thoroughly realistic presentation. As with the Bjork recording, Blake's keening vocals were deliciously reproduced, having just the right amount of delicacy.

And, while there may not be ultimate low bass, the advantage is that these floorstanders never sound slow or boomy. Instead they present music with a verve. Putting on Nils Lofgren's classic 'Keith Don't Go' the zing in his fretwork was evident.



Focal's in-house designed and manufactured beryllium tweeter gives extended high frequencies but without any undue harshness.

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The rear of the Kanta N^o2s has a large reflex port above the single pair of loudspeaker binding posts.

Shutting my eyes I could sit back and picture his hand moving across the strings.

If there's any reservation it's that the Focal Kanta N^o2s can sound a little restrained compared to some rivals. They are not as exciting initially as some brasher loudspeakers. But they repay longer listening where their talents come to the fore – a smooth, even balance with a good mid-range and punchy bass allied to sweet treble.

Positioning is also easy. Give them a little room ahead of a rear wall because of that rear-firing port and they'll sound fine. They're also not too fussy about toe-in. I tried them pointing straight down the room and also angled in to the listening position. Their basic character didn't change in either

position although I preferred the former option as the treble seemed more natural.

What impressed most, though, was just how well these 'speakers worked with all forms of music. The live jazz of Ornette Coleman and his band on 'Sound Grammar' had the atmosphere of a concert hall, The Clash's 'Live At Shea Stadium' revealed the different acoustic of an outdoor venue while on The Beatles' 'Sgt Pepper's Lonely Hearts Club Band' the various overdubs and studio techniques were evident.

This sense of precision brought the best out of Kraftwerk's 'Minimum-Maximum' live opus where the different ambiances of the various venues – Warsaw, Moscow, Berlin, London etc. – could be clearly defined. But, while there were subtly different shades and toning to the electronic soundscapes, never once did the Kantas lose their rhythmic pulse.

One other feature worth noting is that they are rather forgiving of harsh recordings. Much as I like Oasis I've frequently found the guitars on the debut album 'Definitely Maybe' can sound distinctly searing through some

loudspeakers – especially those with metal cones and domes.

With the Kanta N^o2s, however, there was more of a warmth to the sound, taking away some of the edge yet without detracting from the energy of the recording.

In fact, the more I listened to the Focals the more impressed I became. Swapping out the Icon Audio amplifier for a powerhouse McIntosh MC152 showed they are capable of highlighting the differences between amps. With Nick Cave's 'The Kindness of Strangers' from his Murder Ballads CD the sound via the McIntosh was more clinical and insightful – the Icon Audio had a richer, more enveloping sound.

Neither could be classed as right or wrong but just different, meaning these 'speakers will highlight just what your amplifier is doing. And that, in the final analysis, is just what you should expect of a loudspeaker.

CONCLUSION

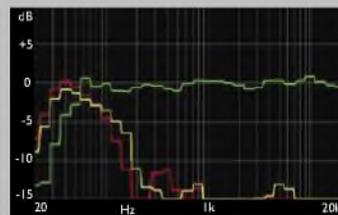
Focal's Kanta N^o2s are smooth, detailed and suited to all genres of music. Other loudspeakers at this price may sound initially more exciting but the Focals reward long-term listening.

MEASURED PERFORMANCE

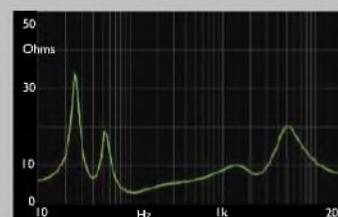
Focal's Kanta N^o2 places bass/midrange units above and below the tweeter in a classic D'Appolito arrangement that gave even results over a good vertical range. Our third-octave frequency response analysis shows a flat result across the audio band, when measured on-axis; there's a slight roll off off-axis. The Kantas can be pointed straight down a room, or directly at listeners,

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



maintaining an accurate tonal balance. The central tweeter runs strongly up to 20kHz with no drop in output. There's a small lift above 10kHz so upper treble is well maintained. A flat midband will make for a forward and detailed sound.

Output across the lower midband and bass is smooth and accurate down to 60Hz – with no bass accentuation. However, the two large ports both act to increase bass power around 40Hz and the cabinet reaches down to 30Hz before output drops away quickly, as always with ported loudspeakers. Low bass will be powerful, but deep subsonics are absent. As Focal say, the Kantas best suit medium size rooms – I'd suggest up to 20ft long approximately.

The impedance curve confirms port tuning peaks at 40Hz ; bass will be lively rather than strongly damped.

Sensitivity was high at 90dB sound pressure level (SPL) from one nominal Watt (2.8V) of input. Amplifiers around 40 Watts will deliver very high volume and down to 10 Watts will suffice.

The Kanta N^o2s will sound smooth, even and detailed. Bass will be firm and powerful with a lively quality. Little power is needed to go loud. **NK**

FOCAL KANTA N^o2
£6999



OUTSTANDING - amongst the best.

VERDICT

The Kanta No2s combine a pleasing aesthetic with a seriously good sound.

FOR

- smooth and refined
- style
- easy to position

AGAINST

- appearance might not suit everyone

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MQA



TIDAL

qobuz



Spotify



napster



DEEZER



Fired Up



The big spacious sound of Vincent's recently updated SV-237MK hybrid amplifier gets Noel Keywood all fired up.

If you want to make a hybrid amplifier that combines the sound of valves with the power of solid-state, then this is a good way to do it. Vincent (Germany) have been making lovely sounding hybrids – in my view – for a long time, the SV-237MK I'm reviewing here being a recent update of a long standing model. What you get is a muscular 150 Watt amplifier with a three valve preamplifier – and digital inputs.

Although there are no valve output transformers the amplifier is still large and heavy, weighing 20.4kgs. That's because it houses a classic Class A/B amplifier with big linear power supply and massive toroidal mains transformer. No Class D then, and no switch-mode power supply.

With a mains transformer so large to handle the power draw and feed the valves, the chassis is inevitably sizeable, measuring 430mm wide, 435mm deep and 152mm high. It is also sturdily built, with 5mm thick machined alloy front panel, in our sample black anodised and with a brushed finish. Each side carries large

heatsinks and the top has arrays of vents, but ours didn't get hot under normal use. Cooling is by convection; there are no fans, so no noise.

A major feature of course is the front panel window behind which sits one of the three valves, the 12AX7 double triode. It is lit by orange LEDs and is prominent from the moment of switch-on, making the Vincent look quite different from most else. After it come two 6N1P-EV triodes for higher voltage swing. I'll mention quickly here that such small signal valves have a lifetime of 10,000 hours and cost little (£20 max) so there's no big drawback in using them. And a new one is easy to plug in, should this ever be necessary.

At switch on there's quite a long delay, during which time an orange LED in the volume control knob flashes, before the amplifier becomes active. Vincent stay with tradition by adding bass and treble controls at left of

the window and rotary input select and volume at right of the window. Spinning the selector lights blue LEDs in sequence, sited in a trough below, machined out of the alloy panel. They light in turn to show (left to right,) – Coaxial digital input (S/PDIF), Optical digital input (S/PDIF), then S3 through to S6 – four analogue inputs via RCA phono sockets; there is no balanced XLR input.

Vincent say they removed USB and replaced it with S/PDIF upon user request, since audio products use the latter, computers the former. Measurement showed the optical input (TOSLINK) accepts and works at up to 192kHz sample rate – important for hi-res players with optical only outputs (Astell&Kern). Also fitted are Record Out (fixed volume) and Preamp Out (variable volume) sockets at rear, but there's no Record In with A/B switching as of yore.

Two sets of large gold plated loudspeakers terminals



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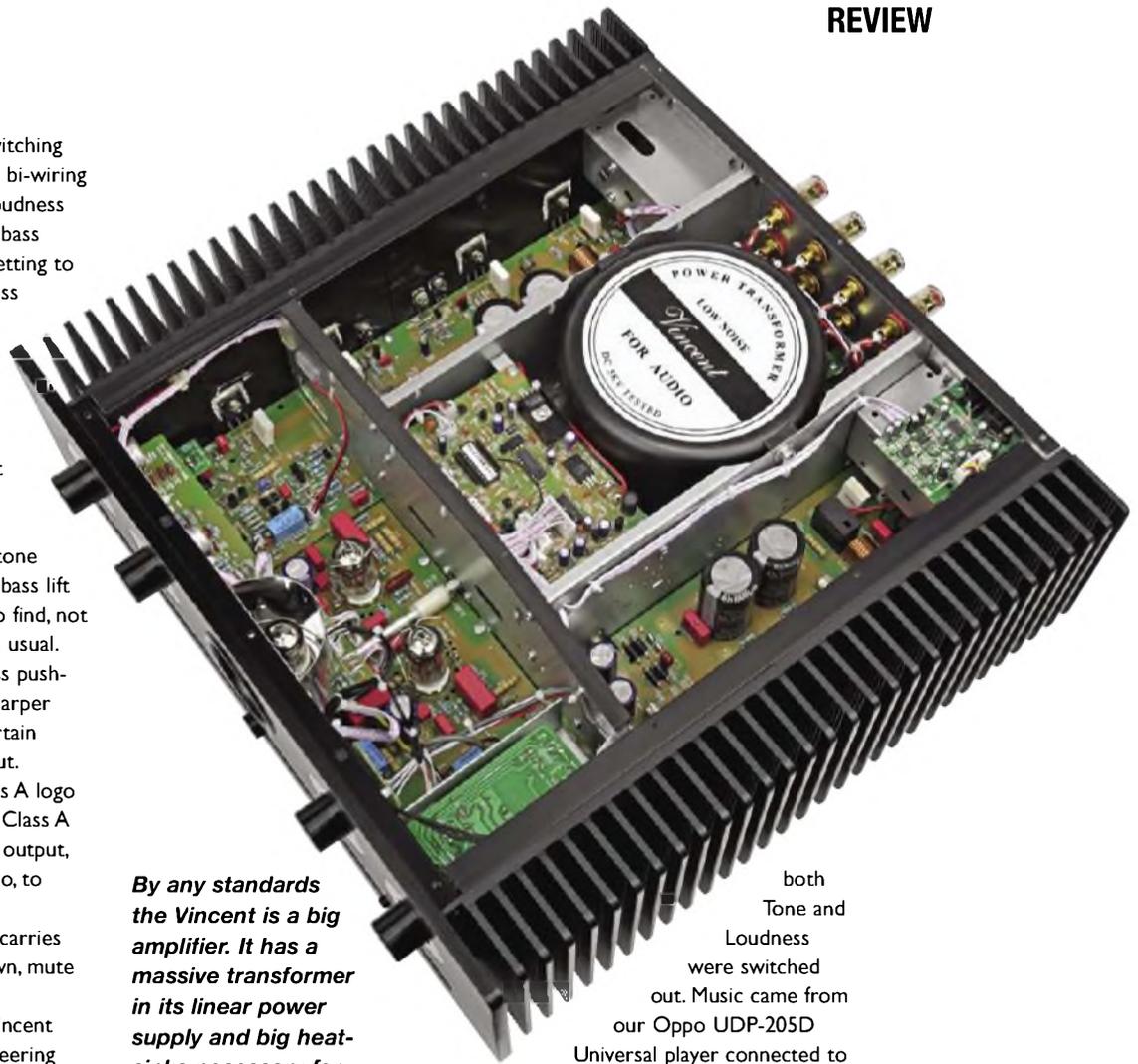
are fitted, but there's no switching between them; they are for bi-wiring or two rooms. There is a loudness button no less, that boosts bass and treble at low volume setting to compensate for the ear's loss of sensitivity at frequency extremes, and also a defeat button (Tone) for the tone controls. At far left sits a 1/4in (6.3mm) headphone output jack that cuts out the loudspeakers when used.

With Tone on (i.e. the tone controls selected) +5dB of bass lift is applied I was surprised to find, not a nominally flat response as usual. Both the Tone and Loudness push-buttons could have been sharper in their actions; I was uncertain whether they were in or out.

You can also see a Class A logo at right but the amplifier is Class A only up to a certain power output, often around 10 Watts or so, to prevent overheating.

A slim remote control carries input select, volume up/down, mute and a dimmer.

Of the digital section Vincent say nothing – a trifle odd. Peering inside I found a Burr Brown (Texas Instruments) PCM 5100A DAC, quoted (date 2012) as having a 100dB dynamic range, a PCM 5101 and PCM 5102 offering 106dB and 112dB respectively. So Vincent have chosen a budget part here. Measurement revealed 101dB dynamic range with 24bit so you get CD quality, not the dynamic range expected from hi-res (115dB+). It's a get-you-through addition then and I paid



By any standards the Vincent is a big amplifier. It has a massive transformer in its linear power supply and big heat-sinks necessary for Class A smooth sound. The three valves can be seen at left, just behind the front panel.

both Tone and Loudness were switched out. Music came from our Oppo UDP-205D Universal player connected to the analogue input sockets. With Antonio Forcione's Tears Of Joy (uncompressed CD) the SV-237MK set his guitar in a lovely three-dimensional space and whilst the fast plucked strings had plenty of bite they weren't sharp – as they

"...all the lush openness of its predecessor and an easy delivery that was organically natural against most else"

more attention to the main amplifier, feeding it digital from our Oppo UDP-205D Universal player (123dB dynamic range).

SOUND QUALITY

On sound quality the SV-237MK didn't disappoint me, having all the lush openness of its predecessor and an easy delivery that came over as organically natural against most else. As always our Martin Logan ESL-X hybrid electrostatic loudspeakers lucidly revealed just what this amplifier was capable of – one notable feature being obvious yet easy going bass; in fact the sound was so fulsome I did walk over to ensure

are not if you listen to an acoustic guitar played live. The SV-237MK gets closer to the real thing – a beautifully rich but dynamic sounding acoustic – than other amplifiers, without the slight bass bloom of an all-valve amplifier or the flat and mechanical – sometimes coarse – sound of an all-transistor amplifier. One reason being it lacks crossover distortion our measurements show – obvious in its easy going treble.

Bass guitar was full and weighty in Josefine Cronholm's In Your Wild Garden (uncompressed CD) yet moved along with laconic ease, making for a laid back presentation that was embracingly natural. Lots



Behind the front panel window is an alloy reflector surrounding the 12AX7 input valve – seen at right.

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A large rear panel with an array of analogue inputs at left, plus digital inputs (S/PDIF) at top. There is no USB for computer connection.

of thumbs up by others over this in the office – and I heard a sound quite unlike that from most other amplifiers, reminding me why previous Vincent products made such an impression.

With Rimsky-Korsakov's The Snow Maiden, Dance of the Tumblers (24/96) playing from an Astell&Kern AK120 portable hi-res player connected optically to the Oppo, the Minnesota Orchestra stretched wide across a sound stage graced by depth, strings rich, detailed and smooth. Strikes against kettle drum had power and resonance, standing well apart from other instruments; this amplifier imposes strong dynamic separation.

Connecting the digital output of our Oppo CD player into the Vincent's optical digital input, putting digital through its DAC rather than the ESS ES9018 Sabre32 series within the Oppo, brought a

flat and digitally mundane sound; this is a get-you-through section. Vincent have put a lot into the amplifier's architecture but there are better DACs to suit –without any big increase in price.

CONCLUSION

Vincent have honed the SV-237MK to give a pure yet texturally rich sound that's smooth and relaxing.

Think deep sound stage and organic delivery. Bass was always strong yet note perfect and engaging. Big sound staging suited Rock and Classical equally. The digital section was unimpressive but I felt the basic hybrid amplifier – a well honed and complex design – more than made up for of its shortcomings. Few amplifiers match its uniquely beguiling sound.

MEASURED PERFORMANCE

Power from the Vincent SV-237MK measured 153 Watts into 8 Ohms and 256 Watts into 4 Ohms – a powerful amplifier able to go very loud.

Frequency response measured flat from 6Hz to 70kHz – wide. Distortion was low at all power outputs, the critical 1W at 10kHz figure – a measurement of crossover distortion – being just 0.02% of innocuous sounding second harmonic our analysis shows. The amplifier is linear, low in distortion and will give a clean sound.

The analogue input needed 370mV for full output so it isn't particularly sensitive; volume will have to be turned up with low gain (MM = x100 / 40dB) external phono stages. There is no internal Phono stage.

The loudness control massively boosted bass and high treble at half volume and lower. Selecting the tone controls introduced +5dB bass boost with the controls set to zero.

Both digital inputs (S/PDIF) accepted 192kHz sample rate PCM, frequency response measuring flat to 20kHz before rolling down slowly to 96kHz, the upper limit of 192kHz sample rate – good.

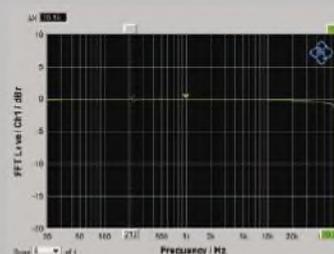
Distortion with a hi-res 24bit input at -60dB measured 0.2% where 0.02% is possible and dynamic range was correspondingly poor at 101dB – CD quality in effect.

The amplifier section measured well, but the digital section gave CD quality with hi-res – unimpressive. NK

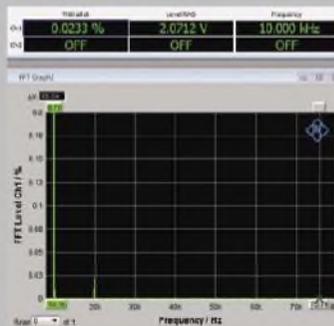
AMPLIFIER	
Power	153W
Frequency response (-1dB)	6Hz-70kHz
Distortion (10kHz, 1W)	0.02%
Separation (1kHz)	94dB
Noise (IEC A)	-92dB
Sensitivity	370mV

DIGITAL	
Frequency response (-1dB)	5Hz-47kHz
Distortion (-60dB, 24bit)	0.2%
Dynamic range	101dB

FREQUENCY RESPONSE



DISTORTION



The two 6N1P-EV triodes with spring retainers and ceramic bases.

VINCENT SV-237MK £1,850



OUTSTANDING - amongst the best.

VERDICT

A gorgeously rich and spacious amplifier that made listening to music a rewarding experience.

FOR

- spacious, organic sound
- powerful expressive bass
- build quality and finish

AGAINST

- mediocre digital sound
- indeterminate push button action
- long start up delay

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Play More

Quad's new Atera Play+ CD player and preamp will make you play more thinks Noel Keywood.

Everyone has a big CD collection. Thinking about it reminds me of walking into the Virgin megastore on London's Oxford Street to see thousands in racks stretching away into the distance. That was yesterday of course: the store and its racks have long gone, but people have thousands apiece and a need to play them – preferably in better quality than ever before. Budget CD players are now increasingly rare but new premium quality CD players – with added bits – are becoming common and here I'm reviewing Quad's Artera Play+, price £1199.95.

We've reviewed the original Artera Play in our January 2016 issue and were impressed. As before this is a CD player and preamplifier combined, built around the ES9018 Sabre32 series DAC from ESS of California – renowned for its sound quality. Moreover, it has a smoothness of sound in keeping with the Quad tradition. A chip tried and tested – and all but famous for getting great

sound from CD.

Measurement revealed some small inconsistencies on the original Play, none of any great consequence, but they've been expunged from the updated Play+ by changes in filtering. A new addition – the + bit – is Bluetooth short range radio reception, with aptX, explaining the appearance of a small, screw-on rear stub aerial. Play music from your mobile 'phone via Bluetooth.

That's the outline. In finer detail the Play+ has analogue phono socket (unbalanced) inputs labelled Aux 1 and Aux 2 that run through the volume control and to the output sockets. By default there is no gain (x1) so what goes in comes out almost unaltered, except in volume but this allows two other analogue sources to be hooked into the system – even a Phono stage. When I say "no gain" that is from phono socket input to output; from phono socket input to balanced (XLR socket) output there is a gain of x2 (+6dB) but this will only come into play

if the XLR outputs are used to feed a power amplifier with XLR inputs, such as Quad's own matching Artera Stereo power amplifier (140W). Also, gain (or attenuation) can be dialled into the system – up to x2.3 (+7dB) – and this could be useful to match in low gain external Phono stages.

Yes, the Play+ can be used as a general purpose analogue preamplifier in effect, with say a turntable Phono stage connected into Aux 1 and a Blu-ray player into Aux 2. Additionally, there are S/PDIF digital inputs, optical and electrical, with optical working all the way up to 192kHz. And there is a USB input too for computer connection, with an upper limit of 24/384kHz according to the data sent to my MacBook Pro running Sierra – but the limit with a PC and Quad's driver is 32/384kHz.

With regard to DSD, PCs must have Quad's driver loaded (available on-line), which they also need to run PCM at



192kHz. Macs can only handle DSD within Audirvana Plus, a paid-for hi-resolution player (€60), because Mac core audio is PCM only. Audirvana sends DSD packaged over USB to look like PCM and in this form (DoP) the Play+ can handle DSD64, 128 and 256.

I suspect most people will be interested in the Play+ as a high performance CD player and what you get here is a slot loading mechanism and CD digital (16/44.1kHz) passed through the ES9018 DAC chip. The Play+ has four digital filters but only three work with CD I found – more later. Digital filters are commonly tokens to adjustability, having little affect upon the sound, but Quad's filter set on this player is gently influential upon sound quality. Quite right too – Peter Walker, Quad's founder – specialised in complex filtering so this is in keeping with brand values.

The digital filters are Smooth (default), Fast, Wide and Narrow. Measurement showed Smooth was

a conventional wide bandwidth filter – what you usually hear, in effect, because it offers the best measured result. Fast and Wide were neither fast nor wide, but offered slow roll offs with good time domain damping. Narrow (with a 44.1kHz or 48kHz sample rate) was drastic, chopping off all frequencies above 6kHz.

Now to an apparent anomaly that had me puzzled. All four filters worked when using the digital inputs, but when playing CD only three filters were available; Narrow was missing. It could be selected, but wasn't applied, the player defaulting to Smooth. I was told by Quad the 6kHz cut-off of Narrow was felt to be drastic so had been left out, but there was some "discussion" about this situation in IAG's HQ. Odd. It is simply an option and in keeping with Quad filtering; worse, the handbook fails to mention any of this. It needs an addendum at least, because offering Narrow on the display but not providing it is misleading. Of these filters I'd use Fast or Wide

from my experience and preference for a sound that is not sharp, bright or ringy – as digital can be due to brick wall filtering that introduces pre and post ringing.

Changing filters could have been easier, without reversion to original after only seconds that made switching between them casually to compare their sound impossible. Each setting must be saved first. The remote control's Prog button must be held down to reveal the filter menu. Also on the remote control unit are all play functions and volume adjust on a scale 0-100. The remote will also select inputs.

Quad have kept the user interface simple enough. The mains supply is a big linear jobbie on board – no switch mode wall-wart here. As a result power input is through the usual IEC mains lead and there is a rear on/off rocker switch. Power on (standby, less than 1W) is shown by a small red LED on the front panel and switching on lights the display at left a dull blue. Surprisingly, this is





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As regularly featured in Hi Fi World

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Central to the Artera Play+ is a big linear power supply fed from a large toroidal mains transformer – the shiny round thing. Most manufacturers use cheap switch-mode supplies nowadays; Quad have put audiophile effort into the Play+.

a touch display panel able to select inputs, explaining why there are no other buttons on the fascia, except disc eject. There are two touch zones, one above the blue alphanumeric display and one below. Volume and input can be selected, but not filters etc. A 1/4in (6.3mm) headphone socket is fitted too. Size wise this is a compact package, measuring 320mm wide, 320mm deep and 105mm high, weight being a solid 9.04kgs due to sturdy build quality and the large

Slow for low quality noisy sources where lock my be lost (causing stuttering).

SOUND QUALITY

The Play+ was connected direct to our Icon Audio Stereo 30SE amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers. All items were run from an Isotek Evo 3 Mosaic Genesis re-generated mains power supply. I fed in hi-res from an Astell&Kern AK-120 portable player

"a strenuous keyboard sequence from Arcadi Volodos playing Schubert's Sonata in E Major (II Andante) made me jump"

internal power supply.

Pressing and holding Prog on the remote also brings up adjustment of Gain, DSD bandwidth, balance and display brightness. Not mentioned in the handbook are Fast and Slow Phase Lock Loop (PLL) settings available by pressing and holding the digital input buttons. Fast is standard,

connected optically.

It was very easy to review this player because its sound is so well honed it is distinctive. Pushing in a CD of Arcadi Volodos playing Schubert piano works (Sony Mastersound recording) to provide a pleasant start whilst I readied to write up listening notes, a sudden

and strenuous keyboard sequence within Sonata in E Major (II Andante) made me jump. I know the CD well and how it plays and the Play+ showed no restraint in sending this out through the Martin Logan's with force. But equally important and obvious too was a lovely sweetness of tone. Amplifiers and digital+analogue assemblages have characteristic tone and mostly it is fairly monochromatic. The Play+ got well past this, displaying a convincing range of tonal colour that had a sweet flavour to it, sunlit in fact. This lured me to sit, listen and enjoy straight away because Mr Volodos is a sublime pianist and the delicacy of his touch seems so often to get lost in the rather bland mechanical nature of CD replay.

The sudden contrast that caught my attention and the breadth of tonal colour I attribute to the use of a very high quality linear power supply, as well as audiophile honed circuitry of excellent design sophistication. What I heard as I sat entranced by Volodos was a 'lovely' performance from the Play+ – meaning dynamically engaging but also gorgeously rich yet openly lit. Methinks there was a little less of the darkness of tone I usually hear from the ES9018 chip, possibly due to Quad using their own filters and support circuits rather than those from ESS design data. I heard the same convincing breadth of tonal colour and strong dynamics from Korsakov's The Snow Maiden: Dance of the Tumblers, played by the Minnesota Orchestra (24/96); the orchestra sounded lively and engaging, again seeming more clearly lit – a tad less dark – than is often the case from the ES9018.



As a check I played Otis Redding's Respect to ensure no problems in real life playing a 24/192 WAV file via the optical S/PDIF input, since at 192kHz sample rate, data rate is right at the limit for TOSLINK. All went well here, Otis clear at one microphone and the Memphis horns strong in the other (dual channel mono!).

Interestingly, Bluetooth from an Onkyo player on an iPhone

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A new adaptor for cleaning 7" singles is now available for the updated PRO Vinyl Cleaner.

This allows vinyl collectors to extract the full potential of improved sound from this format.

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Paul Rigby – The Audiophile Man, Dec 16



The busy rear panel gives a good idea of what Quad cram into this 'CD player'. Note the balanced XLR audio output sockets, with phono socket outputs and inputs to their right. At left are S/PDIF inputs and an output (for external DAC if need be).

running iOS 12 had much the same sonic qualities as CD I found, with little obvious difference between them. But then Bluetooth with aptX compression on the Play+ measured 98dB Dynamic Range our measurements showed – not far off CD at 101dB. This explains why Bluetooth introduces so little audible degradation and why I was happy to sit and play no end of tracks from my iPhone. Queen's 'Radio GaGa' (24/96 source code) with its stabbing synth sequences underlined the dynamic punchiness and strong bass provided

by a big linear power supply on board. Benjamin Grosvenor playing Chopin Piano Concertos (24/96 source code) was gracefully calm and melodic in presentation, reflecting the deep yet smooth resolution of ESS's DAC in what is the fine electronic environment of the Artera Play+.

CONCLUSION

The new Artera Play+ is superbly engineered, in its physical form, its facilities and its underlying electronic architecture. Finely honed with a useful filter set, big linear power

supply on-board and easy to use CD player plus comprehensive remote control that was not overly complex but still full featured (if with small, cull legends) I found it one of the best CD players – with added bits! – I have used and heard. Pity that the Narrow filter doesn't work with CD but it's not a big issue I feel. Bluetooth connectivity is a useful addition, providing sound quality from a mobile 'phone that was all but as good as that from CD. What this player offers at the price is more than impressive.

MEASURED PERFORMANCE

The new Artera Play+ measured 119dB EIAJ Dynamic Range via its analogue balanced XLR outputs and the unbalanced phono socket outputs – a very high figure that imparts depth and translucency, rather than the papery flatness of much digital. With CD (16bit) Dynamic Range was limited by the quantisation noise floor of 16bit (not the player) to 101dB – still good result.

Unsurprisingly, digital distortion was very low at 0.02% with a 24bit input and 0.2% from CD, the latter figure being as good as it can get from 16bit. Bandwidth with CD measured flat to 21kHz where with the original player it rolled down early. With a 192kHz sample rate input response extended to 52kHz (-1dB) with Smooth filter, rolling down slowly to the 96kHz upper theoretical limit to ensure no sharpness in the sound. Wide and Fast filters provided earlier roll offs but better time domain impulse damping, whilst Narrow was drastic at 44.1/48kHz sample rate, having a 6kHz upper limit.

Output was on the high side at 2.2V (phono socket) and 4.5V (XLR socket) at full volume.

USB is now also consistent in its performance, offering identical results to S/PDIF digital in terms of frequency response, distortion, dynamic range and noise.

The preamplifier has no gain from phono input to phono output (i.e. unbalanced) as standard but +10dB of gain can be dialled in. However, the XLR output has double the output of phono so a gain of x2 is available from phono in to XLR out as standard.

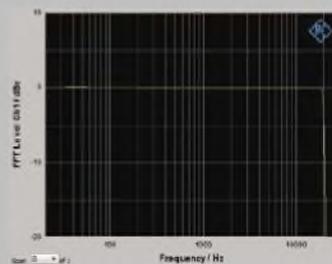
Frequency response measured flat to 80kHz, distortion was low at 0.003% (1V out) and noise low at -105dB. Maximum input/output is 2V, just adequate to accept analogue from an external silver disc player.

The Artera Play+ measured very well all round. It has been honed to give superb digital. The analogue input/output overload could have been higher and Narrow filter made operative with CD. NK

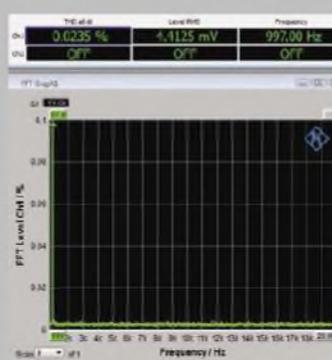
- Frequency response (-1dB) 4Hz-52kHz
- Distortion (24bit, -60dB) 0.02%
- Separation (1kHz) 112dB

Noise (IEC A)	-117dB
Dynamic range	119dB
Output (Phono/XLR)	2.2/4.5V

FREQUENCY RESPONSE



DISTORTION



QUAD ARTERA PLAY+ CD PLAYER
£1199.95.



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
A CD player and preamplifier – analogue and digital – with broad ability and superb sound quality. Impressive, especially at the price.

FOR
- sound quality
- ease of use
- facilities

AGAINST
- no Narrow filter with CD
- awkward filter selection
- incomplete user manual

Quad
www.quad-hifi.co.uk



Naim's new Uniti range includes a sophisticated storage device and excellent player, says Jon Myles

Total Uniti



"with Bjork's brooding 'Black Lake' the sound punched out of a pair of Spendor D9s with total authority and a wide, enveloping soundstage."

There's no doubt that the original Naim Uniti was a ground breaking product for the Salisbury company. First introduced in 2009 it became an immediate best-seller and kick-started a trend for all-in-one units featuring a CD player, amplification, streaming and internet radio connection.

In the wake of its success Naim expanded the family with the likes of the UnitiQute and SuperUniti. The original Uniti was my first major Naim purchase and is still going strong after a recent service (well worth considering if you bought one of the first models).

Now, though, the range is changing – and it's not just a minor revision but a thoroughly new set of components. Naim say they have spent some

£3.7 million designing the products from the ground up with new components, software and improved circuits.

First off the production line are the two on view here - the Uniti Core and the Uniti Atom. Both are compact, half-width designs in Naim's traditional aluminium black casing

but gone is the company's iconic green logo, to be replaced by an illuminated white version (which has provoked no end of comments on some internet forums).

UNITI CORE

Taken in turn, the Core is a dedicated CD ripper/server that can store tracks including high-definition downloads, then stream them wirelessly to any computer with UPnP ability. It supports most popular file

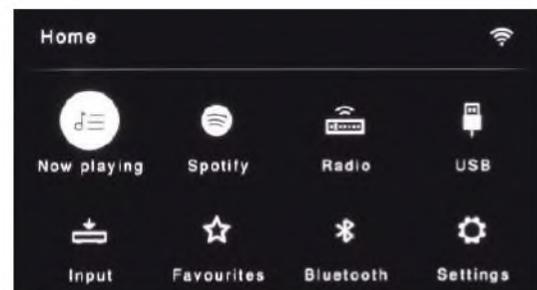
formats including WAV, FLAC, DSD, Apple Lossless, AIFF and AAC.

USB sockets are provided at front and rear for connecting other storage devices and there is also a digital S/PDIF output on the rear, meaning the Core can also be connected directly to your own existing DAC or integrated amplifier with digital inputs.

But it gets even more interesting with the Core. Shipped from the factory there's no internal storage fitted - giving the buyer the opportunity to specify the make,



The solidly-built remote control is one of Naim's best yet.



Internet radio, Bluetooth, digital and analogue inputs are all available from the set-up screen.



A user accessible tray allows storage drives to be swapped in and out of the Core.

model and size of disk fitted. This can be either a Hard Disc Drive (HDD) or Solid State Disc drive (SSD), and because of a slip-out caddy can be done yourself or specified at the dealer. As costs of storage keep falling this is a handy feature and also means

Inputs on the rear include two optical TosLinks that accept 24bit/96kHz, a coaxial RCA (24bit/192kHz), USB and a single RCA analogue input with three selectable sensitivities (1v, 2.5v and 6v). There's also a pre-amp out for connecting an external power amplifier if you require a bit more drive for your loudspeakers.

If you'd prefer to supply music to the Atom wirelessly it supports UPnP devices such as NAS drives, Google Chromecast, Apple Airplay and Bluetooth aptX, as well as built-in support for Tidal and Spotify Connect.

If you're wondering where the wireless aerials are, they're hidden in



The Uniti Atom also allows users to access a full range of internet radio stations - a great way of discovering new music from around the world.

control that first appeared in the £125,000 Statement amplifier. It's a gorgeous piece of engineering – a large, rotary dial with an illuminated outer ring that operates so smoothly and accurately it's a pleasure to use.

If you're sitting on the sofa, though, control is via a supplied remote or – as ever nowadays – a free app for Android and iOS. Naim was one of the first hi-fi companies to produce a fully-featured app and the latest version is among the best available. It provides access to all music on a network as well as internet radio stations, streaming services and playlists, as well as offering artist discographies and biographies.



The rear of the Atom has both digital and analogue inputs - although the latter is routed through an ADC (see Measured Performance for further details).

if a drive fails it can be taken out and replaced.

Ripping from your CD collection is an easy matter – simply slot the CD in and the Core reads it, stores the music and also downloads album artwork. I tried 250 CDs with an average rip time of 4 minutes per disc, so if you have a large CD collection you'll need to dedicate some time to it, but they will all be stored in one location once done, alongside any high-resolution downloads.

UNITI ATOM

The Atom comprises a streaming device, DAC and amplifier, all housed in a 10cm x 25cm x 27cm chassis (H/W/D). The class A/B output amplification is derived from the company's Nait series of integrated amplifiers and is rated at 40 Watts per channel - although, as ever, this is Naim Watts (see Sound Quality for more on this).

a panel behind the heatsinks on the side and support both 2.4GHz and 5GHz frequencies.

The fascia features a 5" LCD colour screen for showing album artwork, where available. The top features Naim's latest volume

SOUND QUALITY

Any new Naim Uniti product is going to be compared to those that have gone before - and here the Atom and Core combination is not wanting I found. The Core makes ripping and storing files easy, while the Atom is an insightful and



The volume control on the top of the Atom is derived from Naim's flagship Statement amplifier.

rhythmic amplifier/streamer.

Starting with Joy Division's 'She's Lost Control' the opening electronic drum pad crack had biting impact and when the bass came in was both deep and tuneful. In typical Naim fashion the amplifier punched the sound along but there was also a good deal of detail on offer.

On Philip Glass's 'Heroes Symphony' by the Bournemouth

Overall the sound was leaner than that of my resident Supernait 2 – but it did not lack substance. With Bjork's brooding 'Black Lake' the sound punched out of a pair of Spondor D9s with total authority and a wide, enveloping soundstage. There was a realistic tone to Bjork's subtle inflections and I could even pick out her intakes of breath between lines – something amplifiers at this price



The Core has ethernet, USB and S/PDIF digital links on its rear panel.

Symphony Orchestra (24/96) I could easily discern the layers of instruments – and track the individual musicians in even the densest of passages.

What also impressed me was the sense of control the amplifier exerts. At 40 Watts per channel it is not the most powerful amp at the price - but it didn't sound strained even when I pushed volume up.

often mask.

These characteristics stayed true no matter what form of digital input was used (streaming, Bluetooth, optical, coaxial). There was, though, a slightly warmer sound from the analogue connection with a touch less detail, probably due to the fact that the signal goes through an ADC first so there's an extra processing stage. It's a subtle difference though

MEASURED PERFORMANCE

The Naim Atom amplifier produced 45 Watts into 8 Ohms and 72 Watts into 4 Ohms, enough to drive modern loudspeakers to very high volume. The output stage is a classic Class A/B, but was better than most in possessing a very stable level-related distortion (0.02%) pattern, free from high harmonics, even at 10kHz – classic analogue done well.

Sensitivity of the Aux input was low at 400mV, insufficient for low gain external phono stages. Low sensitivity usually gives a noise figure around -100dB but the Atom managed a mediocre -83dB. Frequency response showed why: it is hard band limited by an 24/48 input ADC that turns the Atom's analogue Line in to digital – and ADCs are a tad noisy. All the same, linearity was very good (i.e. low distortion) and overload high at 3V, so it will accept the analogue output of any silver disc player (2V).

The digital (S/PDIF) input gave an unimpressive 106dB dynamic range with hi-res (24bit) digital, little better than

CD (102dB). Noise was again the issue here. Frequency response was again curtailed to 19kHz (-1dB) even with a 192kHz sample rate input.

The optical S/PDIF input was stable up to 96kHz sample rate maximum from a QED glass optical cable, glitching at 176.4kHz and 192kHz. The electrical (BNC socket) input accepted 192kHz without problem.

The Atom has been band limited through all inputs to give a classic smooth Naim sound and this is also why Class D has been avoided. The digital section is 'budget' in performance. **NK**

Power (8 Ohms)	45W
Frequency response	3Hz-19kHz
Distortion (10kHz, 1W)	0.02%
Sensitivity	400mV
Noise	-83dB
Digital (S/PDIF/USB)	
Frequency response	7Hz- 19kHz
Distortion (24bit, -60dB)	0.1%
Separation	88dB
Dynamic range	106dB
Noise	-102dB



System settings allows you to tailor the Naim Uniti Atom to your individual preferences.

and replay was remained impressively coherent.

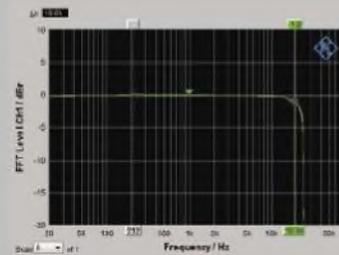
Throughout the listening period I had the Core on one side of the room and the Atom on my rack at the other end a good 12 foot away – and never once did the wi-fi signal drop out.

Put all this together and the Naim Uniti Atom/Core are a potent combination. Take a listen and you will be seduced.

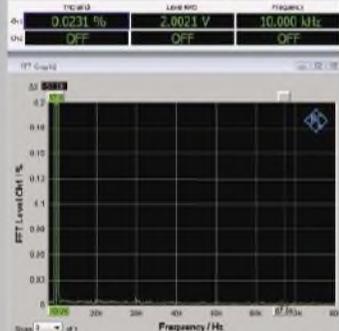
CONCLUSION

Although these new Naim components can be used as standalone packages, put together they are a joy I felt. They are feature-packed yet easy to use and have a simply superb sound. If the original Uniti range was ground breaking these updates take everything to a new level.

FREQUENCY RESPONSE



DISTORTION



NAIM UNITI ATOM
£1999



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A compact amplifier/DAC/streamer whose small size belies its big, detailed and authoritative sound.

FOR

- versatility
- clarity
- great timing
- ease of use

AGAINST

- nothing at the price

NAIM UNITI CORE
£1999



OUTSTANDING - amongst the best

VERDICT

Easy to use ripper/storage device that can hold all your CDs and high-resolution files.

FOR

- compact
- accurate ripping
- wi-fi enabled
- automatically downloads artwork

AGAINST

- nothing

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www.naimaudio.com

ortofon

accuracy in sound



2M

The 2M Series, named after the abbreviation of Moving Magnet (MM) technology, is an affordable range of pick-up cartridges with first-class audio design principles throughout. Featuring Ortofon's trademarked split-pole pin technology for a flat frequency response, all 2M cartridges have a high output for easy integration into any turntable system.

Designed in conjunction with celebrated design house Møller-Jensen Innovation Design, the 2M Series body represents the shape of a diamond, whose contours gracefully trace the grooves on a record's surface.



Red.Cartridges

A hugely popular all-purpose cartridge with a Tipped Elliptical stylus that delivers an open, dynamic sound with a slight touch of warmth.



Blue.Cartridges

An affordable step up in the range, which adds a greater resolution, dynamics, and detailed sound thanks to the Nude Elliptical stylus.



Bronze.Cartridges

Featuring a superior body, the Bronze picks up even the highest frequency information for a rich, detailed and deep soundstage, and can be further upgraded with ease.



Black.Cartridges.

The musician's choice and flagship of the range, the 2M Black features a Nude Shibata stylus which guarantees a true-to-life sound performance.



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KEF's Wireless Wizards



The new LS50 Wireless active loudspeakers from KEF are an all-in-one solution that take up little space but pack a mighty punch, says Jon Myles.

A decent hi-fi system can take up a lot of space in your living room, with source components, amplifier, loudspeakers and the like. But need it be so? Not according to KEF whose new LS50 Wireless loudspeakers junk the clutter without sacrificing sound quality.

How so? These are a pair of active standmount loudspeakers incorporating their own amplification as well as built-in Spotify and Tidal compatibility for accessing streaming services, the ability to find music on your own home network (from

a NAS drive or computer) as well as being able to deliver tracks from smart devices via Bluetooth.

Based on the excellent-sounding KEF LS50 passive loudspeakers, these new actives are slightly larger to accommodate the electronics and heatsinking but are still relatively small at 30cm x 20cm x 30.8cm (H/W/D).

The drive units are the same though, in the shape of the tried and tested KEF Uni-Q array which uses a 25mm aluminium dome tweeter sitting in the centre of a 13cm magnesium/aluminium mid/bass cone to provide a point source

arrangement.

A proprietary Tangerine waveguide is fitted in front of the tweeter that, KEF say, helps dispersion.

But it is on the inside where things get truly interesting. Each loudspeaker has an internal DAC for processing digital signals as well as amplification developed in co-operation with KEF's sister company Gold Peak Electronics.

Designer Jack Oclee-Brown told me this involved extensive listening tests until the exact specifications were decided – which resulted in a Class D module being employed



Come Together
The Beatles
FLAC 192 kHz 24 Bit

4/5

4:16

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4:16

LUMiN



The master unit of the LS50 Wireless contains all the main inputs, including optical and USB digital and analogue. You can also choose between desk/stand and wall/free space settings to optimise positioning.

for the mid/bass unit with separate Class A/B amplification driving the tweeter. It means there's 200 Watts per channel feeding into the former with 30 Watts per channel going into the latter – giving a healthy dose of power.

The 'speakers operate in a master/slave configuration with the right-hand unit containing the inputs and connected to its partner by a (supplied) cable. Take a look at the back of the master loudspeaker and you'll find analogue stereo inputs (RCA phono sockets), plus digital optical S/PDIF and USB type B inputs, as well as an ethernet socket for connecting to a home network. The internal DAC is capable of handling 24-bit/192kHz files through the USB and network connections with the optical going up to 96kHz signals.

Each loudspeaker also has controls for adjusting the sound for different speaker placements with options for close-to-wall or free space positioning. Download the free KEF app for tablets or smartphones and there are even more options for tailoring the sound.

And, of course, while they may be dubbed Wireless that's not quite accurate – you'll still need to plug each unit into a power outlet and connect them together.

SOUND QUALITY

Active loudspeakers have much going for them, not least the fact that the designers can precisely match the amplification to the characteristics

of the drive units. They also remove the influence of 'speaker cables on the sound.

Done well they have a punch and authority passive loudspeakers struggle to match – and that is exactly how these KEFs sound.

Despite their relatively small size they have a big soundstage, the internal amplifier configuration projecting music well into the room with excellent left to right dispersion.

Playing Massive Attack's 'Safe From Harm' (24/96) I couldn't help but be struck at how deep and insightful the bass sounded. There's no overhang or unsettling boom but just a clean, precise rendition of the notes.

The same goes for the mid-range and treble. With Arvo Pärt's haunting 'Tabula Rasa' the Uni-Q driver brought out the space around the sparse piano parts while also retaining the natural decay of the notes.

Compared to the original passive LS50s these active versions have a touch more dynamism to them which works superbly with up-tempo music. Using the Bluetooth facility via an iPhone 7 Plus, the electronic synth bass of Lady Gaga's 'Bad Romance' throbbed with power yet never overwhelmed the vocals. Instead the whole track hung together beautifully combining a great sense of timing with superb detail.



The top of the master speaker has touch sensitive controls for selecting inputs.

Such was the performance on offer I couldn't help but turn the volume up – and the KEFs didn't complain. Even at, frankly, ear-splitting levels they stayed composed and tuneful – a testament to how well active loudspeakers can sound.

Those looking for the sub-sonic bass and overall scale that larger floorstanding loudspeakers can provide won't find it here. But the LS50s are so well-judged that you never think of what is missing but simply revel in the overall sound on offer.

CONCLUSION

KEF has fashioned something special with the LS50 Wireless package. For £2000 you are getting an excellent loudspeaker with a streamer, DAC, pre-amp and amplification built-in which won't take up too much room but more importantly sounds superbly entertaining. Simply plug in, listen and enjoy.

MEASURED PERFORMANCE

The LS50 Wireless has a very smooth frequency response our analysis shows, free of variation except at 1.5kHz where a dip corresponds to a peak in port output, suggesting an internal cabinet mode responsible for phase cancellation – not uncommon in small cabinets. Subjectively this will not be easily audible.

The LS50's smoothness of output suggests very low colouration due to an absence of minor resonances. The slight downward tilt toward high frequencies ensures there's good body to the

sound and the absence of a crossover dip and treble peaking tells of strong detail, yet smooth treble. This makes for amenable long term listening.

Set to Free Field (no close rear wall) and Stand Mounting bass is strong and extends smoothly down to 50Hz, the port (red trace) contributing to output around 40Hz. The speaker produces plentiful bass, but not subsonics. Selecting Desk mounting reduced upper bass and gave the flattest measured result. Selecting Wall reduced lower bass by a few dB.

The LS50s needed a low 93mV input to Aux to produce 90dB sound pressure level (very loud) so they can be connected to any mobile phone or tablet headphone output and reach full volume.

The LS50 Wireless will sound smooth, mild yet strong in bass output. Selecting Desk gives a drier bass delivery but one that is more accurate. In all, this is a very well developed loudspeaker of great ability, measurement shows. **NK**

FREQUENCY RESPONSE

Green - driver output
Red - port output



KEF LS50 WIRELESS £2000



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

Enthralling sound from a pair of loudspeakers which pack in a DAC, pre-amp, streamer and Bluetooth. A truly innovative package from KEF.

FOR

- clear and detailed
- tight bass
- connectivity options
- sound bigger than they look

AGAINST

- nothing

KEF
+44 (0) 1622 672 261
www.kef.com

LINDEMANN.

"The Limetree Phono is something of a bargain preamp. It offers outstanding levels of performance with moving-magnet cartridges alongside a more than respectable moving-coil showing too, should you choose to upgrade at a later date. At the price, this feels like a gift to any vinyl fans that are on the hunt for a good-value phono stage".

Ed Selley, Hi-Fi Choice



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Heavy Metal



With an 8kg brass and tungsten platter, Technics new SP-10R Professional Direct Drive turntable was barely liftable, Noel Keywood finds. There's little like it.

When LP ruled – sales peaking in 1979 – radio stations, clubs and what have you needed turntables that started and stopped fast and were bullet proof. Hence the Garrard 401 I use with its rock-like construction. Over in Japan, at that time Pro turntables instead used the newly developed low speed d.c. motor, dubbed Direct Drive. Technics made one of the finest in the SP-10 Mk2. Their new SP-10R I'm reviewing here revives old glories then, for today's market in vinyl that is able to afford bigger price tags it appears, in this case £9000 for the chassis alone.

The SP-10R is a low volume, highly specialised turntable made for those around the world aware both of their own needs and likely future values. As such Technics have not held

back in their attempts to establish it as a new market reference in both performance and durability. Perhaps spurred by a global petition asking them to re-start manufacture of the SL-1200 Mk2 Direct Drive turntable. This was a remarkable cry, likely convincing them there was global mileage in products so good they defied the ageing process, becoming legendary in doing so.

The SL-1200 Mk2 was replaced by the SL-1200G/GAE and then SL-1200GR turntable re-launches in 2017, the former an expensive £2800+ all-in-one package (i.e. with arm and plinth) with new technology Direct Drive motor, the latter a cut-down version with simpler single-rotor motor (£1300). All this gets into perspective the SP-10R. It uses a twin-rotor motor like that of the SL-1200G but is a basic turntable unit without plinth or arm.

With no arm or plinth and a higher price tag, you might wonder what the point is then. Bringing me to what pro turntables are used for. An apt example is that of George Blood's SP-15 turntable we published in our July 2018 issue with no fewer than four pickup arms around it – each arm carrying a different size 78rpm stylus for matching old 78s. This set up demands a motor unit mountable in a custom plinth. Anyone wanting a stone or slate plinth, or worked hardwood plinth also needs the SP-10R – as well as deep pockets! It might sound a bit esoteric but this unit appeals to a prestige market where top quality counts.

Technics use their own arm in the all-in-one packages, but people want alternatives: hence our use of a Timestep modified SL-1210 Mk2 in-house, fitted with an SME309 arm. This is in-effect a Pro working deck,

REVIEW

acting as our hard-used reference for LP.

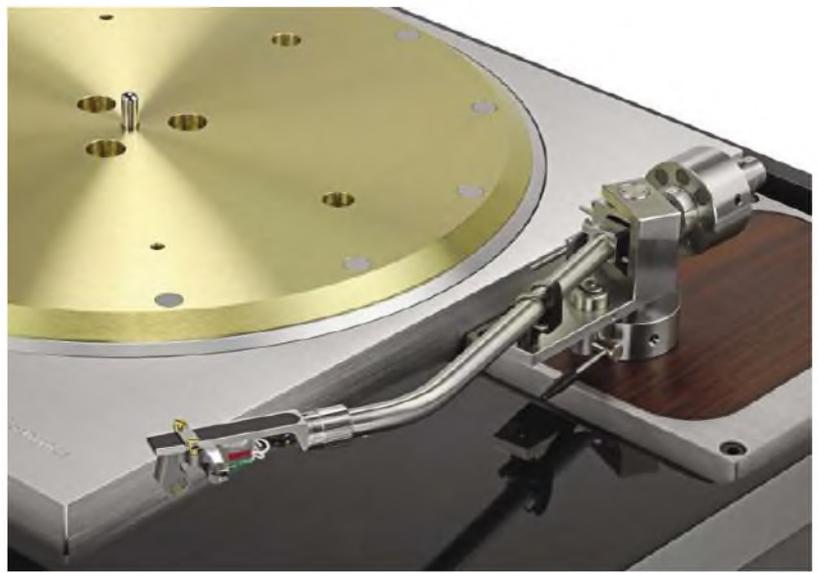
A bare-chassis reference deck then has a lot of potential uses, more than I know I suspect. All of which is to place the new SP-10R into its real-world context.

Technics asked us if we were happy to accept a basic unit, meaning we would have to mount the deck onto a plinth and fit an arm. Of course we were! But I didn't start up my circular saw. Plinth materials and construction then become an issue in themselves and we co-opted Timestep to sort this out for us, since they work with Technics, so our set-up comes tacitly approved. The decision here was to use a Technics plinth rather than an after-market plinth. On it was



Our review sample SP-10R, flown in from Japan, was fitted to an original Technics plinth of enormous weight.

fitted a high quality Japanese Glanz MH-94S stainless steel tonearm. We retained cultural authenticity, whilst also ensuring Technics would not question our choice of plinth! More seriously, Timestep were happy that Technics' original plinth was up to the job – we couldn't risk adding colouration from this source. The SP-10R is a three-speed turntable, 33, 45 and 78rpm, with +/-16% variable pitch (speed). Basic speed is chosen by three turntable mounted push-buttons, but an external power supply carries speed adjustment, in terms of % or rpm on a digital display, as well as five torque settings. The speed range is fine for general purpose use, even for most rare records where 90rpm is the upper limit. The only records not catered for are some historic cuts made at 16rpm for the spoken word, since 28rpm is the lowest speed possible.



The Glanz MH-94S stainless steel arm with its original headshell. We replaced this with an Ebony headshell. Cartridge - Ortofon A95 moving coil.

Missing is the convenient speed change slide control, illuminated stroboscope and pop-up cue light of consumer models; this unit is not purposed for DJ work, nor does it look particularly eye catching.

An unadorned Pro deck, it may well disappoint

potential buyers who'd like the traditional twiddly bits and a nice bit of lighting – but their choice of arm.

A point Timestep made is that the external (switch-mode) power supply sends command signals to motor servo-chips within the turntable chassis. There's no control circuitry within the power supply, so it can't be modded or replaced to affect performance. The start torque comes set at maximum (Torque 5), presumably for shortest start time, but Torque 1 gave best speed stability (see Measured Performance) and start time wasn't inconveniently slower. I used it at Torque 1.

Technics have given the new SP-10R identical 'bottom shape and screw locations' it says in the handbook, as earlier SP-10 MK2 and SP-10 MK3 models, so 'you can continue to use your cabinet and tonearm' – as we did. Its weight is considerable at 18.2kgs (40.2lbs), and our assembly weighed 31kgs (68lbs) in total – barely liftable. Dimensions are 365mm x 109mm x

365mm. The platter is of brass/cast-aluminium sandwich construction with a 'deadening' rubber layer, heavy tungsten weights at its periphery adding inertial mass. It weighs nearly 8kgs alone and comes with screw-in handles that facilitate lowering onto the platter spindle. Technics advise not to use an electrical screwdriver or impact hammer to tighten the fixing screws!

The main chassis is also cast aluminium. There are three speed selector buttons and a large square Start/Stop button. The unit runs at the default speeds unless adjusted, whereupon a small blue indicator LED turns orange. Turning power off then on returns to default speed, not last adjusted speed. However, dimmer and torque settings are retained at power off/on. A record clamp weight of up to 1kg is suitable, but not supplied. A rubber mat is supplied, but our pictures show the bare platter to reveal its construction.

SOUND QUALITY

Initially I fitted an Ortofon A95 moving coil cartridge to the Glanz arm but had reservations and



The strengthened main bearing carries three support pillars to retain the 8kg platter.

SP-10R MOTOR

The massively heavy 8kg platter of the SP-10R is driven by a twin rotor motor, like that of the SL-1200G, carrying powerful rotor magnets both above and beneath the plinth-mounted stator drive coils. In outline the motors are similar, but the SP-10R needs more torque to get its platter up to speed quickly so has additional drive coils. It also has a larger thrust pad at the base of the spindle to support the weight of the platter. Interestingly, Pro-ject MD Heinz Lichtenegger told me that the use of mass to sink energy from the platter and bearing was an important feature of their better decks, so sound quality wise this is not to be under-estimated, helping reduce low level vibration in the platter and the noise it produces.

A traditional criticism aimed at Direct Drive and still alive today on the 'net is that of 'cogging'. It's real and can be measured – our analyses clearly show it. But the levels are minuscule and with the SP-10R a small cogging component at 9Hz appeared at start up only, when the motor was required to apply maximum torque to get the platter up to speed quickly. Otherwise there was no measurable cogging, as you'd expect from such a massive platter with such high rotational inertia it irons out fast (flutter) speed variations. All the same, Torque can be reduced in the control unit and this improves speed stability even further.

As on the SL-1200G, Technics use pancake shaped stator drive coils, fed by power transistors driven from a motor driver chip controlled by a Renesas RX231 microprocessor, part of the RX23 family billed as suitable for Brushless DC (BLDC) motor control. Hall effect sensors, that sense the magnets in the rotor, provide positional feedback, as is common in BLDC motors. Rotational speed is sensed by a 'hybrid encoder' at the base of the platter bearing shaft. In all, the control electronics is hugely complex and Technic's own motor parts and platter (rotor) very sophisticated, being upgraded versions of SL-1200G parts it appears.



most else, with forceful insight on tracks that juddered a little. I'm used to a more laid-back, organic sound. Changing from our deeply analytical Ortofon A95 to fuller-bodied Cadenza Bronze MC cartridge brought better subjective balance, if not the easy smoothness and stage depth of our SME309 arm, or my magnesium SME312S at home – known for its laid back performance.

The Glanz stainless steel tubular arm has an altogether brighter patina than the rolled alloy, tapered SMEs, turning a bright spotlight onto music. It made for impressive sense of insight, enhanced by the SP-10R's qualities of tonal purity. Even



The Glanz MH-94S arm is sturdily built from stainless steel.

swapped to our Ortofon Cadenza Bronze. This decision was swung by sound quality of the whole assembly, in which the arm played a strong role. Measurement showed best results came from a Timestep T-01HS Ebony Wood Headshell Silver Wire 15gm headshell, so it was used in all listening tests, as well as a contoured rubber platter mat. An Icon Audio PS3 valve phono stage fed an Icon Audio Stereo 30SE

with 12in 45rpm Dance singles where synthesisers impose machine timing to rhythmic progression. Spinning Alison Goldfrap's 12in 45 'Ride A White Horse' – drum sequences came at me like speeding bullets, all in locked time order.

Beyond the issue of perfect pace I also heard a purity of tone that marks out this turntable's character; even with live acoustic performances such as Eleanor McEvoy's 'Isn't it a

our Cadenza Bronze came over as brightly lit, as well as fast and hard edged in temporal character, where from my general experience it is "romantic" with honey-sweet treble quality and an easy going nature.

So as a system this one changed the sound in front of me – in quite extreme fashion. What I heard

"Offers a degree of unarguable perfection for professional studios and anyone working with vinyl."

Single-Ended amplifier driving our Martin Logan ESL-X hybrid electrostatic loudspeakers with, as always, an Isotek Evo3 Mosaic Genesis regenerated mains supply.

The SP-10R's amazing grip on timing was obvious from the outset, as always with Technics Direct Drives. Where belt drives wander in speed and sound temporally vague or even drunken when it gets bad, the SP-10R had a supreme grip on timing and pace. The property is most obvious

Little Late' the SP-10R brought clarity to the stripped down musical arrangement, her voice and guitar having a fresh and pure sound – likely attributable to lack of the frequency-modulation hash caused by speed variation.

With our Ortofon A95 moving coil (MC) cartridge this turntable assembly was vividly brighter in basic presentation than



The external power supply adjusts speed and torque. Also here is the Glanz tone-arm lead.



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The external power supply is a switch-mode type, able to work on any mains voltage.

generally was enormous insight and fabulous temporal grip from the Technics, tonal qualities better described as vivid than laid back.

Enormously impressive was our wonderfully recorded (384kHz DXD) and cut 2L LP of Marianne Thorsen playing Mozart violin concertos. She was brought forward on the sound stage and spot-lit to an extent that her every small dance of bow on strings was made so brutally clear I couldn't help but be made aware just how wonderful her playing is. And again there was fabulous purity of tone within the strings of her violin.

Perhaps more surprisingly, the

sudden interjections of the Sondheim Solistene (Sondheim Soloists) were sudden and in strict time, seemingly locked into the performance, in rigid order. I say "surprisingly" because unlike synth timing, human timing is more mellifluous, yet all the same a tighter order was still apparent.

I'd muse that in this set-up best balance would be achieved with an Ortofon Cadenza Black that has a very mild balance. The system here was so finely honed and revealing that cartridge choice is a major issue. However, the role of the SP-10R in providing a rock-stable sound with great tonal purity and

low background noise was always apparent.

CONCLUSION

It's simple in appearance and easy to use: seemingly you don't get so much for £9000 here! However, measurement showed the new SP-10R has unrivalled speed stability – everything that Technics claim in fact. Because under the simple exterior lies a massively powerful and capable professional Direct Drive motor of modern design. Arguably it's a tad too bare for domestic use, where an SL-1200G or GR has more visual appeal.

This is a spinner of vinyl for the serious, where you just want to punch a button and get on with it – there's a job to do. That's me with our Timestep modified Technics deck, so I understand and appreciate the intended role of the new SP-10R. It offers a degree of unarguable perfection for professional studios and anyone working with vinyl. If you want such unerring focus on the basics of playing LP – time to check the piggy bank.

MEASURED PERFORMANCE

The Technics SP-10R seemingly ran +0.12% fast according to our DIN 45 545 test disc but this is likely a minuscule difference between Technics speed standard and DIN, than turntable inaccuracy. The 3150Hz test tone remained rock steady at 3154Hz with no variation on the frequency counter – extraordinary.

This quartz-locked lack of variation of basic speed meant Wow and Flutter values (speed variation at low and high rates) would be low – and they were. Technics quote 0.015% wow & flutter (Japanese JIS Standard) and we measured 0.02% (JIS Standard, Torque 1) – which is close enough at such low levels. Timestep use a Denon test disc and this gives 0.014% figure they say. These are minuscule speed variation values, way below belt drives and far below what we can aurally detect (think 0.2% – ten times more).

Hi-Fi World turntable reviews quote Wow & Flutter to DIN Standard, using the DIN 45 545 test disc and DIN meter ballistics and weighting. DIN figures for the SP-10R are quoted below for comparison to our other turntable reviews. Japanese JIS figures are lower than DIN, due to a long time-averaged meter ballistic, but whilst the figures look better, the performance is still the same

of course.

More illuminating than a meter readout is our spectrum analysis that shows a low peak at basic rotational rate (0.55Hz / 33rpm) and very low harmonics above that frequency. The infamous "cogging" of Direct Drive motors was just visible at 9Hz but at minuscule level just after start up. It subsided to zero after 30 seconds or so, with Torque set as standard to maximum (Torque 5). This suggests Technics are using a 16 pole motor (16 x 0.55Hz = 9Hz), not a 12pole as in the SL-1200G/GAE where cogging was at 6.6Hz.

Reducing torque to minimum (Torque 1) brought obvious improvement, surprisingly cutting basic rate variation at 0.55Hz by half, as our analysis shows. This variation I thought was down to residual factors such as disc eccentricity (even though it is carefully centred using the locked groove) and cutting lathe variation – but perhaps not. The SP-10R produced its best result in speed stability tests at Torque 1 – and they are exceptionally low values, beyond all else.

Vibration testing the Glanz MH-94S arm with its standard slim headshell, using a Bruel&Kjaer accelerometer, showed a strong first order bending mode of the arm's tube at 275Hz and lively headshell behaviour. An Ebony

replacement headshell gave a far better result, good by any standard, ensuring our view of the turntable wasn't compromised.

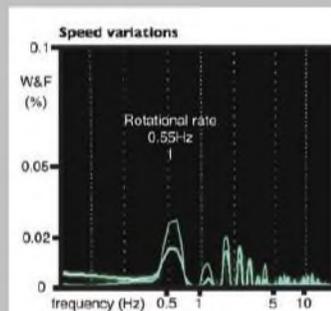
In all then, the SP-10R offers exceptional measured performance, having unmatched speed stability at Torque 1. NK

SPEED VARIATION

DIN Standard (Europe)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.05%
Total W&F wtd	0.04%

JIS Standard (Japan)	
Speed accuracy	+0.12%
Total W&F unwt'd	0.03%
Total W&F wtd	0.02%

WOW & FLUTTER



TECHNICS SP-10R DIRECT DRIVE TURNTABLE £9000



OUTSTANDING - amongst the best

VERDICT

A near-perfect Direct Drive turntable for Pro use. Sets standards.

FOR

- speed stability
- adjustable torque
- ease of use

AGAINST

- no disc light
- no strobe lamp
- heavy

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Duo delight

Cambridge Audio's new Duo phono stage is a bargain at just £250, says Noel Keywood.

Cambridge Audio cruise things like analogue phono stages, that are a technological pimple in the wider electronic landscape presented by digital. And that's obvious with the little Duo, price just £250. For this you get a small box that connects between turntable and amplifier (because that's what they do) so as to play LPs. Yet it's sophisticated inside, perfectly manicured to do the job properly where most are not.

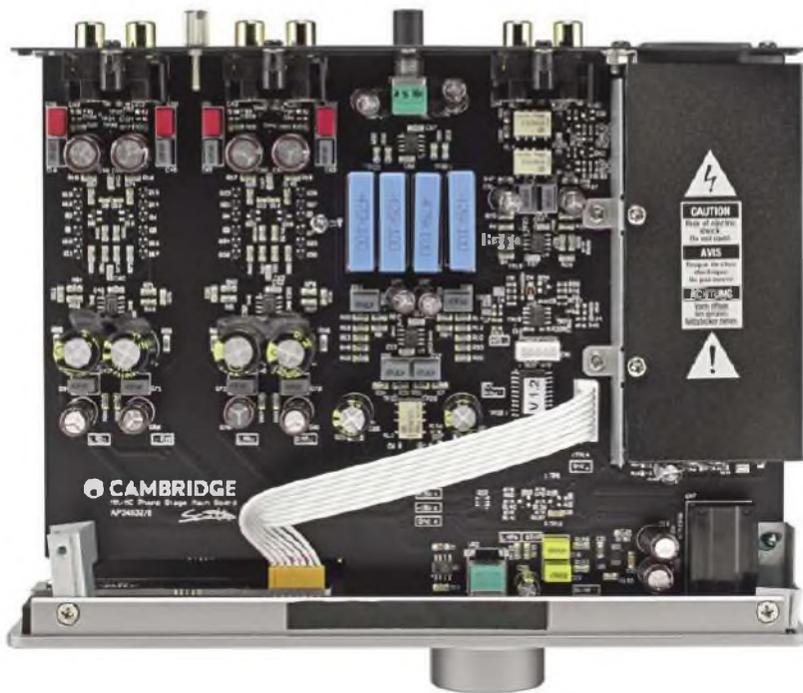
Physically, there's very little to the Duo. It is a small, lightweight and unassuming grey box. The volume control – here comes a gripe – affects only the headphone output, which I think is an opportunity lost: gain from input to line output is fixed, and gain via the headphone output too low to drive most power amplifiers direct.

So this little unit is best partnered with a normal integrated amplifier with reasonably sensitive input (200mV or so). It isn't purposed to run power amplifiers

direct, something I like to do as it makes for a pure and simple system.

I'm uncertain why the Duo has a headphone output, since most integrated amplifiers have one in any case. Is it because headphones are so popular nowadays that (young) people don't bother with amplifiers and loudspeakers – as in my house where my son thinks his World Audio Design K588I amplifier and Revolver loudspeakers are wonderful, but never turns them on because he'd





Neat internal construction reveals the quality of the Cambridge Audio Duo phono stage. At a price of £250 it puts many other rivals to shame.

"With rock music the Duo sounded fulsome and both deep and broad in its soundstage"

have to remove the ear buds to which he has become biologically attached?

The Duo is aimed at such an audience I suspect.

This little phono stage has a dedicated moving coil (MC) input, offering higher quality than MM. Since inexpensive ear buds became popular with iPods and a good proportion of that audience seems to have decided it is worth paying more for better quality over-ear headphones, perhaps as the LP returns moving coil cartridges will also become popular; after all good ones now cost £500 – much the same as decent headphones.

When switching from MM to MC a light-action press button actuates relays internally, giving a slight delay and complete absence of switching cracks or thumps, even with the high gain of MC selected and volume turned up.

Internally then, the Duo is more sophisticated than it appears – and also more sophisticated than most rivals, especially at the price.

There are no cheap DIP switches underneath and there was also no hum. Best to be aware however that measurement and use revealed it has low gain, meaning low output MCs are not best suited, since volume will have to be turned up very high. However, at the same time this is a super-quiet preamp so even with volume right up there's almost no hiss or hum.

Also on the rear panel is an unusual addition – a balance control. Cartridges can suffer slight channel imbalance, this control allows it to be nulled out.

SOUND QUALITY

I used a Timestep Technics Evo SL-1210 Mk2 turntable with SME309 arm – and cartridges were initially an Ortofon 2M Black (MM) and an Ortofon Cadenza Bronze MC.

The Duo was first connected to a Creek Evolution 50A amplifier to see how its low gain would influence usage – and all worked well enough: I had to turn volume up but there was

seemingly plenty of grunt available. The sound struck me as mellow.

For more critical assessment and expecting a less mellow presentation I moved on to our McIntosh MC152 reference power amplifier with a Music First Audio passive magnetic preamplifier (0dB gain) that acted as a transparent volume control ahead of it.

Loudspeakers with both amplifiers were Martin Logan ESL-X hybrid electrostatics and cables Chord Signature Reference. All components were fed by an Isotek Evo3 Mosaic Genesis re-generated power supply to eliminate mains influence.

With the 2M Black I was again struck by the mild treble of this phono stage that our Creek had revealed. But it also sounded smooth, clear and tidy.

I measured the Duo fed from the 2M Black to ensure its response wasn't being affected by input capacitance, but all was well.

Slightly unsettled by results from our 2M Black, which is perhaps growing old gently, I fitted a new Audio Technica AT-760SLH to the SME309 arm and this was both crystal clear and forceful up top – so the Duo hides nothing, it just lacks harshness. With the more tonally accurate 750SH stylus the Duo sounded right.

Our Cadenza Bronze MC also came across as easy going but at the same time the Duo provided a silky open sound stage with plenty of depth, fully revealing the qualities of the Bronze, where budget phono stages commonly mask its abilities.

As LPs span one after the other I came to realise that the Duo is a sophisticate. It is stony silent with MC – more so than is common – and I can tell someone at Cambridge has studied this issue and selected a super-quiet chip.

It's also dynamically quiet: with volume turned a fair way up, when I dropped needle into groove on a Decca re-master (180gm) from Pro-ject of Mozart Symphonies there was little surface noise: ticks and pops being almost absent.

The Wiener Philharmoniker came over as full bodied, strings smooth-to-silky and the sound stage spacious.

No surprise that after this the slightly sheeny Direct Metal Master from 2L (Norway) of



The rear panel contains moving magnet and moving coil inputs, plus a balance control. Rubber feet anchor the unit firmly on a hi-fi rack despite its relatively small size. Balanced XLR outputs are missing, and balanced inputs too (rare). But both add to cost – and this is an affordable unit.

Marianne Thorsen also playing Mozart – Violin Concerto No4 – had lost its sheen, instead sounding well lit but convincingly balanced and structurally composed in a natural space.

LP was never popular for classical because of ticks and pops, but I hardly heard them from the Duo. It works wonderfully with MC cartridges: think smooth and sophisticated.

With rock music the Duo sounded fulsome and both deep and broad in its soundstage. It lacked the fast deep bass of the

"Although seemingly simple the Duo is in fact technologically sophisticated... with a svelte sound"

Rotel RA-1572 I review in this issue, but then warp filters are a mixed blessing, but bass was still strong. Mark Knopfler's laconic vocals drifted out of a dark background in 'Madame Geneva's' from the Kill to Get Crimson LP, underpinned by a fulsome bass line. The Duo has good low-end heft and – overall – teased out and displayed the strengths of a moving coil cartridge with impressive ability.

I found I could crank headphone volume up to

maximum with Audio Technica's ATH-ADX5000 headphones and not be deafened. A bit more gain would have been appropriate here but it was not a big issue overall.

CONCLUSION

Although seemingly simple the Duo is in fact technologically sophisticated, using logic controlled switching of small-signal relays to give slick thump-free operation. Gain is low so volume

needs turning up, but there's just about no hiss or hum: attention has been paid to this – few rivals at any price compete.

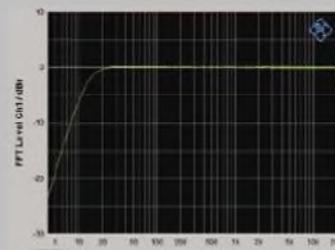
With a svelte sound that ably reveals the qualities of a quality MC cartridge, and also gets the best from high quality MMs, it is the one to go for – especially at the price.

I was completely impressed – and I suspect (young) headphone users interested in LP will be too.

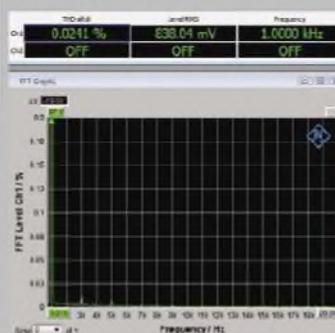
MEASURED PERFORMANCE

Frequency response of the Duo was identical between MM and MC, not always the case because MC sometimes runs out of puff at low frequencies. It has a perfectly flat response (accurate RIAA equalisation) down to 15Hz (-1dB), below which an unusually steep warp filter applies - 30dB attenuation at 5Hz – impressive. This eliminates loudspeaker cone flap

FREQUENCY RESPONSE



DISTORTION



with warped records.

Gain via the Line outputs with MM (moving magnet) was low at x83, meaning the Duo will give barely 100mV out. Volume will have to be turned right up on partnering amplifiers. The MC (moving coil) input gave x1000 which is again on the low side.

The volume control only influences the front panel 1/4in (6.3mm) headphone socket that delivers 1.7V maximum, before overload. This can be used to drive a power amplifier direct but gain is very low at x55, meaning 1mV in from an MM cartridge will give 55mV out where most power amps need 1000mV for full output.

The Duo is distinguished by very low 0.09µV equivalent input noise – better than most MC phono stages on the market. The low MM value means the preamp contributes no noise to that produced by the coil of an MM cartridge.

The Duo could do with more gain but otherwise its warp filtering and super low noise make it stand out. **NK**

Frequency response 15Hz- 20kHz
Gain x83, x1000
Overload 33mV in, 7mV in / 7V out
Separation 66dB
Noise 0.09µV e.i.n.

CAMBRIDGE DUO £249



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

Low cost but high quality MM/MC phono stage that is technologically sophisticated and svelte in its sound. A must have.

FOR

- smooth sound
- super quiet
- balance & headphones

AGAINST

- fixed warp filter
- no output level control
- low gain

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Not So Plain Plenuie

Cowon's latest high-resolution digital audio player has space-age looks and excellent sound, says Jon Myles.

Portable high-resolution digital audio players (DAPs) have come on in leaps and bounds over the past few years. The first had basic controls, small screens and were cosmetically simple compared to something like Apple's iPods and the iPod Touch.

Today, touch screens are becoming standard, while shape, style and build quality are becoming ever more important in a crowded and dynamic market. Nothing typifies

this more than the latest player from South Korea's Cowon - the Plenuie V I'm reviewing here.

Take it from the box and this sleek machine looks more like a high-tech communicator from one of the Star Trek films than a £270 DAP.

Featuring a sculpted metallic body that tapers to a point at the base and has an angled back, the Plenuie measures a pocketable 9cm x 5.5cm x 2.5cm. Place it on a flat surface and the front screen is angled up in an elegant manner.

That screen can be used to control all the functions via Cowon's graphical user interface that - while featuring a number of the usual drill-down menus - is intuitive and easy to operate. There are also physical buttons for volume, playback and search on the right hand side.

A USB charging lead is supplied and a microSD card slot fitted for adding extra memory up to 128GB. As the Cowon has 64GB of internal memory there's a total of 192GB available - more than enough for



a decent high-resolution collection unless you specialise in DSD, whereupon the limit falls to a few hundred tracks.

One quirk is a power button that consists of a Plenu logo on the back of the machine that's pressed to turn on and off. Cowon don't explain the



One side of the Cowon Plenu V has the USB socket for charging and a microSD card slot for adding extra storage (up to 128GB) to add to the unit's in-built 64GB memory.



The on/off power button is (unusually) on the rear of the player and consists of a Plenu logo. Manual side buttons allow for all other functions to be accessed.

logic of this – and it isn't easy to use.

Inside, the Plenu V uses Cirrus Logic's CS43131 DAC that offers 24bit/192kHz reproduction and, the

Phase-comp, Slow/Low-latency, Slow/Phase-comp, Non-oversampling - to enable users to tune the sound to their own individual tastes (more of

"touch screens are becoming standard, while shape, style and build quality are becoming ever more important".

company says, has been optimised for low-power consumption. Cowon claims 27 hours of high-resolution audio playback is possible from a single charge. In testing I managed a maximum of 25 hours - but, then again, I do tend to play my music loud!

The DAC also has five digital filters - Fast/Low-latency, Fast/

which later).

In terms of design there's very little to dislike about the Plenu V. Yes, it looks different but that's no bad thing – and its compact dimensions means it will easily fit into a shirt pocket without weighing you down. I can't help think that if Apple produced a similar looking product people would rave about it.



The touchscreen front panel gives access to all features as well as displaying album artwork. It's menu-driven but not too complicated.

SOUND QUALITY

I plugged the Plenu into a variety of headphones including my Noble K10 in-ear monitors, a pair of AKG K702 Reference open-back over-ear studio headphones – both ruthlessly revealing - and the new FiiO F9 Pros (see Hi-Fi World review July 2018).

Music included standard 44.1kHz CD tracks, plus a variety of high-resolution material loaded onto a microSD card from a MacBook Air.

With the Nobles K10s the Plenu demonstrated excellent definition on Eleanor McEvoy's 'I've Got You To See Me Through' (24/96) from 'Yola'. The opening piano notes

"Excellent sound at its price with an easy to use interface."

were strikingly good, having a natural decay. This is an exceptionally well recorded album and the Plenu V made the most of it. McEvoy's guitar playing throughout came over as crisp and tight – her voice soared.

Switching to the AKGs the soundstage opened up - which is something open-back 'phones are better at compared to in-ears - with an almost loudspeaker-like quality that added an extra degree of atmosphere to the sound. Now it was as though the vocals and instruments were coming from around my head.

I've heard more expensive DAPs that don't delineate between different headphones with such accuracy and a sense of which transducers you have plugged in.

Switching to Oasis with their 'Definitely Maybe' debut on a standard CD rip showed the usefulness of the various filter options. Here Non-oversampling softened the searing guitar on the opening 'Rock 'N' Roll Star' - reining back the treble to give a much more nuanced presentation.

It meant I could turn the volume up that bit louder without wincing. On gentler material, though, I preferred the other settings. Miles Davis's 'Kind Of Blue' lacked some top-end until I moved to the Fast/Low-latency - and this mode certainly brought the best out of the FiiO in-ear 'phones which don't have the same outright resolution of the other pairs.

What did impress throughout, however, is the even-handed nature



Manual buttons on the right of the player give full control of all functions.

of the Cowon. There's a lack of digital harshness on high-resolution music - one which suits well-recorded tracks. It also goes loud quite easily and handles bass with a distinct grip.

same punch of the likes of the better Astell&Kern players. Listening to The Clash's 'London Calling' through the latter's AK70 MkII revealed better drive and excitement. But then the Cowon is £270 compared to the Astell&Kern's £600 and has a rather more attractive form factor.

This is a DAP that doesn't break the bank but offers excellent sound at its price with an easy to use interface.

CONCLUSION

The Plenu V is an excellent DAP from Cowon. It is sleek and eye-catching but most importantly sounds extremely natural and detailed. Get used to the quirky power button!

COWON PLENU V £270



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Cowon has raised the game with this DAP. Beautifully designed and engineered with a sound to match.

FOR

- looks
- build quality
- digital filters
- natural sound
- compact

AGAINST

- nothing of note

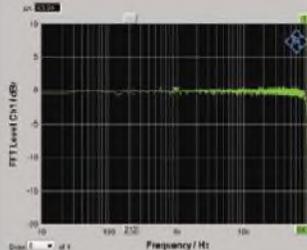
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MEASURED PERFORMANCE

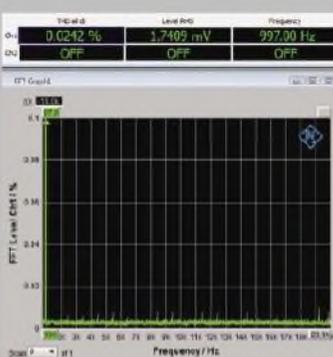
Frequency response of the Plenu V measured flat to 84kHz with a 192kHz sample rate digital signal (PCM) – very wide bandwidth. The filters affected this result little, non-oversampling reaching 60kHz.

However, with CD at 44.1kHz

FREQUENCY RESPONSE



DISTORTION



sample rate all filters were flat to 21kHz except non-oversampling that rolled off high treble, giving a 14kHz (-1dB) limit, so it will slightly soften harsh CD digital.

Output was 1.74V – slightly less than the 2V–3V that is common – but the Plenu V will still go very loud with all headphones, since 1V is more than enough.

Distortion values were very low from the Cirrus Logic CS43131 DAC and support circuits, measuring 0.02% at -60dB with a 24bit signal, where 0.05% or so is common. Consequently, EIAJ dynamic range was extremely high, measuring an impressive 119dB – as good as top hi-fi DACs. Cowon suggest 126dB but this is optimistic; the best hi-fi DACs barely reach 123dB.

The tiny Plenu V delivers impressive measured performance figures – against other similarly priced portables in particular. It is likely to sound very good as a result. **NK**

Output	1.74V
Frequency response (-1dB)	8Hz-84kHz
Distortion (-60dB, 24bit)	0.02%
Dynamic range (EIAJ)	119dB
Noise	-118dB
Separation	102dB

A Class Apart

An in-ear monitor from new firm IMR Acoustics offers something truly different, says Jon Myles.

No end of in-ear monitor (IEM) headphones pass through Hi-Fi World every year. Most are similar - delineated by price and a small design difference sufficient to give them individual appeal. Occasionally, a product comes along that makes us sit up and take notice, offering something very different from the norm.

So it was with the RIs from IMR Acoustics. My first reaction was that I'd never heard of the company before - so who were they? A phone call to owner Bob James revealed all. Bob recently worked with Trinity Audio helping design their well-regarded IEMs and has a background in studio engineering. He's also an avowed vinyl lover who places musicality as the prime consideration when voicing any earphone.

Hence the emergence of IMR Acoustics and its first product the RIs - that are decidedly different. At their heart is a 13mm custom-made hybrid driver consisting of two materials - ceramic and beryllium. Bob says this combination was tried in smaller sizes (9mm and 10mm) but only the 13mm proved truly effective.

Unpack them and you are presented with a rather large headshell which is constructed from an all-aluminium body. It looks heavy but, in use, is remarkably light. Also included in the box are five custom filters which alter bass, mid-range and treble detail (more of which later).

There's one other detail - a knurled wheel on the back allows the

RIs to be used as closed or open-backed.

It's a novel feature that I haven't seen on other in-ear monitors but makes quite a lot of sense.

SOUND QUALITY

The first task with the RIs was for me working out which filter to use. The five are listed as Black for maximum attack with powerful impactful bass and a rich midband, Pink for a slightly decreased bass, Copper for fuller low-end but a recessed high-frequency response, Orange which brings a more balanced bass and midband and rolled off treble, and finally Blue which is the most balanced of the lot.

I tried them all and overall preferred the Blue filter - it had a natural and airy presentation with no undue emphasis on any part of the musical spectrum. However I can see others - especially those whose tastes veer towards dance or bass-heavy rock, opting for Black as it brings a little more punch and dynamic attack.

Whichever filter you choose, though, there's something wonderfully natural and organic about the sound of these in-ears. What they do especially well is present a big, expansive soundstage. There's more of a loudspeaker-type feeling than some other 'phones that seem to be punching the sound directly into your eardrums.

So on The Verve's 'Bittersweet Symphony' I could hear the full range of the instrumentation via an iPhone 7. Things became even better with high-resolution tracks via a FiiO X5.

The electronic beats and lush synths on Kraftwerk's 'Minimum-Maximum' (24bit/96kHz) had superb atmosphere, the music ricocheting around my head. Tracking individual instruments was easy but the way the IMRs blended everything together into a whole meant they never sounded clinical.

They are not quite as detailed as my reference Noble K10 in-ears but compensate with a rather richer, free-flowing sound.

Switching between the open and closed back settings on Mussorgsky's 'The Great Gate of Kiev' brought out a slightly larger soundstage with the former but, in truth, it is not a night and day difference. Having the option though is a nice touch.

Even nicer is the way the R-Is just get on with the business of playing the music without drawing too much attention to themselves - which is exactly what a good in-ear monitor should do.

CONCLUSION

At £500 these are not the cheapest in-ears you can find but their build quality, range of filter options and sheer all-round musicality make them excellent value for money.



IMR ACOUSTICS R1 £500



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Excellent-sounding in-ears that offer a range of tuning options allied to a big soundstage.

FOR

- wide soundstage
- tuning options
- natural, free-flowing sound
- build quality

AGAINST

- nothing

IMR Acoustics
www.imracoustics.com



exposure



exposure

Exposure Electronics Limited

Unit 18, Winston Business Centre, 43 Chartwell Road
Lancing, West Sussex, BN15 8TU, United Kingdom

www.exposurehifi.com

Shining Diamonds

Italy's HiDiamond loudspeaker cables deliver a thrilling listen, says Jon Myles.



HiDiamond cables came as a bit of a revelation when I first heard them. The company is an Italian manufacturer which has been specialising in the production of interconnects and loudspeaker cables using their own proprietary techniques for the past 17 years but is only now starting to take a presence in the UK market.

I first tried their £60 entry-level interconnects the Diamond 1s earlier this year (Hi-Fi World March 2018 issue) and was impressed at how open and honest they sounded.

Now we have the Diamond 7s – a set of loudspeaker cables that stand higher up the range. At £990 for a 1.5 metre length they are not exactly cheap.

However the construction is undeniably impressive. There's a graphite/copper composite inner conductor which is shielded by a thick XLPE braiding.

Attached to these are rhodium-plated connector plugs with a locking mechanism to ensure a tight fit. Overall it means that Diamond 7s are a rather hefty cable – but they are quite manageable in tight spaces and easy to install.

SOUND QUALITY

Swapping out my usual 'speaker cables and inserting the Diamond 7s brought an undeniable difference. These HiDiamonds are very true, very accurate and devoid of any colouration.

Used between an Icon Audio Stereo 30SE valve amplifier and the new Kanta N°2 floorstanding loudspeakers (see review this issue) they opened up a large, thrilling soundscape.

With Bruce Springsteen's 'Darkness On The Edge Of Town' the haunting melody was starkly defined with a crystalline clarity to the instruments. Using the same CD for 'Badlands' it was clear that these cables don't impose much of their own character on the sound. Bass pumped forcefully, Clarence Clemons' saxophone soared while Springsteen's guitar bit deep.

Instrumentation was also well separated: on Ornette Coleman's dense, heavy and congested 'Free Jazz' everything snapped into focus. I could hear and track plus all the musicians and there was coherence between them all.

On Olivier Messiaen's 'Quartet For The End Of Time' (24/96) the

timbral quality came over with outstanding brilliancy.

The clarity of these cables, though, does mean they will highlight any deficiency in partnering equipment. They are ruthlessly revealing and so need top-notch separates to work at their best. They'll certainly show-up poor recordings or heavily-compressed material.

But, partnered with the right amplifier and loudspeakers, there's a coherence and openness to their sound that makes them a joy to listen to.

Feed them some high-resolution tracks and the extra sonic information is evident. On Led Zeppelin's 'Dazed And Confused' (24/96) every leading edge of Jimmy Page's guitar solo leapt out of the 'speakers with crisp resolution. The decay of the notes also seemed to last a little longer making the whole listening experience extremely lifelike.

CONCLUSION

These HiDiamond cables are not exactly cheap but they do deliver in terms of performance. Alongside a revealing amplifier and loudspeakers they are something of a revelation.

HiDIAMOND 7 LOUSPEAKER CABLES £990 (1.5M)



OUTSTANDING - amongst the best.

VERDICT

A high-end 'speaker cable that is truthful and revealing. Capable of getting the best from top grade components.

FOR

- clean, crisp performance
- build quality
- open mid-range

AGAINST

- not cheap

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Spendor's new A1 standmounts are a class apart, says Jon Myles.

The A List

I'll admit to the fact that I've always been a fan of Spendor loudspeakers. At home I still use a pair of the (now rather old) A5 small standmounts in one of my listening rooms. They are smooth, refined but potent in terms of filling a room.

Spendor's owner and chief designer Phil Swift is a fascinating person to talk to when it comes to the science of loudspeakers. So

when he dropped off the new A1 standmounts and ran through the thinking behind them it was more than interesting.

Take the new A1s out of their packaging and they don't look too much – a simple standmount measuring 305mm x 165mm x 178mm (H/W/D) and weighing 5kg. The tweeter is a 22mm unit with a protective mesh grille that looks attractive and protects it from

damage. However the main driver is Spendor's proprietary 150mm mid/bass unit constructed from its own EP77 polymer material. This gives a classic sound, free from the character of modern metal cones.

Allied to this are thin low-mass side panels. Each one is bonded to a visco-elastic damping pad that dissipates acoustic energy, turning it into heat. So while the cabinet is thin, its construction reduces panel

vibration to get the best from the drive units.

At back are a single pair of 'speaker terminals. Being a sealed-box arrangement there's no reflex port to enhance bass (more of which later).

So these Spondors are small but boast some unique features – not your usual set of standmounts at the price of £1095.

SOUND QUALITY

Placing the A1s on a sturdy pair of stands and driving them with a McIntosh Mc152 power amplifier the immediate impression was they sound much larger than they look. They have the ability to fill a room with ease but do it in a sophisticated way.

On The Fall's 'Live At The Witch Trials' CD the distinction between the drums, bass and guitar was perfect. The Spondors also replayed Mark E Smith's guttural vocals with just the right amount of bite.

Switching to The Chemical Brothers 'Block Rockin' Beats' the amount of bass these loudspeakers managed to extract belied their size. There is real power on offer so you don't miss any of the low-end energy. Admittedly, there isn't the slam of a big floorstander but I never thought there was anything missing in terms of overall bass attack from this track.

What also struck me was the sense of refinement on offer. The EP77 mid/bass driver sounds smooth but has excellent detail.

On Aaron Copeland's 'Fanfare For The Common Man' by the San Francisco Symphony orchestra (24/96) there was air and atmosphere. The quiet passages worked supremely well with a rich tonality that made for ease of listening. The Spondors were able to open up this recording: I could hear subtle nuances within the music.

Yet, when the powerful kettle drums appeared they had immense presence.

Being small the Spondors have superb stereo imaging, music extending well away from the sides of the cabinets to produce a broad sound stage.

With Bruce Springsteen's 'Born To Run' Clarence Clemons' soaring saxophone solo had me grinning as soon as it came in. Pushing the volume up the Spondors simply got better and better with no sense of strain. Yes, there is a limit but you'd have to be pushing them very hard in



The A1s are a sealed-box design, making placement easy. Their binding posts are of high quality.

a large room to find it.

As a sealed-box design the A1s are not fussy about placement. I initially tried them well into the room but then moved them back against a rear wall. The latter did bring a little more bass into the equation but it

was still taut and controlled – no sense of boominess.

They worked best being pointed straight down the room. Toe them in towards the listening seat and there is slightly stronger treble but it comes at the expense of overall cohesiveness. Keep them firing forwards and everything snaps into focus.

Listening to Antonio Forcione's 'Tears Of Joy' the sound of his fingers on the fretboard of the guitar was lifelike – more so than other loudspeakers I've heard around this price range.

Yes, you can spend this sort of money on larger loudspeakers that will give you more immediate impact and greater presence in your listening room. However, over the longer term the A1s will repay with a smoother, more entertaining and subtly detailed sound.

CONCLUSION

The Spondor A1s are a superb pair of standmount loudspeakers that demand to be auditioned. Room-friendly with bass that is nice and tight, smooth mid-range and extended treble. I enjoyed them immensely.

MEASURED PERFORMANCE

The small A1 had a smooth, flat and accurate frequency response with pink noise our analysis shows, without the raised treble output that is so common in today's loudspeakers. This will give it an even rendition free from brightness, allowing the basic music balance to come through unaltered. Moving the measuring microphone laterally from on-axis (as shown) to off-axis by up to 20 degrees had little affect upon the result so the cabinet can be pointed straight down a room or toed in without much change in sound balance. The 'speaker's phase coherence and consistent radiation pattern ensures both direct and reflected sound from room boundaries – wall, ceiling and floor – are similar, avoiding the change in character that still affects many multi-way loudspeakers.

The drive units cross over smoothly, lack of an upper mid-range dip around 3kHz at crossover between the drive units, giving strong delivery of detail. Lower down the frequency range output rises by a small +2dB to strengthen a feeling of weight and fullness to the sound.

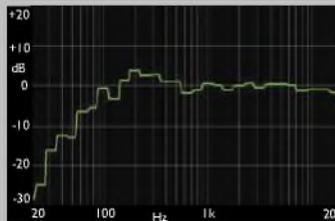
As always with a small cabinet, bass rolls down below 100Hz and there

is no port to provide deep bass support so output at 60Hz is -6dB down. The A1s are designed to be used close to or against a rear wall to help strengthen bass, as deep bass is lacking.

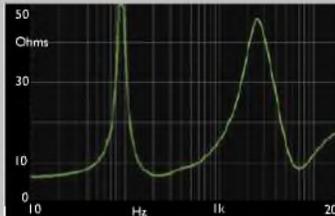
Sensitivity was very low at 83dB sound pressure level from one nominal Watt of input so to go reasonably loud a 60 Watt (minimum) amplifier is needed.

The little A1s have been designed to sound smooth and full bodied. Expect a svelte sound but not obvious treble. **NK**

FREQUENCY RESPONSE



IMPEDANCE



SPENDOR A1
£1095



OUTSTANDING - amongst the best.

VERDICT

Sophisticated loudspeaker that delivers a smooth, entertaining sound. Big, impressive soundstage too.

FOR

- big sound
- easy placement
- size

AGAINST

- nothing

Spondor Audio
+44 (0) 1323 843474
www.spondoraudio.com



Audio Bacon review of Dual BNC Cables for the Chord Blu Mk2 MScaler

"The first thing I noticed about the **WAVE STORM Reference** was its bass extrusion capabilities. It has a huge bottom that protrudes into your listening space. It throws its weight outward with ease and authority. Kick drums have a chest-rattling impact (cannons from 1812 Overture) with tangible shape, tone, and tightness. **Definitely the punchiest out of all the cables I've heard so far..**"

(Actions speak louder than words and after the review the reviewer bought a pair of **WAVE STORM Reference** Dual BNC cables for his own use.)

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the Science of Sound

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Handmade in the Vale of Belvoir, UK.

Pursuit Perfect System

"**WOW this cable is awesome** - congrats!! Great skills. Mega impressed

Sonically I enjoyed a tighter more focused vocal, with fine details becoming easier to hear as part of a extremely well defined soundstage. Chord Electronics DAVE owners should give the **WAVE STORM Reference** cable serious consideration."

www.pursuitperfectsystem.com

Festive Quiz

Test your hi fi knowledge with our expert Christmas quiz. There are no prizes but great satisfaction for those who get all the answers right!

1) An amplifier's output is measured in –

- a) Watts
- b) Joules
- c) BTU

2) DAB is an acronym for –

- a) Drab And Boring
- b) Definite Audio Brilliance
- c) Digital Audio Broadcasting

3) Chord Electronics is based in which UK county –

- a) Kent
- b) Sussex
- c) Middlesex

4) Julian Vereker founded which UK based hi-fi manufacturer –

- a) Creek
- b) Naim
- c) Linn

5) Masaru Ibuka and Akio Morita started –

- a) Sony
- b) Pioneer
- c) Yamaha

6) In which county are loudspeaker manufacturer Neat Acoustics based?

- a) Lancashire
- b) Co. Durham
- c) Lanarkshire

7) Gilbert Briggs launched which loudspeaker company –

- a) Wharfedale
- b) Klipsch
- c) Tannoy

8) "The closest approach to the original sound" was used by –

- a) Denon
- b) Quad
- c) Devialet

9) Icon Audio specialise in using –

- a) Valves
- b) Transistors
- c) Mosfets

10) The acronym IEM stands for –

- a) In Ear Monitor
- b) In-built Essential Monitoring
- c) In Ear Measurement

11) Sound pressure levels are measured in –

- a) dB
- b) Nm
- c) cms

12) American manufacturer Wilson Audio produces what element of the hi-fi chain?

- a) Amplifiers
- b) Turntables
- c) Loudspeakers

13) Marconi made his first wireless radio transmission in which year?

- a) 1900
- b) 1901
- c) 1922

14) And the song's name was?

- a) Flowers In The Rain
- b) Mama We're All Crazy Now
- c) Yesterday

15) The first record played on BBC Radio 1 was by which group?

- a) Slade
- b) The Beatles
- c) The Move

16) Ohms is a measure of –

- a) Electrical resistance
- b) Capacitance
- c) Conductance

17) John Bardeen, Walter Brattain and William Shockley won the Nobel Prize in Physics in 1956 for the invention of –

- a) An advanced volume control
- b) The transistor
- c) Tweeters

18) Spotify, Tidal and Qobuz are all. –

- A) Streaming music services
- B) Internet search engines
- C) Hi-Fi manufacturers

19) The CD standard developed by Sony and Philips is known as –

- a) Digital standard
- b) Red Book
- c) Silver Disc standard

20) PMC specialise in using what in their loudspeakers?

- a) Gold
- b) Sand
- c) Transmission Line

RATE YOURSELF (CORRECT ANSWER - 1 POINT)

1-5 points: You've obviously not been reading Hi-Fi World enough.

5-10 points: Good, but no cigar.

10-15 points: Impressive - you know your stuff!

15-20 points: Consider entering Mastermind. Specialist subject hi-fi!

ANSWERS:

- 1) Watts 2) Digital Audio Broadcasting 3) Kent 4) Naim 5) Sony
6) Co. Durham 7) Wharfedale 8) Quad 9) Valves 10) In Ear Monitor
11) dB 12) Loudspeakers 13) 1901 14) Flowers In The Rain
15) The Move 16) Electrical resistance 17) The Transistor 18)
Streaming music services 19) Red Book 20) Transmission Line



Balanced delivery

Benchmark's high-tech HPA4 headphone amp is reviewed by an appreciative Martin Pipe.

With home cinema over two decades ago the 'gold standard' was THX – a certification process for software, and a set of technologies and certification for source gear, displays, amplification and speakers. THX was the brainchild of Star Wars film-maker George Lucas, who had set his heart on a better standard of movie reproduction in cinemas and homes.

Those old THX-certified AV receivers were certainly brilliant when it came to the aggressive bombast of movie soundtracks, although they lacked subtlety with musical sources; to be fair, the inner complexity of AVRs probably didn't help.

More recently (2017) THX demoed a prototype headphone amplifier based around its AAA – Achromatic Audio Amplifier

– technology.

An early adopter of 'AAA' was New York firm Benchmark, who used it in a tiny but potent AHB2 power amp. We reviewed three or so years ago.

Benchmark has now produced the 'reference' HPA4 reviewed here, a sophisticated unit that combines AAA headphone amplifier and line-level analogue preamplifier with gain. In addition to headphone outputs there are line phono-socket and XLR outputs, so you can use the HPA4 with a power amp like its own AHB2.

Reflecting its luxury high-end status, the HPA4's impeccably-machined front panel features a colour touchscreen, together with both balanced (4-pin XLR) and unbalanced (6.3mm jack) headphone outputs. Both can be used simultaneously. The unit can be controlled via said touchscreen, or a remote.

On the rear of the unit are four

stereo inputs – two of them XLR, two phono. Each can be 'trimmed', to avoid unpleasant jumps in volume after changing source.

Unusually, there's a mono XLR output too – handy for a subwoofer, Benchmark suggests.

The interior cleverness isn't restricted to the THX amplifiers. For the unit's analogue-domain volume control Benchmark use numerous surface-mount relays switch in combinations of precision resistors under software control to provide 256 steps of adjustment for headphones or line out. You can adjust them individually or together.

Either or both of the channels can be muted by 20dB or rendered completely silent.

Benchmark's switched-resistor level control is also used to implement stereo balance and the aforementioned input-trimming. Other miniature relays



are responsible for selecting inputs, whether by touchscreen or remote.

The HPA4's user interface is friendly, clear and unambiguous – but thankfully the screen it relies on can be set to extinguish automatically, thereby avoiding any late-night distraction. The integrated help system even explains how the unit can be partnered with a Benchmark DAC (also aiding integration are 12-volt 'trigger' jacks on the rear panel).

SOUND QUALITY

My primary source was a Cambridge CXN v2 streamer, which pulled tracks off a Synology DS119j NAS and fed them to the HPA4 via a Chord Qutest DAC. I tried a number of headphones including the Oppo PM3, Sennheiser HD650 and Focal Utopia. For the latter, I also had an Atlas Zeno balanced cable, enabling me to make comparisons between unbalanced and balanced headphone outputs.

Switching between them did not result in any significant change in level; there were perceptible but subtle shifts in presentation. An Arcam A49 integrated amplifier, driving Quadral Aurum Wotan VIII floorstanders, was used to assess the line outputs.

Headphones or speakers, the HPA4's outstanding characteristic was that...it has no character. Neutrality and transparency are its forte. No tonal colouration, or the muddying effects of distortion, compromised my listening enjoyment – even at high levels.

All of the headphones I tried were driven effortlessly. The volume control did its job impeccably, there being no mistracking between left and right channels as levels are changed – or perceptible deterioration of sound quality at the lower end of the scale. Separation between the two channels was excellent, whether using balanced or unbalanced cables.

BBC Radio 4 Extra (320kbps AAC stream) recently broadcast a 'The Changing Sound of Radio' feature, curated by wildlife sound recordist Chris Watson. The field recordings (birdsong, for example) were conveyed with 'you are here' realism. Ambient background sound was natural and the spatial positioning of the featured wildlife I could easily determine.

Radio 3 concerts were impeccably-resolved and compelling to listen to, while noise of a Radio

4 studio could easily be made out.

And music? Mogwai's Remastered (24/96) was given punch, pacing and dynamism appropriate to the percussive elements dominating the track.

The HPA4's neutrality placed it in a good position to cope with a change in proceedings – David Bowie's The Next Day (CD-derived FLAC). The great man's reflective performance in Where Are We Now? had appropriate emotional impact.

Every vocal breath and string-scraps could be picked out in Keith Greeninger and Dayan Kai's comparatively-simple composition Looking For A Home (DSD64), helping to impart an uncanny sense of realism.

Balanced headphone listening through the Utopias helped to rebuild effectively the acoustic space in which the song was recorded. Holst's The Planets (Sir Colin Davis/LSO, CD-derived FLAC) reinforced my impressions of the HPA4's imaging prowess that was noted earlier, the presentation exhibiting innate poise and balance.

CONCLUSION

The HPA4 is a robust and technologically-advanced headphone amplifier



The integrated power supply (left) is a quiet and cool-running switch-mode design. Obvious are the banks of surface-mount relays (64 in all!), which form part of the unit's cost-no-object, all-analogue volume control system. These, Benchmark claim, offer 0.5dB of resolution per step (of which there are 256).

of high performance. This well thought-out unit deserves a place in a conventional hi-fi system, thanks to its independent line outputs, multiple inputs and remote control. Its integration with other Benchmark products will make it a natural choice for some audiophiles. Impressive if expensive.

MEASURED PERFORMANCE

FREQUENCY RESPONSE

The Benchmark HPA4 headphone amplifier had a gain of x5.6 (15dB) to both headphone outputs, the 1/4in (6.3mm) jack and the balanced four-pin XLR output, as well as its line outputs. For a typical 200mV input this gives 1.2V out. Headphones need 1V at most for high to shattering volume so this is more than enough.

Maximum input was 4V, well above the 2V from silver disc players so there is plenty of headroom.

Frequency response measured flat from 2Hz to over 100kHz and distortion was extremely low at 0.002% at 1V out.

The Benchmark HPA4 possessed a flawless measured performance. **NK**

DISTORTION

THD+N	0.0025 %	Level (V)	1.1192 mV	Frequency	1000.0 Hz
IMD	OFF	IMD	OFF	IMD	OFF

Frequency response	2Hz- 100kHz
Distortion	0.002%
Separation	95dB
Gain	x5.6
Noise	-112dBV

BENCHMARK HPA4 £3295

OUTSTANDING - amongst the best.

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An unusual and highly specialised headphone amplifier for the cognoscenti.

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- transparent, clean and precise
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AGAINST
- relay clicks can distract at close range!

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Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of B&W P5 headphones.

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

LETTER OF THE MONTH PRIZE



B&W P5 HEADPHONES

www.bowers-wilkins.co.uk

For more advice see Letters from earlier issues at www.hi-fiworld.co.uk/letters

A pair of B&W P5 headphones are on their way to STEVE V. ALLEN, Letter of the Month winner in our December 2018 issue.

Letter of the Month

PMC PRAISE

The arrival of the latest Hi-Fi World is always a red letter day for me (I really should get out more) and really enjoy the reviews of affordable 'real world' products. These, and the splendid letters, are the voice of sanity in an increasingly polarised market. The articles always contain much audiophile wisdom and good advice which, one day, I might even follow!

That said, I was a little disappointed in the review of the PMC twenty5.26 'speaker, a pair of which I acquired in the summer, courtesy of the wonderful guys of the aptly-named 'Analogue Seduction'. When fitting and tuning up my SME 15 record deck, the estimable Chris Rees observed that my posh reflex loaded speakers didn't couple well with my listening room.

The topic of speaker-room coupling could, I'm sure, be an interesting topic in the pages of a future Hi-Fi World. I think it is little understood and I'm not sure that modifying electronically the audio signal is the best way to go.

The PMC may be, as you observe, a trifle bright, but then, you (apparently) only tried it with a transistor amplifier, and not, say, the Icon Audio Stereo



PMC twenty5.26 loudspeakers. "These 'speakers sound just wonderful" says Roger Simmonds.



KR VA880 valve amplifier, equipped with two pairs of KT88s in push-pull to deliver 80 Watts per channel – "enough 'oomph' to go loud enough to deliver musical climaxes without harshness" Roger Simmonds tells us.

30SE, which would have mellowed the sound. You should, I think, have at least tried this, as these 'speakers sound just wonderful in my medium/large listening room and the four KT 88 valves of my KR VA 880 amplifier, which deliver enough 'oomph' (this is, I believe, the correct technical term) to go loud enough to deliver musical climaxes without harshness. Detailing, delicacy and imaging have been a revelation, and so good did the speakers become during an extended 'running in' period that, again at Chris's sound advice, I upgraded my phono stage and interconnects. But the (severe) damage to my wallet was amply compensated

by the balm to my ears.

The one musical source I haven't yet upgraded is the 'radio'. I agree with recent correspondents that Radio 3 FM can sound very nice indeed, but for me, otherwise wonderful concerts are ruined by the dynamic compression applied to the FM signal. One can hear the effect, for example, when Thor's massive hammer blow in Wagner's 'Das Rheingold' becomes a 'ting'. Very frustrating indeed!

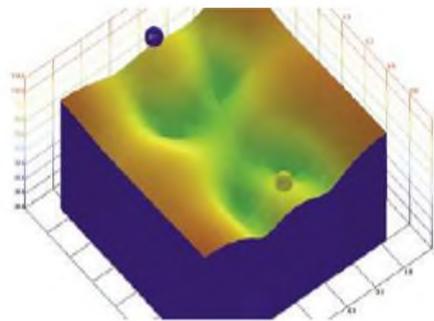
So I listen to the 'radio' (and a plethora of other

Internet streams) via an Apple I pad feeding a Bluesound Node 2. Yes, the sound isn't as warm as it was with my Leak tuner, but the Radio 3 320 kps AAC stream is largely free of obvious digital artefacts and orchestral climaxes seem unconstrained. However, I can't wait for the BBC to upgrade the coding of their 'Podcasts' and Internet stream. I might then consider a deeper plunge into the scary world of streaming. I'm sure 'Analogue Seduction' would welcome the opportunity to become 'Digital Seduction'!

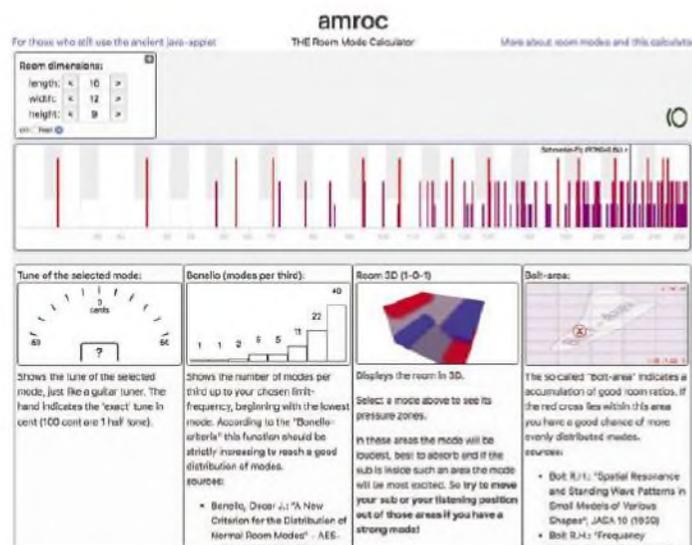
Please keep up the good work!

Dr R J Simmonds

Hi Roger. You cover a lot of interesting subjects here! That of loudspeaker coupling into a room is a large one. With no information on your room size and shape I can only generalise but there are sites on



A three-dimensional pressure map of a room from Cara, showing high pressures against walls, but also areas of low pressure (green) due to modal cancellations.



If you want to check out your room acoustics try Amroc's easy and free on-line calculator. Just enter room dimensions and see what you get! Note the Room 3D pressure map in particular that's valuable for impedance matching into high pressure areas.

the internet that give more detailed information if you have a mind to explore.

Loudspeaker cone/dome drive units and ports (but not panels) are small-area pressure drivers that couple most efficiently into areas of high pressure – at low frequencies meaning boundaries: walls, ceiling and floor. Put a loudspeaker against a wall and it most efficiently drives your room's lowest resonant mode which for a 16ft long room conveniently has a (half wavelength) frequency of 35Hz – just below the lowest note of most string instruments at 40Hz and into the zone of synths and such like. Also, this is where Rock music producers like to ramp up levels for conspicuous deep bass, our spectrum analysis of music CDs shows.

Your ears also being small-area pressure sensitive devices, they too

couple best at high pressure points which means down the other end of the room against the far wall. Try it for yourself: play a track with heavy bass, sit against the far wall then move in (use a stool) and notice how bass lightens. Or, alternatively, sit against the wall and move the speakers in – same effect.

Here you are altering the 'speaker's coupling with the room, in acoustic impedance terms. Go to Britannica (www.britannica.com/science/sound-physics/Impedance) and the topic of acoustic impedance for more.

My example is simple and basic. It ignores width and height modes and it assumes a rectangular room. But I have to do this because even with such a basic layout it takes a three-dimensional map to show the pressure zones, such as that in Cara (Computer Aided Room Analysis programme), go to www.rhintek.com/cara/cara21desc.php. This shows everything but is PC only and challenging to use (and costs \$80).

Otherwise, go to the free on-line Amroc room mode calculator at <https://amcoustics.com/tools/amroc> and analyse your room. It's good but does not visualise the situation like Cara. The Room 3D boundary pressure zones graphic does show high pressure points (at boundaries only) where speaker-to-room coupling is best (or worst if you are suffering bass boom) so take a close look.

A valve amplifier does have a mellower sound, but that still doesn't alter the fact that treble was strong from the twenty5.26, no less than +7dB at 10kHz – and that's a lot. It will have a brighter balance than other loudspeakers, even on a valve amplifier.

But there's more to the twenty5.26 than just this, the midrange dome in particular being almost unique in domestic loudspeakers and likely why you find the PMCs so impressive in the manner described. You are driving them from a very high quality and sympathetic analogue system. If the Leak tuner was a Troughline then I suspect it would match in wonderfully too.

Great to hear about your system and experiences – and best of luck with digital and streaming! **NK**

FAFFING WITH FLAC

Martin Pipe's appraisal of the current state of the broadcast technology



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BBC Proms in Extra High Quality on the Internet- The Tech

Posted by **Rupert Brun** on 9 Sep 2010, last updated 2 Nov 2015

Rupert Brun has written a great post on the Internet Blog outlining the XHQ experiment with the Proms. He has very kindly agreed to give us on the R&D blog a more detailed technical overview of his team's work, for those of us with a liking for the techy stuff!

This post explains the signal path used to deliver the 320Kb/s AAC internet stream of Radio 3 for the final week of the BBC Proms. For background information about the experimental extra high quality feed, you may wish to read the entry on the BBC Internet Blog and to listen to the audio, visit the [web page hosting the experiment here](#).



The Radio 3 Proms at the Royal Albert Hall, available this year in Extra High Quality. Image CC Steve Bowbrick

The signal from the microphones at the Royal Albert Hall is converted on the stage to 48ks/s 24bit audio and sent to the outside broadcast vehicle over fibre. Each microphone has appropriate equalisation and time alignment applied and the sound is mixed down to stereo for broadcast on Radio 3.

Still at 24 bit 48ks/s the stereo audio is fed over an "E1" 2Mb/s circuit to London Broadcasting House and passes through the main audio router to the Radio 3 Continuity Studio. Here it is unfortunately necessary to sample rate convert the audio to 44.1ks/s. The reasons for this are largely historic. When Radio 3 moved from analogue tape to digital production, the majority of the audio was stored on CD - either CD(R) for BBC recordings or commercial CDs. Due to limitations in faster-than-real-time sample rate conversion at the time, this in turn meant that the computer playback system used to hold audio for transmission had to operate at 44.1ks/s, so that CDs could be "ripped" into it. None the less, the playback system does work with uncompressed BWAV files rather than MP2 as was normal at the time. The same system is still in use today and it has so far not been possible to convert the system (and all the content within it) to 48ks/s. London Broadcasting House is a multi-media site and in preparation for the arrival of TV news we have set our core audio router to operate at 48ks/s. This means that for the immediate future radio works in a mixed economy of sample rates. By operating the studios and playback system at 44.1ks/s the number of conversions is minimised. For the live BBC

The BBC have an R&D website and on it you can find tech info on the Proms over the 'net.

involved in VHF/FM was comprehensive as always.

Martin mentioned the FLAC which all last year Prom concerts were broadcast in. What he omitted to say was the faffing about using some obscure version of VLC media player! If it was that good why didn't the BBC broadcast this year's proms in FLAC instead of AAC?

It would be good for all the hi-fi magazines and the audio industry in general to lobby the government and broadcasters to keep FM.

Mike Bickley.

Martin Pipe replies: It was alas a BBC 'taster' pilot conceived by BBC Research and Development to 'try new things', rather than a permanent service along the lines of the lossily-compressed 320kbps AAC streams. You were tied to a

compatible browser (specific versions of Firefox or Chrome), when it came to accessing the experimental FLAC service, via a special webpage with embedded player. This meant you were 'tied in' to listening via a computer...and all of the attendant sonic limitations.

VLC could, however, be used to capture the decoded stream as a file, which could be played with traditional hi-fi gear – its true potential could then be experienced.

However, some equipment manufacturers were able to tune into the trial 'Radio 3 Concert Sound' stream without such hassle. Earlier this year, an engineer from Cambridge Audio told me that he had got a prototype version of the CXN media streamer to play ball (as a CXN user, I was naturally looking forward to enjoying the 2018 Proms

in lossless form...what a pity the BBC had other ideas!).

I should point out that lossless radio-broadcasts aren't exclusive to the BBC – although the extremely high standards of stations like Radio 3 make the technology a natural complement. Take a look here, for example: <https://bit.ly/2DHAdZD>. For all the high-tech alternatives, though, I suspect that FM will be with us for a good few years to come – if only because turning it off would be so damaging politically. **MP**

LOSSLESS FM

Thanks very much to Martin Pipe for his interesting comment on the history of and technical content and limitations of the FM signal in response to my letter.

I offer my apologies: I mis-typed my Dynalab tuner model, it is the 809 (valve output) version (though I should add that I also used to get pretty good results years ago from the Naim NAT02 solid state tuner).

I was aware that the BBC has been (still is?) considering lossless transmissions, and if internet radio unequivocally surpasses FM in the process then I will happily transfer my loyalty.

I have little sympathy, let me add no doubt controversially, with the current vinyl revival, where (in the classical music context) it's an indulgence of wealthy individuals paying twice the price compared to the CD version, in an inconvenient format with inherent limitations and a still tiny catalogue. I happily abandoned vinyl for CD in the early 1980s and am not tempted to return.

Regards

John Crawley

Martin Pipe replies: I wish that the BBC would make that 550kbps FLAC stream a permanent fixture. It was however a 'taster' experiment by the broadcaster's internationally-respected research and development department designed to – in its words – bring together "various technologies including MPEG DASH, FLAC compression, HTML5 and the Media Source Extensions to offer... a bit-perfect representation of Radio 3's live output, exactly as it left the studio".

After the experiment ended, it admitted that there were "no plans to provide any permanent lossless services", although the data "gathered during the pilot will help inform future service strategy".

That was over a year ago.



Sugarcube SC-1 digital click remover – removes ticks and pops to give almost silent background with classical music from LP.

Come on, BBC R&D. Bring it back for the 2019 Proms – and keep it going! Pretty please? As I revealed in my 2015 Proms feature, the BBC distributes audio internally at 24-bit resolution. Could a high-res streaming trial be waiting in the wings? Let's hope so!

I can understand why the bulk of music lovers migrated from vinyl to CD so completely and utterly in the 1980s – and most have never looked back. Cynics believed that the awful pressing quality, with which most of us became depressingly familiar, was a record-company con-trick to further accept the newer digital medium. After all, a CD was more than twice the price of the same album of LP back then.

Ironically, the converse is now true! I grew up with and continue to love vinyl, but only choose it as a listening source if the material was recorded and mastered in the analogue domain. If it's a digital production (or a digital remaster of

an older recording) then I listen to it in that form. **MP**

Hi John. Listening to classical performances on LP whilst reviewing the Sugarcube SC-1 in our XX issue, and especially the noise content of tick and pops the SC-1 disturbingly outputs, I appreciate why LP was never liked much for classical; low level passages were/are plagued by noise.

But whilst classical via CD lacks such noise, low levels passages are also plagued by noise – quantisation noise. Choose your poison!

Rafael Todes, violinist with the Allegri String Quartet, tells me vinyl offers the 'closest approach to the original sound' so there is room to cogitate on all this! **NK**.

GARRARD 4HF AND 301

If, as Martin Pipe says in his report on the Tonbridge audio jumble sale, the Garrard 4HF was introduced in 1957 (and a quick scan of the internet seems



The Garrard 4HF came after the 301 and "was part of a cheaper range of turntables with integrated tonearms" says David Mansell.



This year's Festival of Sound show at the Novotel hotel, Hammersmith, West London. A pleasant modern hotel with good restaurants and plenty of space.

to confirm this) it is hard to see how it could have led to the 301 which was introduced in 1954. In reality the 4HF was part of a cheaper range of turntables with integrated tonearms, whereas the purchaser of a 301 transcription deck would have to supply their own tonearm.

Best wishes,

David Mansell

Martin Pipe replies: What I wrote in my caption was "Some people believe that the Garrard 4HF turntable seen here led to the classic 301". They were mistaken.

The 301 came three years before the 4HF as you say. It was designed to be partnered with the arm and cartridge of the purchaser's choice. Therefore the tone-armed 4HF would have, if anything, been influenced by the 301 as you say.

The 4HF was a cheaper proposition of broader appeal, and the heavy tonearm that Garrard fitted to it is somewhat restrictive in terms of cartridge compatibility. But for all its limitations the 4HF is, like the 301, an iconic design that's sought-after by collectors. It's stunning in the original curved plinth, which looks like an extension of the deck plate and is in styling terms very much of its time. **MP**

SHOW TIME

I enjoyed your piece on hi-fi shows which bought back memories of my own experiences.

My first hi-fi show was at the Hotel Russell, in 1968. I was 18 at the time. I have to say that I was impressed. The

exhibitors were legendary, the likes of Harold Leak and Peter Walker of The Acoustical Manufacturing Company (Quad) were in attendance, other names were Brenell and Ferrograph, famous for open spool tape recorders.

Hi-fi life in those days was a much simpler (and in my opinion) better – no home cinema and no streaming, just pure audio and mainly of British manufacture. There was just analogue, and the Garrard/SME 3009 plus a Shure cartridge was the order of the day for a top class front end.

The Hotel Russell was near to Euston station, so travelling from Birmingham was not too traumatic. The following year, I think, the audio show was moved to Olympia and coupled with the photographic show, the dem. rooms were prefabricated and the audio part of the show was upstairs so to speak, horrendous!

When the show was moved to Heathrow in the 1970s, this venue felt like the end of the galaxy, Hounslow West tube station took an age to get to from Euston; this would be my last Heathrow show. I did go to the Novotel in the '90s which was passable I suppose, but as home cinema was now burgeoning, shows began to lose their appeal.

I am 68 years of age now, and I don't go to any shows, but still like to listen to high quality music reproduction, and follow developments. The last show that I went to was at the Marriott Bristol, was probably in the mid to late 1990s, which seemed to have the feel of a cattle market than an audio show!

It would be good to hear other

readers' experiences of audio shows, particularly from the so called golden era of audio.

Regards

Mike Bickley.

Hi Mike. As you say, there were now-legendary figures at those shows: Peter Walker founder of Quad, Harold Leak founder of Leak and at later shows Julian Vereker founder of Naim. Interesting that they had the whatsits (starts with b and ends with s) to front their stands, meet and speak to their customers, something a lot of MDs choose or are perhaps unable to do nowadays. Honourable current exception: PMC's MD Peter Thomas – very much like Julian Vereker of Naim. Always at the stand and always ready to explain.

Yes, the Olympia show was a side-thought and miserable in its location of audio upstairs.

Heathrow is a no-no by train from Birmingham that's for sure, but not so bad by car – if the M40 isn't jammed.

Novotel is less cramped and more modern than the Marriott at Bristol and reasonably easy to reach from Euston station: just take the Circle line (yellow) west to Hammersmith. Then it's a short walk (but difficult to spot – map necessary). It too combines musical performance with audio playback upstairs, like Olympia you mention, but is well arranged and thoroughly enjoyable. Just down the road from our offices, we'll be there in 2019 so come down and see us. I'll be there.

NK



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Here's your chance to win Onkyo's TX-RZ830 AV receiver we reviewed in the November 2018 issue. Read the review excerpt below and answer the questions.

"The TX-RZ830 is a THX Select-certified home cinema receiver, aimed at decoding and amplifying multichannel movie soundtracks. It supports the cutting-edge Dolby Atmos and DTS-X technologies. To make that surround magic happen,

there are no fewer than nine Class AB power amplifiers of claimed 180W output on board. They feed speakers strategically-placed around your listening room; another possibility is multi-zone – audio sent to two other rooms, referred to as Zones 2 and 3.

Two-channel stereo is also supported and you get old-school coverage of FM and AM radio with a 40-preset RDS-capable tuner. Stereo sources can be subjected, courtesy of the TX-RZ830's potent (32-bit/384kHz) digital signal processing

and AKM 4458 DACs, to various soundfield modes so that all those amps and speakers don't go to waste. They seek to recreate the ambience of a live performance.

This being 2018, the TX-RZ830 is packed to the gunnels with all manner of streaming gadgetry. There's on-board Bluetooth for wireless playback of music stored on your 'phone or any other Bluetooth equipped player; the apt-X codec isn't supported, but SBC and AAC are".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 11th January 2019 to:

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QUESTIONS

[1] How many Class AB power amps –

- [a] ninety nine
- [b] zero point nine
- [c] nine
- [d] none

[2] Power output is –

- [a] 30 Watts / channel
- [b] 180 Watts / channel
- [c] 1800 Watts / channel
- [d] 8 Watts / channel

[3] What is "old-school" –

- [a] rubber feet
- [b] black paint
- [c] aerials
- [d] FM and AM radio

[4] "Streaming gadgetry" includes –

- [a] a tap
- [b] Bluetooth
- [c] a hosepipe
- [d] water storage

entries will be accepted on a postcard only

**OCTOBER 2018 WINNER: Q ACOUSTICS 3050i LOUDSPEAKERS
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CD today

Arcam's new CDS50 CD/SACD player is internet connected for more than just silver disc replay. Noel Keywood investigates.

CD players with added bits are becoming more popular. Last month I reviewed Quad's new Artera Play+ and this month I'm spinning Arcam's CDS50 also with added bits – but different bits! Where the Quad had a stub aerial for Bluetooth wireless connection, the Arcam has a stub aerial for wi-fi. Yep, this is an internet connected CD player no less, able to stream music. And it can play SACD.

Play SACD? This is unusual and technically difficult without a Sony chip. I was surprised to find that Arcam do not go the Sony route, but use an ES9038PRO Sabre32 series DAC chip (2015) instead – top of the

ESS range and expensive. Most others use the now not-so-young (2009) ES9018 because it makes CD sound good. To encounter a ES9038PRO in a £800 player raised my eyebrows! It's for multi-£k players, but not here – and it made a difference.

Whilst ESS chips handle DSD from SACD extra chipperiness is needed to make this happen. If you have no SACDs – perhaps don't even know what they are – then all this is meaningless to you. But those with SACD collections will be delighted because few manufacturers these days bother with this obsolete silver disc audio format, making players rare.

There's much more to Arcam's

player than SACD however. With a fabo chip from ESS on-board it's only right – and now customary of course – to fit digital inputs so other digital sources can be run through it. Consequently, the rear panel carries both optical and electrical inputs, with TOSLINK and co-axial phono socket connectors as usual. Optical has a quoted 96kHz sample rate limit and we got 176.4kHz through it under test, but not 192kHz; the electrical input (coaxial) accepts 192kHz sample rate as usual. There's no AES/EBU balanced and – surprisingly – no USB B for direct computer connection. Instead Arcam put an RJ45 ethernet connector on the rear so the CDS50 can be

connected into a home network (or the internet router direct).

Why? It allows the player to read music from a computer if it has a DNLA server – think PC here – or from streaming services via the company's MusicLife App., giving access to Napster, Deezer, Tidal, Qobuz and Internet Radio no less, providing you have an account.

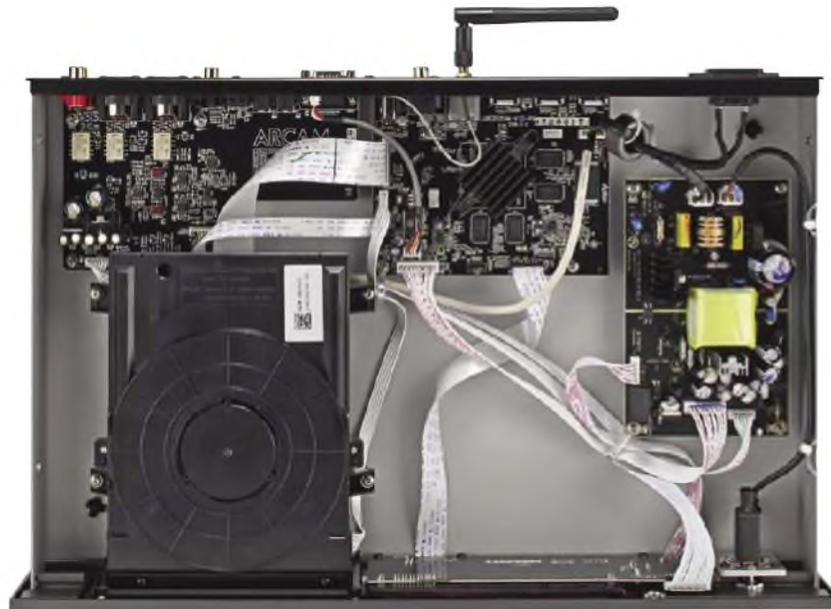
There's also a USB A socket that will read music files from a flash drive or external disc drive (i.e. a mass storage device), compatible music file formats being FLAC, WAV, AAC, AIFF, OGG, MP3 and WMA.

Being a silver disc player a remote control unit is provided, able to control this player and an Arcam amplifier, plus there's an App.

The CDS50 lacks an output level (volume) control so it cannot feed a power amplifier direct. This was disappointing – the ES9038PRO chip incorporates a high resolution digital volume control but Arcam don't use it. Nor do they use its filter set: the player has no filters. Lacking volume control there is no headphone socket, so it cannot be used alone.

Dimensions are 433mm wide, 87mm high and 283mm deep, weight being a reasonable 5.3kgs. Build quality is good if straightforward, comprising alloy extruded fascia, sheet steel rear cover and chassis. Whilst apparently designed in the UK it's made in China and comes with switch-mode power supply and Chinese parts, including a flimsy plastic CD tray. There's a confusingly long switch-on delay of 15 seconds before anything lights up – I thought our review sample was dead – and the dot matrix panel looks dated but does its job, being visible from a distance.

Most surprising for me though was a simple and short (Chinese default?) User Manual that says little (it's available on-line if you want to look) where Arcam manuals in the past were a model of clarity. No mention anywhere that the CDS50 won't stream from a Mac unless it has DNLA server software installed; with Windows 10 you must enable streaming in Windows Media Player. The CDS50 saw both my Mac (Sierra) with Plex DLNA server and PC (Windows 10) without problem and read the PC music library. Awkwardly, the control App is unable to select Network media play – this must be done on the



The disc mechanism is at left with, behind, an impressively compact circuit board. At right another board carries the player's switch-mode power supply that accepts 110V-240V input, 50Hz-60Hz, power consumption being quoted as 20 Watts.

MusicLife App (yes, there are two Apps!) then it provides a track listing. The player's screen also provides a single track identity, but only when stopped, not during play. It was all a bit complicated, but worked.

Mac and Plex were identified – but not catalogued music tracks, so no go here. This was a Plex issue however.

Also fitted is an RS232 socket for connection to a home automation system and a 12V trigger input for auto-switch on with other Arcam items. There are digital outputs too, for digital linking to an external 'digital' amplifier or A/V receiver.

SOUND QUALITY

I used the CDS50 with an Icon Audio Stereo 30SE single-ended amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers, the system running from an Isotek Evo Mosaic Genesis regenerated mains supply to avoid the influence of local mains noise and distortion. Hi-res tracks were delivered from an Astell&Kern AK-120 connected optically, and by a flash drive.

Spinning high dynamic range (uncompressed) CD tracks the CDS50 was immediately stunning. The ESS chips always did seem to magically clean CD of mush and the 9038PRO went a stage further by seemingly expanding dynamic range to give everything more life and punch than I expect – or have ever

heard – from CD. At times it became a puzzling experience. Treble was strong and dense and at times, when low frequencies were absent, a bit overwhelming.

Listening to Mars, from The Planets (LSO, 24/48) via the optical input (i.e. not from CD) picked up the effect, with the orchestra sounding brightly lit until kettle drum appeared. With Rock and Fleetwood Mac's Dreams (24/96) the swathe of fine treble detail being fired from Martin Logan's XStat electrostatic panels was almost demanding to hear, but this player seems to expunge low level noise and digital hash (e.g. jitter) better than all others, leaving Dreams both washed of muddle and expanded in its dynamic contrasts, Mick Fleetwood's drums and Stevie Nicks vocals also appeared from nowhere to be hauntingly obvious.

This effect applied equally to CD where Safri Duo's Samb Alegreo – a punchy track – came out of the 'speakers like an express train.

I became all but suspicious listening to the Eagles singing Busy Being Fabulous. I use this as a standard CD Rock test track (it is heavily compressed; about 10dB dynamic range) and the CDS50 pulled it out of the sonic quagmire in an act of unbelievable redemption. I have never heard the track sound so good: clean, pure, punchy and balanced. On the edge of believable. The ESS chips process very heavily

“Can you please develop a phono stage?”



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Hi-Fi World "Excellent"

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The CDS50 rear panel has an Ethernet socket for wired network connection and wi-fi aerial too (both at centre). There's a USB A socket for flash drive, digital optical and electrical inputs and, at right, both phono socket and XLR analogue audio outputs.

and I suspected here the 9038PRO was working miracles.

Pink Floyd's Time (24/96) showed how well the player lights and identifies images, short introductory drum sequences panning across the sound stage with forensic precision, deeper synth runs having dry power.

It's a suspenseful track and the CDS50 heightened the suspense.

Playing SACDs highlighted the fact that there is no option to select CD or SACD layer; with most of my SACDs the player defaulted to SACD but with some dodgy ones – a Chinese disc and a Japanese Beatles bootleg – the CD layer was selected and I couldn't retrieve SACD. Not a big issue though. With SACD the player was very good – strings in Beethoven's Eroica

were silky smooth, nicely lit and well separated. Kettle drum strikes in Stravinsky's Firebird Suite were large and powerful but controlled. SACD was not better than CD however – at least with the material I used; SACD recordings are dated. The ES9038PRO cleans up PCM but DSD code from SACD goes though a different part of the chip, assuming Arcam use the ES9038PRO at all for SACD. I got the feeling that SACD was an extra here.

And finally I listened to the player from its balanced XLR outputs connected to a Music First Audio balanced magnetic preamplifier and McIntosh MC152 power amplifier driving the Martin Logans. This was an altogether different experience: think dry, forceful and pushy with

powerful yet expressive bass from the superb McIntosh that grips any loudspeaker. Again the CDS50 delivered a breathtaking result.

CONCLUSION

Spinning CD the CDS50 was almost unbelievably good compared to all that I've heard to date. It has more dynamic punch than all else. If you want the very best from CD

then Arcam's CDS50 with its ESS ES9038PRO chip is arguably the best available at any price – yet it's less than £1k.

Its SACD, internet streaming and other capabilities all worked but were a tad clunky in human-interface terms – and the User Manual explains little. Sonically the CDS50 is impressive but as a user experience it's less so.



MEASURED PERFORMANCE

Arcam use an ESS9038 DAC that gave 119dB EIAJ Dynamic Range from unbalanced phono socket outputs, and 122dB from the XLR socket balanced outputs – when fed 24bit digital from either optical or electrical inputs – very high figures that ensure a sound with depth and translucency, rather than the papery flatness of trad. digital.

From CD and SACD discs the Dynamic Range values are different:

98dB from CD, a standard result determined by 16bit quantisation noise and 113dB from SACD – good if below 24bit PCM digital.

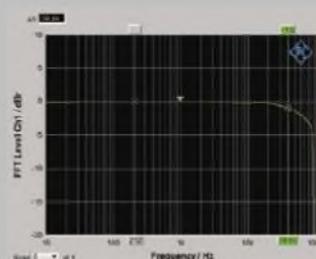
Distortion (-60dB) was low at 0.05% with a 24bit input where 0.02% is possible and 0.24% from CD where 0.22% is possible – both very good results if not the best. SACD came in at a low 0.04%.

Frequency response via the coax digital input measured flat to 40kHz with a 192kHz sample rate input, rolling down slowly to the upper theoretical limit of 96kHz, as our analysis shows. The optical input accepted 176.4kHz maximum sample rate. CD reached 21kHz and SACD 30kHz, not a great step up on CD where 50kHz is common and 100kHz possible. Arcam have used strong filtering to cut supersonic noise, a problem with SACD.

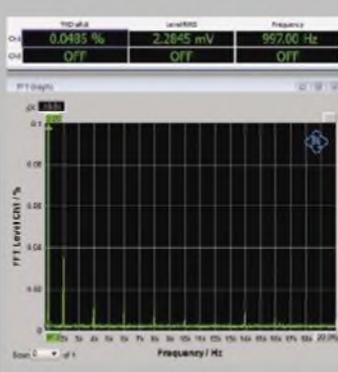
Output was high at 2.3V (phono socket) and 4.6V (XLR socket).

The CDS50 produced good results all round. The ESS ES9038 DAC's abilities are revealed by this player's massive 122dB EIAJ Dynamic Range figure. **NK**

FREQUENCY RESPONSE



DISTORTION



Frequency response (-1dB)	4Hz-40kHz
Distortion (24bit, -60dB)	0.05%
Separation (1kHz)	102dB
Noise (IEC A)	-118dB
Dynamic range	122dB
Output (Phono/XLR)	2.3/4.6V

ARCAM CDS50
£699



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT

Fabulous sound quality and wide ability, but a tad awkward to use in some areas.

FOR

- superb sound
- low price
- streaming

AGAINST

- no filters
- no volume control
- slow start time

www.arcam.co.uk

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- Dampened
- Model 20/12 also available



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- High density construction
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Series IV **£2,730**

Series V **£3,988**

Series V-12 **£5,799**



Mytek Manhattan DAC II ON DEMO

- World's highest performance 130dB Sabre 9038 DAC chipset
- Liberty DAC also available



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- Preamp
- Brooklyn Amp also available



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Mytek Brooklyn ADC ON DEMO

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Available in-store only

- Moving coil



£4,450 24 Months Warranty **audio-technica**

Audio-Technica Cartridges AT-OC9ML/II ON DEMO

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Audio-Technica Cartridges AT-ART9 ON DEMO

- Moving coil



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McIntosh MT5**

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ON DEMO

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McIntosh MA252**

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- Vacuum tube design
- Legendary design now in Mark VI form



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ON DEMO

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- 300 watts per channel
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ON DEMO

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McIntosh MC611**

- 600 watt quad balanced
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- 2, 4 and 8 Ω outputs



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ON DEMO

**Stereo Vacuum Tube Preamplifier
McIntosh C1100**

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- 12 analog inputs including MM & MC
- Full digital inputs, massive specification



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ON DEMO

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McIntosh MC462**

- 450 watts per channel
- Quad balanced design with McIntosh Autoformers™



£12,495 36 Months Warranty



ON DEMO

**2-Channel Solid State Amplifier
McIntosh MC312**

- 300 watts x 2 channels
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**SACD / CD / USB Player
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- Premium 8-channel, 32-bit PCM/DSD quad balanced DAC
- Plays CD/DVD data discs & USB flash drives



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ON DEMO

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ON DEMO

**Belt Drive Turntable
Pianosa**

- Extra rigid & dampened
- High precision platter
- Available in black, white or walnut



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ON DEMO

**Belt Drive Turntable
Valore 425 Plus**

- 9" tonearm derived from B-5.1 model
- Available in acrylic, black, white, walnut or black leather



£1,359 24 Months Warranty



ON DEMO

**Loudspeakers
XS-85**

- 5 driver design
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ON DEMO

**Gold Note Cartridges
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- Moving coil



£6,635 24 Months Warranty



**Gold Note Cartridges
Vasari (Gold)**

- Moving magnet



£318 24 Months Warranty



ON DEMO

**Gold Note Cartridges
Donatello (Gold)**

- Moving coil



£863 24 Months Warranty





EXTENDED

ULTRAVOX

Extended
Chrysalis

I have harboured a secret love for the end of many Ultravox's songs. An odd revelation, I admit.

The reason? The band liked to stop singing near the end of the songs and, often, would just ride the beat, keeping the music itself going and offering a long, drawn-out outro. These sequences were often quite hypnotic.

I can now bathe in this sort of thing because 'extension' is what this box set is all about.

This new 4LP, 20 track compilation box set collects, for the first time, all the band's original extended remixes, including rare and hard-to-find mixes with two being released outside North America for the first time and three for the first time on vinyl (or CD for that matter). All of the tracks have been newly remastered from the original tapes by Alchemy Mastering, except in the case of the 'Brilliant' remixes, which was remastered from the 2012 digital

masters.

Quality? It varies depending on the track. After all, this box set reprints music from varying time periods. 'We Came To Dance' (Unedited Extended Version) is balanced, neutral, informative, offers real impact when necessary yet never steps over the brightness line. 'All Stood Still' (Extended Version) also offers impact but is strident during crescendos with pinched treble. View this set as an archive experience and you won't go far wrong.

Musically, the box set offers value to Ultravox fans because the remixes can, on occasion, restructure the basis of a song. The Extended Version of 'We Came to Dance', for example, focuses on an underlying synth line, lifting it up to become the dominant aspect of the music and turning the remix into an instrumental with added vocals.

The box set is a triumph in terms of collecting together rarities.

AUDIOPHILE VINYL



JAZZ ON A SUMMERS DAY

Various
Charley

A beautiful, yet compact package, it features two 10" LPs, 40-page hard-back book, CD and DVD.

Often cited as one of the greatest concert movies ever made (in 1999, the film was selected for preservation in the United States National Film Registry by the Library of Congress), the soundtrack and film tells the story of 1958's Newport Jazz Festival due to the thanks of Vogue photographer, Bert Stern. Filmed over three days in August 1958, 'Jazz On A Summer's Day' combines footage of the crowd and fashions of late fifties' America, including a fly-on-the-wall documentary style.

The music and musicians involved within this production are peerless. They include: Louis Armstrong, Thelonious Monk, Anita O'Day, Dinah Washington, George Shearing and Gerry Mulligan. But

you'll also find Chuck Berry, Big Maybelle and Mahalia Jackson.

The film on this DVD has been newly restored for its 60th Anniversary, digitally remastered for CD and for the first time ever, mastered at half-speed by Barry Grint at Alchemy Studios on two 33.3 rpm LPs.

Half-speed mastering is becoming ever more popular and a tag of audiophile luxury that many record labels are finding attractive as a selling point.

For a live festival the sonics are remarkably good with subtle detail transcribed well. The intimate emphasis on the sax, for example, is tracked faithfully on the Jimmy Guiffre Trio's 'The Train and the River'. Some frequencies are uncontrolled or not transcribed fully but that's a minor element to the energy generated by the event.

A wonderful mixed-media package that is a valued testament to a historic event.

This five LP vinyl box set reveals a 'long-lost' series of concert tapes. In fact this music was originally a radio broadcast, specifically via the DJ, Robert "Bud" Spangler for WDET-FM radio. Discovered by DJ Amir Abdullah, the 1973 reel-to-reel archive features the earliest known recording of 'Noddin' Ya Head Blues' and a rare inclusion of 'Dizzy Profile'.

Also included is 'Pithecanthropus Erectus' (over one complete vinyl disc here), 'The Man Who Never Sleeps', 'Peggy's Blue Skylight', 'Celia' (plus introduction), and 'C Jam Blues' over another entire disc.

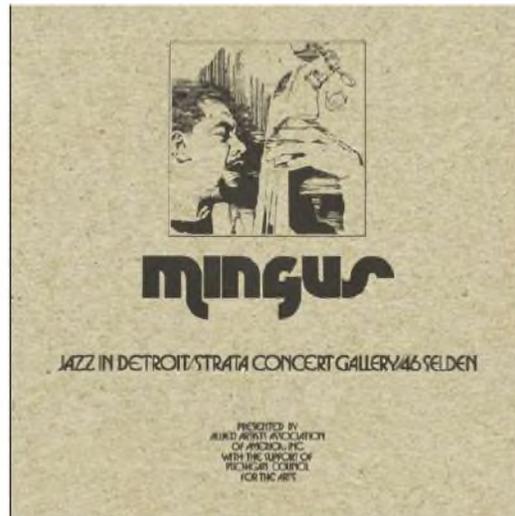
The group itself features two guys from Detroit: drummer Roy Brooks and Joe Gardner (trumpet). You'll also find pianist, Don Pullen and sax man John Stubblefield. This is the only time Stubblefield was recorded as part of the Mingus' band. He hadn't been a band fixture for long and would leave soon after

this recording (although he would collaborate with Mingus' widow, Sue Mingus, after Charles' death and become important in the later Mingus band).

Presented in a pizza-style box, included is a poster reproduction detailing the upcoming Mingus event and an insert detailing each composition from the broadcast.

Mastering? I'm impressed. It's by no means perfect, there's that slightly uncontrolled live concert feel to the room and the deep bass is a mess, sounding like the drummer is hitting a stale marshmallow. Nevertheless, there's a lot of life and vigour in the upper midrange with enough fragility in the treble to give the top end a sense of space. In fact, the midrange provides an admirable degree of space throughout.

Overall, this is an excellent box set that fans will adore. The band plays with fire and energy and a sense of freedom and abandon that is invigorating to hear. A real gem.



MINGUS

Jazz In Detroit / Strata Concert
Gallery / 46 Selden
BBE

AUDIOPHILE VINYL

A German band touching on classic krautrock, prog, a bit of psych and folk too. The group really were a group, living on a farm as a commune, inspired by mysticism and lots of psychedelic drugs while the music had esoteric overtones, 'far out' English vocal styles, with ethnic stylings on guitar and flute. Jams were a big deal with dreamy and fanciful moods to add flavour but the krautrock foundation was an ever present.

Specifically, the 1970 self-title album introduces almost Spanish rhythms and acoustic guitar picking, then the album turns prog-folk with country flavours later on Side One. The flip sides up to mystical tribal rhythms before descending into a folk-prog jam style.

'Sukran Gurk' (1972) kicks off with the sixteen plus minutes of 'Milk Blue Mind', a repetitive chant with Doors-like organ, followed by

free form rock experimentation and improvisation that flows into that jam rhythm I mentioned. The flip side also hangs onto that Doors-type organ sound with psychedelic noodling and improv rotating around it.

As for the mastering? I reckon the original master tape was pretty primitive because the dynamics are relatively dull, a bit on the foggy side with rolled off mids and treble and not a great deal of bass. The album sounds like a decent recording of a live concert.

The two LPs certainly offer a lot, considering their rarity status as original releases and the limited nature of this reissues (only 500 each world-wide). Both have been remastered from original master tapes, feature original sleeve art, include an insert each with informative text and photographs and, as a special bonus, each includes a 7" EP with non-LP singles.



SILOAH

Sukram Gurk/Siloah
Wah Wah

Christmas Wishes

NAME: Paul Rigby

STATUS: Hi-Fi World's own Mr Vinyl

Vinylistas have no end of choice when it comes to tweaks. Paul Rigby chooses a few for Christmas.



DS AUDIO ST-50 £75 (www.ds-audio-w.biz, +44 (0)118 981 4238).

Keeping your stylus clean is the most important task in any turntable-based hi-fi chain. The idea of this gizmo is to place the exposed pad on the stationary turntable platter and then gently and carefully, while holding onto the tonearm, dip the stylus onto and hopefully into the pad (just a tiny bit). When the stylus is lifted from the pad, the muck remains on the pad and off the stylus. The ST-50 is the best pad on the market. It's gentle on the stylus and cleans more of the stylus tip.

FURUTECH DESTAT III £299 (www.furutech.com, +44 (0)118 981 4238)

A gadget to remove static - at least temporarily. Battery operated, you press the operating button on the front of the handle, a power light shows green and the thing that looks like a kettle suddenly sounds like a hairdryer as the internal fan gets up to speed (it's very quiet, though), operating for 15 second before automatically shutting down again.

And what does it do? It pushes out ionising air which removes the static charge, prevents dust accumulation and fungi growth in vinyl grooves.



TITAN AUDIO CABLE LIFTS £29.95 pack of four (www.titanaudio.co.uk)

The Titans lift cables off the floor to remove them from speaker resonances, static from carpets as well as isolating the cables themselves. Cable 'noise' is not just on the inside of cables, it infests the outside too.

The better your system, the more you'll hear - as ever - but everyone should benefit from this one. And the benefits are? Well, lower noise, basically which results in a sparkling, and I mean sparkling, suite of midrange frequencies with an opening of the soundstage, infused by lots of extra space.

SDS SOUNDECK DPS DAMPING PUCK £90 (sounddampedsteel.com, +44 (0)191 2590700)

Machined and formed from stainless steel, including a strip of sound absorbing polymer within and weighing 500g, the DPS puck fits snugly over the top of the turntable's spindle. It is not a clamp and doesn't grasp the spindle itself.

Turntable weights tend to help audiophiles during expansive system tweaking. That is, some turntables benefit from a weight, others benefit more from a replacement mat, others like both. Many users ears will love the heavy SDS puck for its meaty bass and control. As it stands, the SDS Sounddeck DPS puck corrects inherent frequency aberrations and improves sonics.



ISOACOUSTICS OREA ISOLATION PUCKS £59 each (www.scvdistribution.co.uk +44 (0)3301 222500)

Although keeping quiet about the internal make-up of the noise-reducing components inside, the company did declare that the unit's upper flange, 'suction cup' design adheres to the underside of the product, while the upper portion of the foot then becomes, 'live' with the component, while the lower isolator adheres to the supporting surface. All the energy is managed within the core of the Iso-Puck's isolators which are carefully tuned...while remaining on-axis.

The Orea Indigos increase focus, precision and an essential tonal realism while providing important frequency discipline that results in an excellent sonic response.



Christmas Wishes

NAME: Jon Myles

STATUS: Hi-Resolution Digital Expert

Resident rock lover and digital expert Jon Myles chooses his ideal presents from Santa - all at a reasonable price.



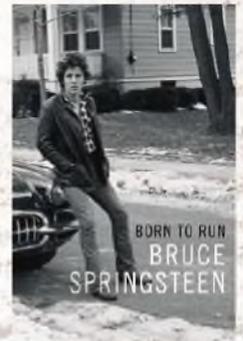
IMR ACOUSTICS R1 £500

If Santa has his hi-fi head (and sack) on then these should be heading to your house. The IMR R1 is an in-ear monitor that offers something truly different with the choice of open-backed or closed-backed operation plus an absolutely gorgeous and organic sound. There's an expansive presentation here that few other in-ear monitors come close to.

Very special, extremely enjoyable and lovely to listen to. A perfect gift.

BRUCE SPRINGSTEEN - BORN TO RUN £24.99 (www.amazon.co.uk)

Probably the most frankly honest, emotional and revelatory autobiography ever written by a musician. Bruce Springsteen lays bare his troubled upbringing and on-going battles with depression, showing where the inspiration for his songs come from. Some chapters are heart-moving, others revelatory. Even if you are not a fan of Bruce Springsteen - or The Boss as he's known to his fans - this book is an essential read as it gives a true insight into why music is important in so many people's lives - most especially his own.



MANCHESTER MUSIC TOURS



MANCHESTER MUSIC TOUR FROM £29 (www.manchestermusic tours.com)

For those of a certain age and a love of the likes of The Smiths, Joy Division, Oasis, The Stone Roses and New Order these specially curated tours are a real experience.

Created by Inspiral Carpets' drummer Craig Gill they take in all the iconic locations that played a part in the various groups history. Expert guides also provide an informative commentary, bringing new insights into how the city of Manchester influenced and shaped the music. To book go to www.manchestermusic tours.com.

FiiO RCC-MMCX1S £19.99 (www.advancedmp3players.co.uk)

Ever more mobile phones eliminating the standard headphone jack, meaning a Bluetooth device is needed to access music. But a long lead can be a bit cumbersome if you've got a Bluetooth adaptor pinned to your shirt or jacket. Enter FiiO's RCC-MMCX1s. It's a short - as in 60cm in length - cable capable of being plugged into the likes of FiiO's BTR1 Bluetooth device and those from other manufacturers.

One end has a standard 3.5mm jack while at the other there are a pair of MMCX connectors - they will fit most of FiiO's own in-ear monitor headphones as well as models from Shure, Ultimate Ears and Westone.

If you have a smartphone without a headphone jack and are going down the Bluetooth adaptor route then this is ideal.



QED XT40 LOUDSPEAKER CABLES £10 per metre (www.qed.co.uk)

Priced at just £10 a metre these QED cables boast outstanding construction and a quality of sound that is hard to better at the price.

Used in any decent set-up they provide a rich, open and airy sound that brings the best out of all components. Paired with a Creek 100A amplifier and a set of Spendor A5 loudspeakers they had a natural vibrancy, producing a large soundstage that was both engaging and vibrant. An ideal present for any music lover.

Christmas Wishes

NAME: Martin Pipe

STATUS: Technical expert on all things hi-fi

If you're unsure of what to buy the audiophile in your life for Christmas, here's hoping that he or she has left this page on open display...



AUDIO TECHNICA AT-MG10, £40 (eu.audio-technica.com)

Half a century on, SME's bayonet-fit system for removable headshells is still with us. You'll find it on current-production tonearms (e.g. Jelco, Dynavector and SME's own M2s) as well as DJ decks. Swapping cartridges is made easy; handy if the same 'table plays LPs, worn singles and 78s.

This Audio Technica AT-MG10 is machined from magnesium, which is both stiff and light. A collection of screws etc are supplied. It has blind tapped holes for clean top so is unsuitable for cartridges with captive nuts/tapped bodies.

ROBERTS STREAM 94I RADIO, £200 (www.robertsradio.co.uk)

Edging closer is the centenary of UK radio broadcasting. We've moved from AM to FM - and thence to DAB, Internet radio and streaming. All of these - bar AM - fall within the scope of the Roberts Stream 94i, an elegant and feature-packed portable radio that also happens to sound pretty good. It would be great in the bedroom (there's an alarm clock), or keeping you abreast of developments in Ambridge while preparing meals in the kitchen. The remote-controllable Stream 94i can even pull music from DLNA servers.



SENNHEISER AMBEO, £260 (www.sennheiser.com)

Among the gadgets I've enjoyed playing with over the past year are these in-ear transducers. You can play music through them with your Apple device (they plug into the Lightning port). And they sound great, if a little quiet, like many others. But none of the competition have the Ambeo's built-in high-quality microphones, which allow the wearer to make clandestine binaural recordings. Play the result through any headphones (not just Ambeos) and the effect is almost holographic. During regular listening, these mikes are used for noise-cancellation.

7IN. 45RPM SINGLE ADAPTORS, £3.50-£4.99 (www.recordstabilisers.com)

Ah, the pocket-money joys of the 45rpm seven-inch single! Unfortunately, many have lost the centre-hole adaptors that enable a format designed for jukeboxes to be played on a regular turntable. Such 'dinked discs' can however be spun at home using aftermarket adaptors, like these intriguing specimens. Available in a variety of styles - influences include nationalities, musicians and lifestyles - they're snug fits, and great stocking-fillers!



FIIO BTR1 BLUETOOTH ADAPTOR, £40 (www.advancedmp3players.co.uk)

Smartphones are losing the headphone socket, making it difficult to enjoy music from them. Instead you must use Bluetooth 'phones or an adaptor like the FiiO BTR1 here. The 20-gram BTR1 is a damn sight more musical than most smartphone audio systems. Furthermore, any headphones with a 3.5mm plug can be used with this self-powered unit - 9 hours per charge. Get smartphone junkies into the groove this Christmas!

Christmas Wishes

NAME: Dave Tutt

STATUS: Hands-on audio engineer

I'm moving to a new house so need some pressies to help out. My items are from pro suppliers Canford and Farnell who have lots of unusual small audio bits.



SONIFEX RB-BL2 PRO INTERFACE (www.canford.co.uk)

With so much cabling going into my new workshop and house, necessary will be some method of converting unbalanced audio to balanced and back again, for long cable runs. In the broadcast world the Sonifex RB-BL2 interface is used for this. It's a four port device so some spare capacity is available and of course a pair will be necessary at around £249 each from Canford. I have used these for many years and find them acoustically invisible – a significant advantage.

BALANCED CABLE £80 (www.pc.farnell.com)

I have to install balanced cables across the house so I have another expense in the cables field; probably another £120 or so. I have a favourite balanced cable, it's a Pro Power cable with a great construction and fortunately no semi-conductor screen which is far better as there is no chance of it shorting out. It is almost indestructible as I have been kicking it around in the workshop for 10 years and it just doesn't break! Sounds good too.



PRO POWER FLEXI CABLE £80 (www.pc.farnell.com)

I have to run some new speaker cables across the house and have a preference for 2.5mm speaker wire that I can bury in the walls – around £80 for the length I need across the room. Its lots of wall chasing but once finished will be worth it as 'speaker cables disappear. Nothing better than having the opportunity to hide the wires before moving in, leaving just connection plates on the walls.

CREEK OBH-8MK2 £130 (www.creekaudio.com)

My penultimate pick would be a Creek OBH-8mk2 phono preamp. At £130 it is probably a bit of a good buy. Have I heard it? No! I have been using the same gear for about 15 years and the pre-amps I'm using are worth no more than £20 so it could be an upgrade. I usually give anything that comes through the workshop a trial and the Creek may do it as Creek have a long and strong reputation.



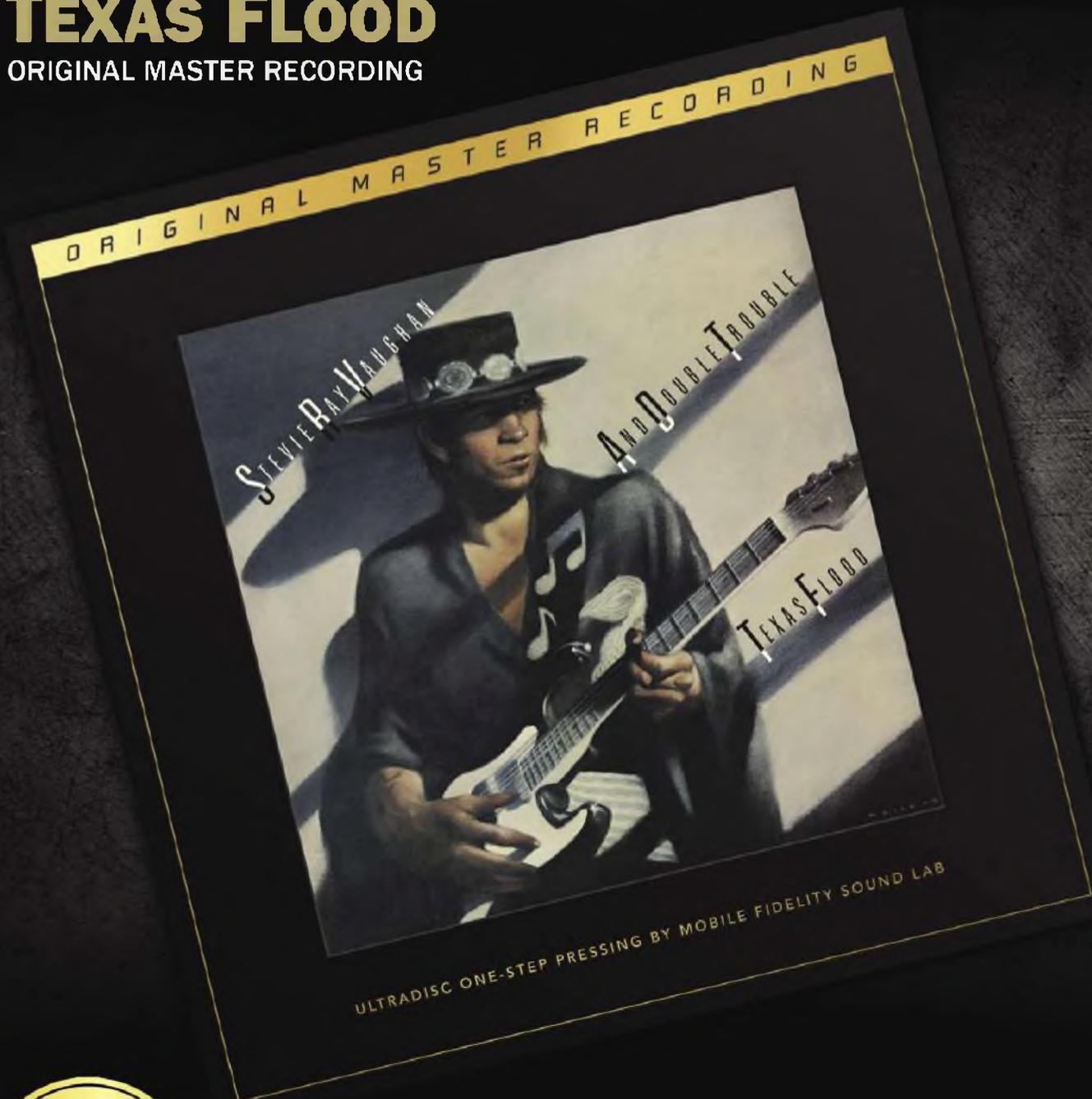
MUSIC £100

Last thing? Music! I continue to search out those interesting CDs and LPs and can only say that the more I listen the more I want. I can easily spend over £100 on media be it new or used. On my current list are Vanessa Carlton, Gino Vannelli, Ann Wilson, Sarah Jarosz, The Shires, M83, Claudia Brucken, Evanescence, Ian Anderson, Donald Fagen, Gregson/Collister, Aquilo and about 50 others and surely that is what owning a hi-fi system is all about. Otherwise I will have to go back to reading books.

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Fantastic FiiOs

FiiOs latest flagship FH5 in-ear monitors are affordable yet refined and impressive, says Jon Myles.



Fiio are best known for their affordable range of high-resolution digital audio players (DAPs) and portable DACs – but recently they've been making a big impression with some value-for-money in-ear monitors.

Its FH1, F9 and F9 Pro models received Hi-Fi World's seal of approval a few months ago (see review in the July 2018 issue). Priced at £74.99, £109.99 and £139.99 respectively they were capable of matching headphones costing significantly more in terms of sound quality.

Now the Chinese company has upped the ante with a flagship FH5 in-ear monitor costing £230. And again this model includes features usually reserved for some dearer designs from other manufacturers.

For a start the FH5 has a striking design. Its all-metal housings are made from an aluminium-magnesium alloy with a ripple design on the outside. Good as that looks it's the internals that really matter – and here FiiO has introduced a truly different design featuring a quad driver arrangement.

There's one 10mm polymer dynamic driver allied to three balanced armature devices – one for midrange and two for high frequencies. These go through three discrete tubes which FiiO claims filters out unwanted resonances.

The supplied cable is also better than most. Just over a metre long, it is made of silver-plated copper inside a transparent insulation, terminated with MMCX connectors. Thick and weighty, over-ear guides help reduce strain on the ears.

A variety of ear-tips are included to make sure buyers can get the required fit and sound isolation; the supplied carrying case is robust.

SOUND QUALITY

Playing 'Ocean Beneath The Waves' by The War On Drugs via an Astell&Kern DAP it was bass response that hit home first.

This track has a rolling bass line that often sounds rather muddy through in-ear monitors. Not with these FiiOs though. It punched hard without any overhang. The snare drum was also crisp and sharp.



There's some warmth to the mid-range but it is not over done. Playing

St Etienne's 'Tales From Turnpike House' (24/96) the separation between the instruments was excellent. Sarah Cracknell's vocals had a sweet, vibrant tone to them. My reference Noble K10 in-ears did extract more detail from the same songs but they are significantly dearer.

With Deep Purple's 'Smoke On The Water' I was also struck by the overall musicality of the FiiOs.

Putting the FiiOs against similarly priced in-ear monitors from the likes of Sony and Sennheiser they had the edge every time. If you are looking for a brilliantly built, good sounding IEM at this price then these new FiiOs fit the bill.

CONCLUSION

A quad driver, quality in-ear monitor for just £230? FiiO has raised the bar with their FH5s.

FiiO FH5 £230



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"The dark influence is price and profit – except I don't think it is dark"



Noel Keywood

This month I listened to a brace of budget moving magnet cartridges; you can read my review on p117. If I'd been listening to a brace of budget CD players – the sort available a few years ago with cooking chips – I would have fallen off my seat with boredom, whilst trying to maintain professional interest (natch!). Instead, I loved every second of listening to Audio Technica's new budget VM95 range of peanut devices. As in they cost peanuts.

What I heard and enjoyed was so good it puzzled me – there's an issue here! I am not trying to talk up this new range of MM cartridges, so much as reflect on just how enjoyable music on vinyl can be – and how it is also improving at a rapid rate. Sort of for peanuts.

I say "sort of" because I used a brace of high quality reference LPs in addition to normal 'cookers' and they're not cheap; Lyn Stanley's *The Moonlight Sessions* cost me £100 and I had to almost beg to get my hands on one of a batch of 100 made before the first generation stamper wore out. The others cost £25-£40 or so apiece, way more than a CD. All the same I could play them with confidence using these modern, well honed budget cartridges – and I got to hear just how good the LPs were. The cartridges are analogue peanuts – but good ones. Well honed miniature mechanical devices. Not dodgy silicon chips.

What we lost with analogue, when digital displaced it, was scope for continuous improvement. Once the spec for digital on CD had been decided back in 1982 there was nothing anyone could do to improve the sound – except stick 'em in a freezer and paint the edges green according to some more imaginative reviewers!

CD had to be perfect, because

it couldn't be improved: this was a logical circularity understood at the time by top engineers I suspect, and it filtered out into marketing spiel.

Analogue systems like LP also have immutable specification, such as groove width and rotational speed, but beyond those few simple parameters they can be endlessly improved. An example is the 'High resolution LP' where the groove profile is mapped by a computer then cut by a laser. The process leverages a raft of modern technologies to improve sound quality.

LP as an analogue system can be improved endlessly from both ends – the LP itself and the replay device, a humble but effective pickup cartridge costing around £100 in the new VM95 range.

As crude as LP is in basic form – a 1950s technology – listening to modern LPs in particular is a wonderfully involving experience. Even classical music sounds utterly superb – providing those ticks and pops don't upset you. I can understand how others disagree on this issue. But it's a question of trade-offs: suffer this problem to enjoy the fundamental sound quality or go digital (i.e. CD) and suffer other – to me more serious – sonic issues.

It's both ironic and sad that as modern analogue-to-digital converters (ADCs) matured into a refined technology around 5 years ago the silver disc at the same time reached the end of its life. Make a good digital recording through a modern ADC, put it onto CD and you get very good sound quality, I have to admit.

But it's a little late now and other influences have come to bear. You might well think them dark influences.

Number one is that CDs ceased to be a premium product long ago, prices and profit fell yet they

occupied long racks and valuable floor space in stores around Britain. Profit didn't cover the rent and staff costs so those stores have now all gone – Our Price, HMV anyone? Names of yesteryear – from just yesterday.

The other is CDs can be copied and distributed. Get it up on YouTube and the world can listen for free. No income from this source either then. No income to recording artists.

In the end CD became a cheap medium not warranting investment. It could have been so much better.

These are the influences of fashion and decay. The dark influence is price and profit – except I don't think it is dark. Those LP prices I quoted earlier – £100 down to £25 – shade CD. And as a result LP now makes profit and its therefore worth producing – and producing well as a premium product. So we're getting great LPs if expensive ones by CD standards.

The dirty word of profit means there is money that will, hopefully, be channelled back to artists to support their performances. Not to music business intermediaries who have a reputation of killing off the golden goose able to lay the egg that supports them.

And the LP cannot be easily copied – nor is there much incentive to do so. An LP has value in physical form people can see, comprehend and interact with; it has no worth as an invisible digital file. Witness LP artwork, its qualities lost as a digital thumbnail on a screen.

Sound quality from LP does not challenge that from master tape, that's for sure. Yet at the same time modern LPs are sonically fabulous and hearing just how good they are through cartridges costing peanuts was exciting for me. This is a great medium and getting better every day. True high fidelity. ●

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Hi Fi News said:

Any great turntable gives you a certain frisson when you hear it. It's that old 'shivers down the spine' feeling, a sense of being let into a world to which you had previously not been privy. This is a remarkable turntable, and arguably the apex of vinyl playback. It's difficult to see how the SP-10R motor unit can be improved upon. It is a definitive statement of engineering prowess, and marks the return of direct drive to the top tier of turntables.

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"the latter act like
fourteen year olds well
into their forties"



Paul Rigby

A few years ago, I had a chat with falsetto legend, Frankie Valli. Part of the famous 'Jersey Boys' outfit, The Four Seasons. He was reflecting on his past and what might have been. "Had I not made it in the music business then there was always a risk that I might have turned to crime" he said. "Most of the people that I grew up with were not college educated. There was no one funding that. If you didn't make it one way, you made it the other way. You either got mobbed up or joined the army".

"I grew up in an area, the main city in New Jersey, Newark, and the neighbourhood I lived in was a crime area. Organised crime at that. In those days, organised crime owned all of those bars we worked in. I got to know a lot of them, never really knowing what they did. I never wanted to get intimately involved".

For Valli, joining a band was a way out. The group offered strength in numbers and increased the chances that one or all of the band members would find a way to get out, helping the others to make a living and find a future.

Which comes back to a point I made in the last issue. Are solo artists made of stronger stuff?

Solo artists have to be self-motivated to get out there and forge a career, seeking out gigs, self-marketing and promoting and doing most of the admin. Solo artists have to be self-confident and, if they're not, to be able to push through that, to spark confidence in their own material. If they don't, who will? Song creation is much scarier: there's no band member to bounce ideas off. Hence, you have to be braver.

Then again, you only have to worry about yourself, you don't have to worry about unreliable band members, you can collaborate with whoever you want, whenever you want, if at all. There's no odd contract arguments or band disputes and, bottom line? You're in control.

Look at the major solo artists of the past: Bing Crosby, Frank Sinatra, Peggy Lee, Elton John, Garth Brooks, Billy Joel, Bob Dylan, Prince, Eminem, Neil Diamond, Johnny Cash, Celine Dion, Madonna, Bruce Springsteen, Barbra Streisand, George Strait... I know there's many more out there that I've missed but there are many strong characters in that lot. Some of the above had an early or very brief taste of band life but the majority of even these artists' careers have been spent in solo work. Certainly, they are all known as solo artists.

There are a host of solo artists out there that have also changed music through innovation. I would tentatively say that there's a higher proportion of solo artists have done that than bands.

You can already ponder on the accomplishments of the artists listed above but also consider Gram Parsons, who was instrumental in creating country rock even before he formed a band, Brian Eno who basically invented ambient music, Bowie and his many boundary pushing innovations and more. I found a CD on my desk today from Jasmine (<http://www.jasmine-records.co.uk>) from Jackie DeShannon ('The Early Singles 1956-1962'). She toured with The Beatles, wrote songs with Randy Newman and Jimmy Page, sang with Van Morrison and was a true innovator by merging folk and pop.

Ken Dodd. That's right, Ken Dodd ('Love is Like a Violin: The Early Singles and more') was an innovator. A highly successful cross-over artist, merging two entirely different entertainment streams of comedy and music. He had eighteen Top 40 hits and spent 188 weeks in the Top 40. His No. 1 hit 'Tears' remains the third best-selling UK single of the '60s and one of the best-selling UK singles of all time. You can imagine the competition out there for those spots.

Also, on Jasmine's '...Don't Take Your Cash To Town: Improbable Spoofs, Sequels And Answer Discs' you'll find one Elvis Presley (we know about his importance), Johnny Cash (and his) and the man who spawned most of the '60s megastars, Buddy Holly (a solo artist...with a backing band).

To be a solo artist right from the off – many begin as a young person – requires a stronger personality than most band members have. It demands a level of maturity higher than most band members. It demands an organisational skill set superior to most band members and requires a greater degree of confidence than you'll see of many band members. Many of the latter act like fourteen year olds well into their forties and are able to do so because of the supportive band structure. Keith Moon, for example could only have blossomed and survived in a band. As could, I would venture, Daltry and Entwistle (their own solo forays were sporadic, after all). You only have to gauge the almost regular, parental-like despair in reference to 'his band', from Pete Townshend, over the years, for confirmation of that. ●



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"diners tastes for wine change depending on what music is being played"



Jon Myles

Once known as Muzak, the business of background music has become a booming industry. Yes, some of us may dislike it when we go into a shop or restaurant to be serenaded by a song we may hate – but the philosophy and innovation behind the whole industry is fascinating.

Restaurants, supermarkets, High Street fashion chains and even football clubs now spend significant sums on piped music to harness the emotional pull of its charms.

Tottenham Hotspur, for example, employed a company to develop a playlist for its training ground in the belief that it would help the psychological and physical well-being of its players. Actually, it has worked – many employees saying they felt better, fitter and happier while at their job.

Estimates say that worldwide there is some £2 billion spent by various companies using music to entice shoppers.

The largest provider in the industry is Mood Media – which supplies music to over half a million locations throughout the world, ranging from Sainsbury's supermarkets to KFC fast-food restaurants.

What are we dealing with here? This is where it gets interesting. Research has found that diners tastes for wine change depending on what music is being played. If it is French music they are more likely to choose French wine – if German then the likelihood is that German wine will be chosen.

It sounds very simplistic but is a prime example of how music affects our mood and emotions. One study

showed that we associate certain songs with good times in our life – so that if I walk into a shop and that song is playing I'm more likely to linger. The longer I do so, the more chance I will be spending money there.

This came home to me while in a local store near my home in South West London. Going in to buy a loaf of bread the strains of Joy Division's 'Love Will Tear Us Apart' came over the loudspeakers. No vocals, just the introduction – and rather quiet at that. But it was enough to make me stay and buy rather more than I intended to!

It's this association between music and our day-to-day life that has become so important. One study from 1998 found that diners in a cafeteria were willing to spend more money when classical music was played in the background as opposed to when there was no music at all. One explanation, the researchers suggested, was that diners associated classical music with quality.

Another showed that people chewed faster when vibrant background music was being played. It all sounds ridiculous but the fact is that it works.

Another example is Fuller's Brewery – which plays background music in most of its 400-plus pubs throughout the UK. The reason is to create an ambience that appeals to its clientele.

There is something about music that appeals to our inner soul – precisely the reason we are so passionate about hi-fi. If you read the book *The Rest Is Noise* by the music critic of the *New Yorker*, Alex Ross, he makes a powerful argument that we all love music and react to it in

different ways.

However, not everyone agrees. The campaign group Pipedown – who include Joanna Lumley and Stephen Fry among its supporters – was founded in 1992 to try to reverse the trend of piped background music being played in all places.

The founder Nigel Rodgers was fired into action after getting annoyed by background music in a South Kensington restaurant. On its website the group states: "Do you hate unwanted piped background music? Do you detest the way you can't escape it? In pubs, restaurants and hotels; on the plane, train or bus; down the phone; ruining decent television programmes; adding to the overall levels of noise pollution in public places".

Indeed, Pipedown claims some of the credit for the decision by Marks & Spencer to stop using piped music in its stores in 2016. Then again, Marks & Spencers has hardly flourished since then.

So does background music work or not? Perhaps it is up to you to decide. And there is one simple way to discover. Walk into a shop, bar, restaurant or coffee shop that is playing music and then go to one that isn't. Which do you prefer?

As for myself, I'm still undecided. Because I just headed into a cafe where there was Van Morrison's 'Brown Eyed Girl' playing gently in the background. It sounded lovely – and my first thought was to ask the owner to turn the volume up.

But would everyone else in there have liked the music being played? Well, at the volume I wanted it at I reckon the cafe would have been deserted rather quickly! ●

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WHAT HI-FI?

"Many radio services are also carried ... potentially, the sound betters DAB"



Martin Pipe

Recently, I encountered the £120 Manhattan T2-R, a budget Freeview HD set-top box boasting a hefty 500GB of storage for recordings and Ethernet connectivity. The latter is provided so that it can receive the increasing number of Freeview-listed TV channels delivered online.

It was the cheapest such product I could find for use with a Full-HD DLP projector, thereby converting it (courtesy of a long HDMI cable) from a mere 'display' into a TV.

There is of course more to digital broadcasting than television. Many radio services (thirty or so at the last count) are also carried – they're listed towards the end of the electronic programme guide ('EPG') – making it a convenient alternative to DAB. Potentially, the sound quality betters DAB; via the latter platform, all of the main BBC services are delivered using the same MPEG-I, Layer 2 codec as DAB – but usually at a higher bitrate; Radios 1-4, for example, are carried at 192kbps.

On DAB these have a 128kbps bitrate, exceptions being Radio 3 (192kbps, dropping to 160kbps, depending on the time of day) and Radio 4 (which also uses 80kbps). Terrestrially, the digital-only music services Radio 1 Xtra and 6Music are streamed at 160kbps. Via DAB, though, they're allocated 128kbps. Things are even worse for the popular 'oldies' station Radio 4 Extra; DAB listeners have to make do with mono at 80kbps. Those tuning in via the telly get stereo at 160kbps, thereby getting the full benefit of shows made after the Tony Hancock era!

The T2-R, as a device aimed at the owners of HD-capable TV sets, has minimal analogue connectivity. On its rear panel is a 3.5mm

jack, from which stereo audio and standard-def composite video are available. Aware of the gear likely to be partnered with its box, Manhattan doesn't 'bundle' an analogue cable but an HDMI lead is supplied. Thankfully, the socket pinout is documented.

With appropriate cabling, the audio can be routed to the 'aux' (or even 'tuner'!) input of your amplifier. Sound quality is acceptable but lacking in critical terms; a decent DAB tuner, ironically, yields a more satisfying listen! Mercifully, the T2-R is also equipped with optical digital. I found the results from here are, using a Chord Qutest DAC, superior to the unit's own analogue outputs – which probably emanate from a basic DAC buried within a complex multi-function chip. I'm using an Arcam A49 and Quadral Aurum Wotan VIII speakers.

So far, so good. It's another route to radio. But there are practical caveats. First of all, there must be a TV aerial-point in your hi-fi room. A TV is necessary for the menu-driven setup phase. And as there's no front-panel display, what about using the T2-R without a TV connected? The numbering of Freeview radio stations is mercifully consistent e.g., 703 for Radio 3, 704 for Radio 4 and 706 for 6 Music. You can 'tune in' simply by keying the relevant channel number into the handset.

Naturally, if a display is connected you can exploit the PVR functionality (complete with series-link). As you're recording the original bitstream, there's no perceptible loss of quality relative to the original broadcast. Compare that with the 'old days', when you'd record shows and concerts onto cassettes! 500GB of storage was specified with space-hungry HDTV in mind, but equates to an enormous amount of time shifted radio...

TV sound tracks are transformed via a hi-fi; audio systems built into modern TVs are at best mediocre. And visual performance? HDTV channels are vibrant and detailed; in comparison, standard-def ones (off-air and streamed) seem pallid. On which subject, few streamed channels are live. Most are accessed 'on-demand' via slickly-designed portals.

One, 'Vision TV', warns viewers that its content "may not be regulated like TV". Ofcom told me that it "was given additional powers, under the Digital Economy Act 2017", to prevent Freeview licensees from providing access to "seriously harmful extrinsic material".

Arqiva and Synapse – the companies "licensed to provide access to the Freeview platform" – have a condition in their licences requiring them to "make viewers aware when they are accessing content being delivered from outside of Europe...content providers shall display, prominently and for at least five seconds, a warning before each occasion that the viewer accesses the service".

Forbidden outright are government-proscribed services, 'adult sex material' content equivalent to BBFC R-18 rating and the "advertising of unlicensed telecommunications-based sexual entertainment services". Arqiva and Synapse must "cease enabling access to specified content" if Ofcom is satisfied that doing so "is necessary to protect under-18s, prevent incitement of crime or hate speech, or prevent serious harm being caused to viewers". Phew!

Freeview offers a lot of choice through a simple box like the T2-R, including radio at better quality than DAB, especially when routed through an external hi-fi DAC like the Chord Qutest I use. ●

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"What caused the original bang? Terrible PCB design"



Dave Tutt

I don't go to shows or spend time at hi-fi shops. I am an enthusiast but I am also an engineer who repairs audio products built long ago, or not so long ago – sometimes very recently and it has still failed.

Since I very rarely buy anything new there is little need for shows or shops. It is the broken units that interest me – and they tell me so much more about hi-fi equipment than anything else.

Much as I applaud the skills of salesmen to explain to me the new toys on the latest gear, I have to say that CD players between £229 and £799 are not that different or better than each other. A look inside shows this. Not only CD players either.

Power amplifiers in most equipment are class A/B with minimal differences across brands or power outputs and that has been the case for 30 years or more.

If you want to sell me anything with a switch-mode power supply in it I have to say "can I buy a replacement board?" I know its life is far shorter than the equivalent traditional design – and if it is powering a Class D amplifier then I hope the amplifier is on a separate board – and that is available as a spare part too!

Now I am tempted, when I go past the few hi-fi shops I know of, to pop in and see what happens. But I don't really want to be seen as the guy who turns up with deep pockets and short arms hanging around in the showroom. I have seen people who do that and with the best will in the world, you can't really monopolise staff, especially on a weekend if there are people needing to be served – and especially if you do it regularly!

I am sure the people who run the shops have at least one visitor who does it. They can't be called customers as they never buy

anything!

So what else is there this month? Well one of the things that always interests me is mains cable. I know I am sad but hey – its an occupational fixation! Depending on your equipment's manufacturing source and age, you could find single insulated two-core, which may have been okay for table lamps in the 1970s but from a Health & Safety standpoint now is unacceptable.

Then there is the three-core that, from its thickness looks reasonably okay and yet when you cut it back to put on a new plug you find that 1980s manufacture has caused the copper to degrade to a point where it cannot be used, being black with oxide and very weak and certainly not conductive. I think it is a chemical reaction with the insulation. If you run a test over it the conductivity is poor although the insulation is still okay. Whatever, it has to be replaced.

I usually ask at this point if the customer wants new captive cable or an IEC connector as I know how excited people get about being able to swap mains cables around and hear the magnificent difference it makes!

Next in the workshop: a relatively recent sub-woofer, a product with a blown switch-mode power supply – surprise, surprise – so I thought I should see if I could repair it. Since it came from a European manufacturer you would think that it might just be possible to buy a replacement part. No chance! Return to base repair and a minimum cost that would make peoples' eyes water.

This was a standard circuit using a MOSFET and a uc3842 current mode control chip – only discovered after some scratching of the burn marks. There wasn't much left. Chip was a dead short, as was the MOSFET. Sense resistors just ash,

most capacitors blown, diodes dead short, tracks blown off the board.

So some lateral thinking, a download of the chip datasheet, try and work out what bits on the board related to which bits in the circuit diagram and were not part of the Class D output stage. Then figure out the cost cutting and the bits that have been left out to save a few pence.

What did they leave out?

The voltage output monitoring and feedback circuit, some of the reference voltage parts, so making a simple power supply that works but only with a given load so that its 30-0-30 Volt and 15-0-15 Volt outputs are there, but without the correct load anything but predictable. It was a load regulated supply but not a stabilised supply as far as I can work it out, as off-load the volts went far higher than the output capacitors could withstand. If it was properly stabilised the voltage would be correct on or off load.

So many of them like this. I have no faith in switch-modes at all and I am sure my fellow engineers are pretty sick of having to deal with them. So the sub woofer went back together after 22 hours of repair and worked although I couldn't guarantee for how long.

What caused the original bang? Terrible PCB design. Tracks on top and bottom of the board resulted in a point where the capacitor was only isolated by around 0.25mm of glue on the under side of the component holding it on the board and a dab of lacquer. A first year trainee error perhaps. No wonder they aren't made anymore!

And three days later I get another one. Even less left on this one as the amplifier and preamp were both shorted and liable to be beyond repair too. My heart's not in this one. Scrap! ●

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Compact Cowon

Cowon's new iAudio U7 is one of the smallest portable music players on the market. Jon Myles tries it out.



How small and cheap can a digital music player get? Say hello to the new Cowon iAudio U7. It's a mere 20.5mm x 80.9mm x 13.3mm (H/W/D) and weighs next to nothing.

Add to that it retails for just £39.99 for the 16GB model on review here (a 32GB model is available for £59.99) and supports MP3, WMA, OGG, as well as WAV and FLAC lossless.

It also has a built-in FM radio receiver and an OLED screen that is well lit and easy to read. Pop off the bottom housing to reveal the USB connection and you can drag and drop music files directly from a computer. Both Windows and Mac are supported and the transfer time is fast.

Drawbacks? Well, you won't get high-resolution – its chip is limited to 48kHz sample rate for WMA and 44.1kHz for FLAC.

That said, it is the size and convenience of this player that marks it out. The body has a nicely sculpted form with all functions accessible from the tilted, square-shaped panel at front and a volume control on the side.

One rocker switch on the side controls the volume while there's a single headphone jack at the top. It's a little reminiscent of the original iPod Shuffle – except with a screen.

One other feature worth noting is that there is also a microphone facility – allowing the recording of radio or voice memos.

SOUND QUALITY

Small as it is the Cowon iAudio U7 packs a surprising punch with its

sound. Plugging in a pair of AKG N20 NC headphones the Three Johns' 'Death Of The European' had a vibrant air to it. Guitars were crisp and bright with a nice decay to the notes. Bass was a little shallow but had adequate tone but the mid-range was smoother than I expected.

There was also plenty of rhythm and pace on offer. On The Smiths' 'The Queen Is Dead' the opening drum salvo drove along with power. It was easy to distinguish Johnny Marr's multi-tracked guitars while Morrissey's vocals were suitably gruff.

Playing Arvo Part's 'Tabula Rasa' there was good body to the piano, whilst violins had a nice timbre.

OK, you don't get the overall sound quality of high-resolution players such as those from FiiO or Astell&Kern, but what you do get is both decent and enjoyable – the main selling point of the Cowon being its small size and convenience.

The iAudio U7's smooth nature made forgiving with heavily compressed pop and rock. An MP3 of 'Definitely Maybe' by Oasis had none of the stinging, edgy guitar parts that some other players exhibit but a rather gentler air to it. That did mean the music lost some of its bite but it was eminently listenable.

CONCLUSION

A cheap, light and enjoyable little music player which is easy to slip into a pocket and simple to operate. It works well and is nicely put together. If you want music-on-the-go without high-resolution and a small form-factor, then the Cowon iAudio U7 fits the bill.

COWON iAUDIO U7 £39.99



EXCELLENT - extremely capable.

VALUE - keenly priced.

VERDICT

Perfect for those who wish to take some music with them when out, without packing a big player.

FOR

- small
- light
- good design
- smooth mid-range

AGAINST

- no high-resolution

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Perfect Statement

Tellurium Q has unveiled a new flagship range of cables - and Jon Myles is taken aback by their clarity.

Tellurium Q's founder and chief designer Geoff Merrigan told me some time ago the company's flagship Silver Diamond cables were the pinnacle of what they could achieve and he didn't see how they could be bettered.

Between then and now

something changed - because we currently have the new Statement cable which sits at the top of Tellurium Q's range of loudspeaker cables.

Allied to these are a set of RCA phono interconnects, balanced XLRs as well as a mains lead. It's a big step forward for the brand to introduce a whole new range

such as this - and one which might annoy customers who have purchased previous cables from Tellurium Q under the impression that they couldn't be bettered.

But, as Geoff told me, he did not think that was possible until a thought struck him and he started experimenting with different constructions

Tellurium Q Statement 'speaker cables

and materials. Exactly what these are is hard to define as Tellurium Q is famously secretive about the development and science behind its products.

But, as ever, the devil is in the detail which means the sound quality of all the individual cables.

SOUND QUALITY

Starting off with the new Statement 'speaker cables connected to a McIntosh MC152 and feeding a pair of Martin Logan ESL-X hybrid electrostatic loudspeakers there was a tremendous difference to any other leads I've heard.

These new Statements are starkly revealing. Playing New Order's 'Bizarre Love Triangle' the tempo, scale and overall sense of musicality was immense. What these loudspeaker cables do well is get out of the way and allow you to hear just what is being delivered by the amplifier and loudspeakers.

It is as though a filter has been removed so everything becomes clearer and more distinct. With the opening bars of The Smiths classic 'The Queen Is Dead' album the resonance and detail from Johnny Marr's guitar patterns were astonishing. Having used and enjoyed Tellurium Q's cables in a number of systems the level of openness these new loudspeaker cables provided was truly outstanding.

With 'Way Down In The Hole'



Tellurium Q Statement RCA interconnects

by Tom Waits his gruff vocals became even more guttural and had a greater resonance and presence.

Next I plugged in the interconnects - starting with the RCAs and then moving on to the balanced XLRs. With both there was a noticeable increase in the depth of soundstage. Perhaps not a light and day difference but certainly enough to let you know these cables have a certain synergy about them.

With Arvo Part's 'Cantus In Memoriam Benjamin Britten' the echoing of the violins at the climax

stayed longer and the decay was more vivid. So too was the opening of the same composer's delicate 'Spiegel Im Spiegel'. The violins had a



Tellurium Q Statement Power cable

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tonality and presence that few cables manage - mainly because they tend to strangle the sound instead of letting it breathe.

Playing The Smiths' 'Queen Is Dead' again with the interconnects in I was struck by the extra level of clarity. Here the vocals took on a much more forceful presence - but the bass lines and drums had more punch, stretching way into the listening room.

More importantly the addition of the interconnects seemed to widen the soundstage of the loudspeakers to create a more immersive experience.

Trying Pink Floyd's 'Dark Side Of The Moon' (24/96) via these connections it was striking how the sound effects from 'Money' ricochet from one side of the room to another. What's more the leading edge of notes took on a much more clean and clear timbre. Playing Jimi Hendrix's 'The Wind Cries Mary' his guitar work was a thing of beauty. It wasn't just powerful but had a subtlety and grace I'd rarely heard before.

Again the impression was that these cables were not throttling the system but allowing it to perform naturally.

There is a caveat however. Cables as open and honest as these can be ruthlessly revealing of any flaws in the replay chain. I plugged in one amplifier and immediately heard its lack of dynamic range and rather muddy sound.

But with good sources and loudspeakers they shine. Taking the McIntosh amplifier and Martin Logans away and replacing them with a Creek 100A integrated amplifier and a pair of Spendor's small A1 standmount loudspeakers (see review this issue) revealed just how well these cables can perform with a variety of components.

The Spendors have a large sound for their size but the Tellurium Q cables brought out even more depth and definition from them.

With Massive Attack's 'Unfinished Sympathy' the Spendors attacked harder and with more depth and breadth than on other cables. Their ability to extract the most from the equipment was again on show.

Finally I plugged in the mains lead to the Creek amplifier. I wasn't expecting a huge difference but the change was rather stark. 'Way Down In The Hole' became larger and

more substantial in its presentation. 'Bizarre Love Triangle' was also more vibrant. I could hear little notes that had previously escaped me - and was delighted at just how much more music seemed to flow effortlessly through the system.

Now, I know there are some who doubt the influence of cables on a hi-fi set-up - but these new Statements from Tellurium Q will really let you know what a good wiring loom can do.

CONCLUSION

These new top of the range Tellurium cables set a standard that redefine just how good a cable loom can be. There is no obvious interference, constriction or tonal limits to the sound. They just allow a rather special, free-flowing signal to go between the various components in the hi-fi chain. As such they are highly recommended.

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Tellurium Q Statement XLR balanced interconnects

TELLURIUM Q STATEMENT CABLES



OUTSTANDING - amongst the best

VERDICT
These set a new standard that outperforms all other cables we've heard. Highly recommended.

FOR
- openness
- clarity
- lack of smear

AGAINST
- not cheap

Tellurium Q
+44 (0)1458 251997
www.telluriumq.com

vinyl section

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JANUARY 2019

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AUDIO TECHNICA VM95 SERIES CARTRIDGES 117

Noel Keywood spins vinyl with five new budget MM cartridges.

AUDIOPHILE BOOK 121

'Evenings with Led Zeppelin', a concert catalogue and more of the great band reviewed by Paul Rigby.

KIRMUSS AUDIO KA-RC1 ULTRASONIC VINYL RESTORATION SYSTEM 125

Paul Rigby gets to grips with a new LP cleaning machine from the U.S.

news

MUSIC ON VINYL

More from this prolific record label (www.musiconvinyl.com). First up is Dream Theater's 1989 official debut 'When Dream and Day Unite'. Good but not quite prog-metal and slightly under-powered.



'The Exciting Wilson Pickett' (1966) – a monster of an album featuring classics such as 'In the Midnight Hour'. A contender for the best soul album. Ever.

From Georgie Fame is 'Going Home' (1971), an excellent, mature LP with a stripped production that pushes his soulful delivery.

Redd Kross' 'Third Eye' (1990) introduced pop song-craft to this rocking outfit. They should have received greater attention but grunge outfit Paw produced a quality Seattle release – 'Dragline' (1993) blends punk with melody with metal tinges. Well balanced.

Cracker's 'Kerosene' (1993) is a fine indie rocking album with excellent songs and a blues and country edge. Also look out for the pop-metal of Sinner's 'Touch of Sin' (2001). Then there's the intriguing Trevor Horn project 'The Reflection', his Japanese anime soundtrack, spread over two discs.

Plus Randy Bachman's The Guess Who's 'American Woman' (1970), the group's most successful LP. Also Finlay Quayle's 'Vanguard' (2001), Warrant's 'The Enforcer' (1985), Santana's decent-ish release 'Festival' (1977) and Bloodsimple's 'A Cruel World' (2005). A lot of releases.

VINYL PASSION

Two from this reissue company – both twin album packs.

Bill Evans Trio's Moon Beams/How My Heart Sings!, both from 1962, both excellent. The former, a suite of ballads, was the first release after the death of Scott LaFaro, Evans' right hand man. The latter, from the same session, is more up tempo. Both are immensely lyrical.

Also look out for Mantovani's 'Golden Treasures', thirty-three tracks over a two-disc gatefold.



MUNSTER

Two from the Spanish audiophiles (www.munster-records.com) include Peregoyo Y Su Combo Vacana's 'Mi Buenaventura' (1967, on the

Vampi imprint) that features curralao, abozao chochoano, porro, cumbia and agubajo musical genres from Cuba and Puerto Rico, introducing a modernising flavour to the folk rhythms.

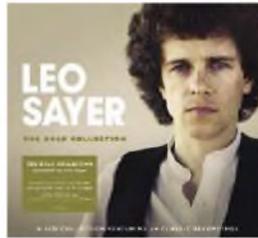
The Gears' 'Rockin' At Ground Zero' (1980) features the Los Angeles punks with their mix of rock and Sex Pistols influences.

DEMON

Three collections for you from this UK outfit (www.demonmusicgroup.com) include Leo Sayer's 'The Gold Collection' that includes 7" mixes of 'The Show Must Go On', 'You Make Me Feel Like Dancing' and 'Heart (Stop Beating in Time)'.

Another 'Gold' release arrives from Chas & Dave as thirteen tracks squeezed onto a single disc.

T.Rex's excellent 'Dandy in the Underworld' (1977) includes a bonus LP of singles and demos on two white vinyl discs.



ARVE HENRIKSON

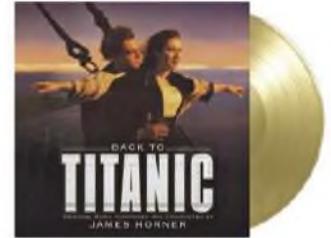
Two from contemporary jazz trumpet genius Arve Henrikson: 'The Height of the Reeds' and 'Composograph' (Rune Grammofon; www.runegrammofon.com). The former offers ambience and sweeping trumpet licks. The latter was a digital-only release but has been pressed on 100 vinyl copies. These tone poems combine low key folkish melodies. Both are beautifully rendered, sensitive, delicate and intimate.

AT THE MOVIES

Three new LPs from the Music on Vinyl-imprint soundtrack specialists include 'Skyfall', via Thomas Newman. Numbered, limited edition gatefold on coloured vinyl with a poster and booklet included.

'Adrift' via Volker Bertelmann, includes coloured vinyl and an insert.

Finally 'Back to Titanic' includes James Horner's music within a gatefold, numbered, limited-edition on gold vinyl – plus booklet, replica boarding pass and launch card.



...AND FINALLY

Heinali's 'Iridescent' (*Injazero*, www.irjazerorecords.com) features intriguing synth constructions via a modular set-up from thus Ukrainian artist. Soundscape ambience blend with Tangerine Dream rhythms. Lovely.

The Hector Collectors' 'Remember the Hector Collectors?..You Won't Believe What They Sound Like Now!' (www.thehectorcollectors.bandcamp.com) offers a slightly irreverent, stripped, jangly indie rock you'd normally find on Damaged Goods. Deceptively poetic.

Waldeck's 'Atlantic Ballroom' (*Dope Noir*, www.waldeck.at) features a jazz-inflected, easy listening, loungecore fest with a salsa edge. Derivative.

Steiger's 'Give Space' (*Sdban*; www.sdbanrecords.com) offers Belgium-based experimental classical constructions with free-form forays and avant-garde jazz coatings. Despite the difficulty factor, give this one time.

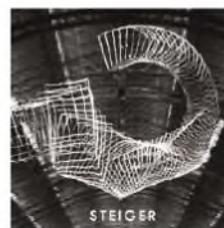
Gurrumul Djarimirri's 'Child of the Rainbow' is a double album (www.skinnyfishmusic.com.au). A blind, aborigine singer and guitarist, he has a higher pitched delivery that's sweetly toned. Calming and sensitive.

Jack Sels' 'Minor Works' (Sdban), over two discs, features a collection of rare, previously unreleased recordings from this cult jazz man from Belgium.

Resina's 'Traces' (*130701*; www.130701.com) is a processed cross between modern classical and dark ambient, featuring Resina's emotive, cello ambience.

Would you believe it, Gilbert O'Sullivan is back with his new, self-titled release on BMG. A truly great contemporary song-writer, this album shows the man on top form. Great songs, voice is top notch – go buy it.

The Cuban Brothers' 'La Familia' offers a two disc compilation of funk, soul and R&B with fuzzy edges including a song of their own, but also DJ presentations via Shalamar, Herbie Hancock, Bill Withers, The Emotions, Erykah Badu and more.



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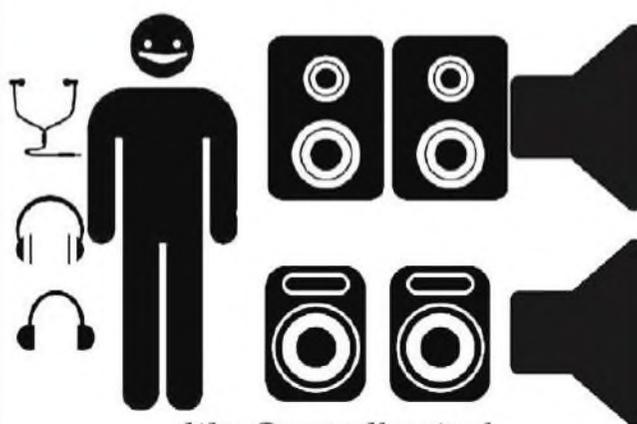
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Tech tip

Audio Technica recently released an updated budget pickup cartridge – the VM95 – that comes with six different, interchangeable tip types. Noel Keywood takes a close look.

As people either move back to vinyl or – just as likely – decide to try it for the first time, demand is for entry level products – and that is what Audio Technica have on offer here in their new VM95 range of budget pickup cartridges, price stretching from a mere £30 to a more wallet demanding £179. That's not a lot of money as cartridges go, where life gets serious above £300 and if the infection spreads can cost you thousands – think diamond coated boron cantilevers and such like.

With the budget VM95 Series, Audio Technica offer to walk you from the mundane to the esoteric – well, a whiff of it – in one affordable range where you can upgrade just by buying a new stylus instead of a whole new cartridge.

OK, not a new idea but Audio Technica expand it by offering a broader range of interchangeable styli than usual – six in all. At bottom – price and spec. wise – comes the AT-VM95C, the 'C' standing for

conical (blue). Simple conical tips give a nice sound, easy and unchallenging, if a tad diffuse and for this basic cartridge Audio Technica keep price right down to a measly £29 (stylus £19).

Just above come an interesting duo, the AT-VM95E alternatively identified as E/H (green) and AT-VM95EN (yellow), price £44 (stylus £26) and £99 (stylus £89) respectively. The 'N' suffix of the latter indicates Nude, which in this case means a tiny diamond mounted directly onto the cantilever, not on a rondel. Benefit: better tracking. Drawback: it will easily clog with fluff and skate. So the cheaper unit is for those with fluffy LPs and the more expensive for those without. Elliptical styli better read high frequencies, giving greater treble definition than a simple conical.

Above the two ellipticals come two more sophisticated tip shapes – the Microlinear AT-VM95ML (red) price £149 (stylus £129) and the Shibata AT-VM95SH (brown), price £179 (stylus £159). This is where

things gets interesting. Microlinear is a modern geometry better than elliptical, and Shibata an old (1970s, for CD-4 LPs) but venerated long-contact tip shape produced by multiple grinds. Both give extraordinary high frequency definition, even on inner grooves where they are able to read very short mechanical wavelengths, our measurements confirmed.

The phenolic body has a captive brass nut bonded in and it is not blind as in Ortofon's, but open so any length of screw can be used. Screws are supplied of course, one pair 8mm M2.6 and one pair 11mm M2.6, both lightweight aluminium. With captive nuts just hold the body below the head shell and pop in a screw from above – it's as simple as that. Electrical connection must be made first of course, as usual, making the simple a little less simple!

Cartridge weight is a light 6.1gms with stylus carrier in place, a figure all arms can cope with. Also available are the entire range pre-fitted to a high quality, rigid Audio Technica AT-

VINYL SECTION

HS6BK head shell.

Audio Technica told me the VM95 body has a simpler generator assembly comprising two coils (left and right channel) with no magnetic screen between them; the more expensive VM700s have four coils, plus screen. Also, they have a cast aluminium body and better (tapered) cantilevers.

That's five tips covered. Number

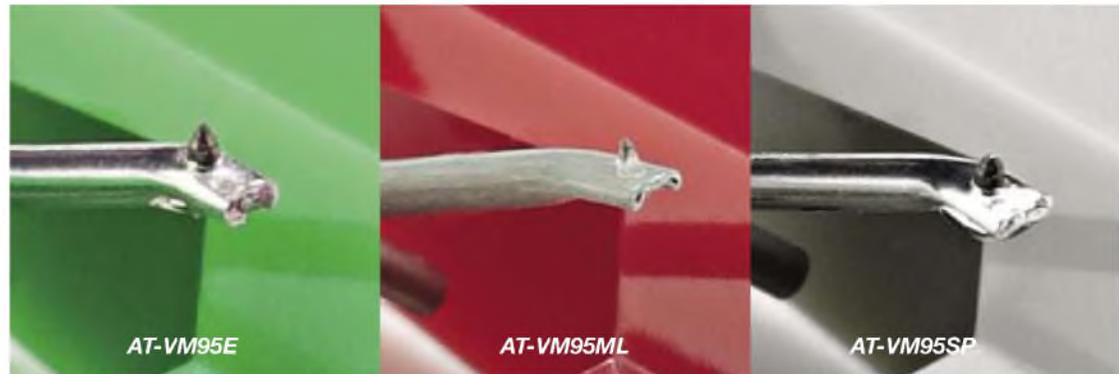
connection pins lack colour coding – a surprise since the uninitiated need this convenience.

SOUND QUALITY

Our supplied cartridge body was fitted to an SME309 arm, mounted on a Timestep Evo modified Technics SL-1210 Mk2 turntable. This fed an Icon Audio PS3 Mk2 valve phono stage and Icon Audio Stereo 30SE

as a result – not dull – and quite revealing.

The better tips progressively improve high frequency retrieval and imaging, especially on inner grooves, but they don't alter basic presentation: look to tapered aluminium pipe cantilevers of AT's more expensive moving magnets (AT530 upward) for a punchier and less bland lower midrange.



At left is the AT-VM95E (green) elliptical stylus on a rondel. Compare its fluff-clearance height with that of the nude elliptical AT-VM95EN below (yellow). The E stylus is large – degrading tracking ability.

The AT-VM95ML (red) stylus has a square shank (look closely!) for improved axial alignment. At right is the AT-VM95SP 78 rpm stylus – larger for wider grooves.

six, the VM95SP price £69 (stylus £55) I could not assess: it is a 3mil tip for 78s. We have none!

Audio Technica usefully explain that life expectancy is 500 hours for conical, 300 hours for elliptical, 800 hours for Shibata and 1000 hours for Microlinear. Tracking force is 2gms nominal for all tips except that for 78s.

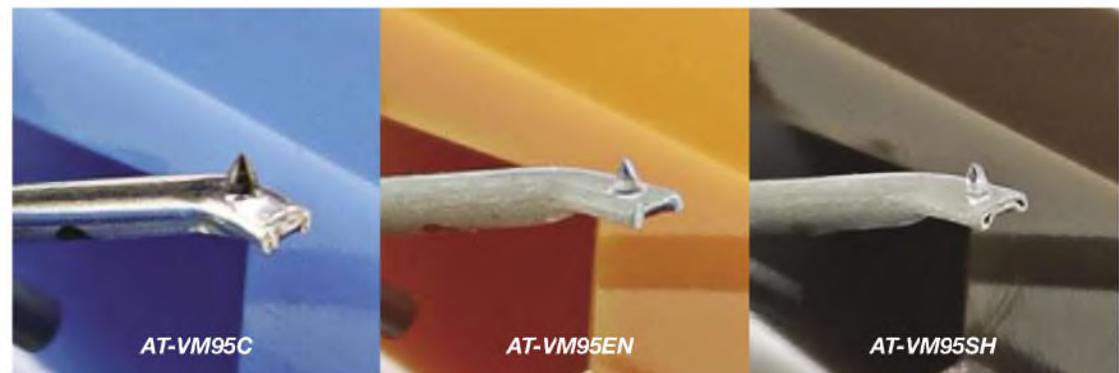
Fitting the stylus isn't so easy; it is plugged in from below with stylus guard on and I found it difficult to locate; afterward the guard is slid off forward. All stylus assemblies use an aluminium tube cantilever, with two miniature magnets bonded on in 90 degree V arrangement. The

single-ended valve amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers. The system was supplied by an Isotek Evo3 Mosaic Genesis regenerated power supply to eliminate mains distortion. Stylus assemblies were fitted to the body. With five styli and five high quality test LPs (all 180gm, some 45rpm), plus additional 'normal' LPs, the subjective results below are inevitably a distillation.

At heart the VM95 range is based on a budget cartridge, the cheapest VM95C and this largely determines overall character. As measurement shows, all VM95s are forward in the midrange, fairly cool in their sound

The VM95ML Microlinear gave a reasonably bright tonal balance with delicious retrieval of fine high frequency detail that came across with firm confidence. With Stevie Ray Vaughan's *Couldn't Stand the Weather* (45rpm LP 180gm re-master) his guitar strings cut out with speed, there was no muddle when the mix got complex. This quality remained right through to inner grooves where on *Time to Say Goodbye* (Two Countries One Heart, 180gm, 33rpm) singers Cheryl Porter and Roselle Caporale were kept well apart, as only this tip and the Shibata could do.

The VM95SH Shibata tip was



At left is the conical stylus of the AT-VM95C (blue) on a round shank. The AT-VM95EN (yellow) has a very small nude stylus, explaining its top tracking. At right is the most expensive AT-VM95SH Shibata profile (brown), also ground onto a square shank for improved axial alignment.



The VM95 stylus assembly has a locating spigot that guides it into the body; it's fitted from below.

slightly darker in its sound than the ML yet smooth and detailed up top, again with wonderful separation of instruments. With Fanfare for the Common Man (Two Countries One heart, 180gm, 33rpm) horns were more dense and sonorous than from the ML, kettle drum a tad more powerful. The SH is as capable as the ML but less brightly lit and arguably preferable, but not always: Jackie Leven's The Wanderer on inner grooves fared best with the ML.

The VM95EN nude elliptical had plenty of body and drive with Alison Goldfrap's Lovely to CU, making the ripping synth sound big and meaty. There was some softening of images across the sound stage and a de-focussed effect was apparent, especially on inner grooves with the

Trondheim Soloists behind Marianne Thorsen; here the ML and SH kept them all well separated but the EN introduced blur. All the same the '95EN survived all the test LPs and gave a lively sound with good tonal balance.

I expected the VM95E/H and VM95C to mistrack kettle drum in Fanfare for the Common Man, since the outer groove is cut at high level, but they sailed through, delivering enormous drum strikes. The C was rather humdrum and diffuse in its sound generally, but not inaccurate. The E/H managed better than I expected with more punch and life than the C, but some coarseness and muddle in treble when the going got tough.

Going back to overall sound quality, rather than that due to tip differences, all five units have a light yet easy sound with a slightly bland lower midrange compared to Audio Technica's VM750SH I use as a reference moving magnet (MM) cartridge, or especially the powerful bass from an Ortofon Cadenza MC. Best not to get too distracted by the fancy tip profiles; at heart this is a

budget range. However, with our top quality 180gm re-masters – especially those spinning at 45rpm – in absolute terms quality was extraordinary – more fluid and dynamic than CD. So I was completely impressed and enjoyed reviewing all five.

CONCLUSION

I have to keep reminding myself that the basic unit in this new range from Audio Technica, the VM95C costs just £29 – peanuts. It gave an even and balanced but 'generalised' sound. The VM95E/H was more sonically engaging and the best starting point if you are a cash strapped audiophile. For a few dollars more, however, you can and should get the VM95EN as this is best budget value. My choice would be the VM95SH – yet the VM95ML had greater treble confidence, if a brighter balance that did or did not suit according to recorded balance. Confusing!

Audio Technica's new VM95 range offers extraordinary value at a time when rivals are pricing up. They might not have the low end weight of a Goldring 1012 GX (£250) or a Denon DL-103 (£180 MC), to put them in context, but they have better insight, speed and inner groove performance. Plus you get a nice, simple budget design easy to fit and upgrade. Fantastic value.

MEASURED PERFORMANCE

The budget VM95C conical stylus (blue) measured -2dB down at 10kHz, the VM95E (green) -1dB giving a slightly brighter sound balance. The VM95EN had no loss at 10kHz, plus less on inner grooves.

The VM95ML Microlinear gave the flattest frequency response of all with very little loss on inner grooves. The VM95SH Shibata tip gives fractionally less treble but it too had strong inner groove retrieval.

At the recommended 2gm tracking force all five tracked well at 300Hz, clearing the high +15dB of CBS STR-112 test disc (+18dB is the upper limit).

At higher accelerations within a 1kHz test track (B&K 2012 test disc),

tip mass took effect. The VM95C conical tip stayed in the groove at 25cms/sec but the VM95E with rondel skated across the disc! The VM95EN was happiest of all at 25cms/sec (a torture track) where it displayed only marginal mistracking; the VM95SH and VM95ML managed similarly.

Channel separation was low at 21dB and output average at around 4.5mV (3.54cms/sec peak groove velocity). All had a measured Vertical Tracking Angle (VTA) of 24 degrees, close to correct 22 degrees, for low distortion of around 2.5% from vertical modulation. Distortion on lateral modulation was also low at around 1%.

Measurement showed the VM95E has a mid-band tracking limitation

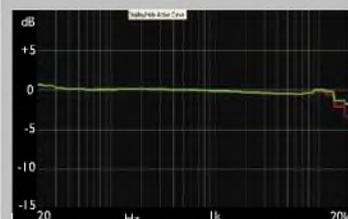
and the VM95C low treble output. The VM95EN, ML and SH fared best, delivering fine all-round performance. **NK**

Tracking force 2gms
Weight 6.1gms
Vertical tracking angle 24 degrees
Frequency response 20Hz - 16kHz
Channel separation 21dB

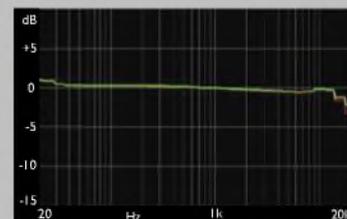
Tracking ability (300Hz)
lateral 63-90µm
vertical 45µm
lateral (1kHz) 18-22cms/sec.

°Distortion (45µm)
lateral 1%
vertical 2-3%
Output (3.54cms/sec rms) 4mV

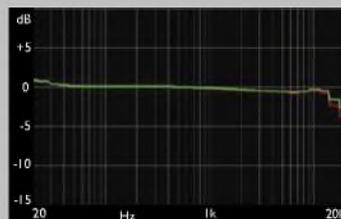
FREQUENCY RESPONSE EN



FREQUENCY RESPONSE ML



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AGAINST

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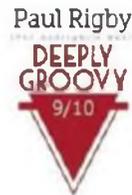


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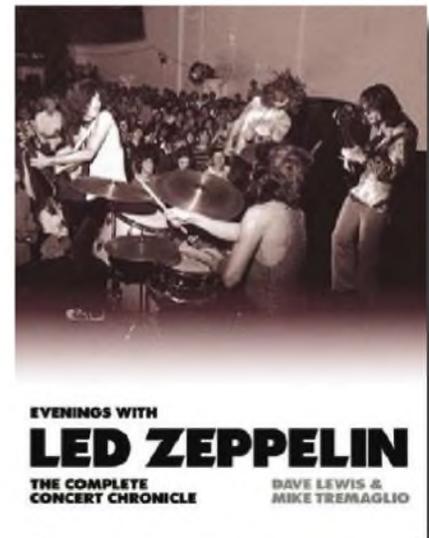
Paul Rigby reviews a book on masters at work.

EVENINGS WITH LED ZEPPELIN: THE COMPLETE CONCERT CHRONICLE

Author: Dave Lewis & Mike Tremaglio

Publisher: Omnibus

Price: £40 (hardback)



"The one moment of excitement came when Beck did 'Jailhouse Rock' for the encore and – lo and behold – out danced the four members of another British white blues rock group, Led Zeppelin. There followed fifteen minutes of standing ovationed gleeful cavorting, ending with a solo by Led Zeppelin's by then near nude drummer, John Bonham. Fearing perhaps a repeat of the clamour Jim Morrison stirred up in Miami, a Stage manager grabbed Bonham from behind and carried him off the stage." Chicago Tribune, 16 July, 1969, by Robb Baker.

Heavily illustrated, this book chronicles over 500 appearances (concerts, guest appearances and the like) by the band, made throughout their career. The story ranges from the group's earliest gig in a Denmark school gym on 7 September 1968, through to the last gig that Jimmy Page, Robert Plant and John Paul Jones ever performed with John Bonham in Berlin on 7 July 1980.

All of these appearances are collated together for the first time in one volume and hence would give you the impression that this tome is a dry reference release. The above quote disabuses that assumption and there's plenty more where that

came from.

With each concert spanning from half to two pages each, you'll find the full date and location of each and every gig, the full setlist (even if there were two concerts in a single day, you get separate lists) and long form 'background info' on the occasion.

So, let's take the above concert which was a music festival located in New York. Led Zeppelin made a guest appearance and played just two songs. Apparently, the band wasn't even scheduled to play at the festival. They only showed up at all to watch Vanilla Fudge and Jeff Beck. Led Zeppelin appeared during the end of Beck's set, part of a massive nine-man jam. Added to the heap were Rod Stewart, Ronny Wood and Glenn Cornick (bassist from Jethro Tull). Apparently, later on, a drunken John Bonham threw a full carton of orange juice at Alvin Lee during a Ten Years After set, covering his guitar and making it difficult for Lee to play.

Oh, and that near-naked Bonham? It was Bonham (still drunk) who invaded the drum stool, then started to play a stripper's rhythm and, logically, stripped before he was pounced on by the stewards.

This wonderful story is accompanied by a press cutting, with a photo of the location plus a copy of the flyer and poster for the concert.

And there's lots more in this book. Including reportage on any available bootleg recordings of the concerts in question. If a bootleg has been recorded/issued then you'll read about the quality of the recording plus any salient highlights recorded within.

There are plenty of quirky, fan-based and quite anal facts and figures mixed into the entertaining stories. For example, 11 May 1973, St. Louis Missouri. The ticket might have said 'St Louis Arena' but don't be fooled, the band played at the 'Missouri Arena'. That's the kind of research found in this book, it's pretty staggering.

Other features include a useful 'Complete Tour Itinerary' appendix. Basically, a closely typed list in date order of each appearance along with colour coding to denote if a bootleg is available, whether the appearance was a TV or studio recording and even if the concert was cancelled. More than that, at the beginning of the book are two prologues, detailing early performing days from the group members from 1958-1967 with a more in-depth look at 1968 before Led Zeppelin was formed officially.

This is, I assure you, an incredible book. The authors don't deserve a medal, more a knighthood. Buy the book. Even if you don't like the band, you'll be entertained. **PR**

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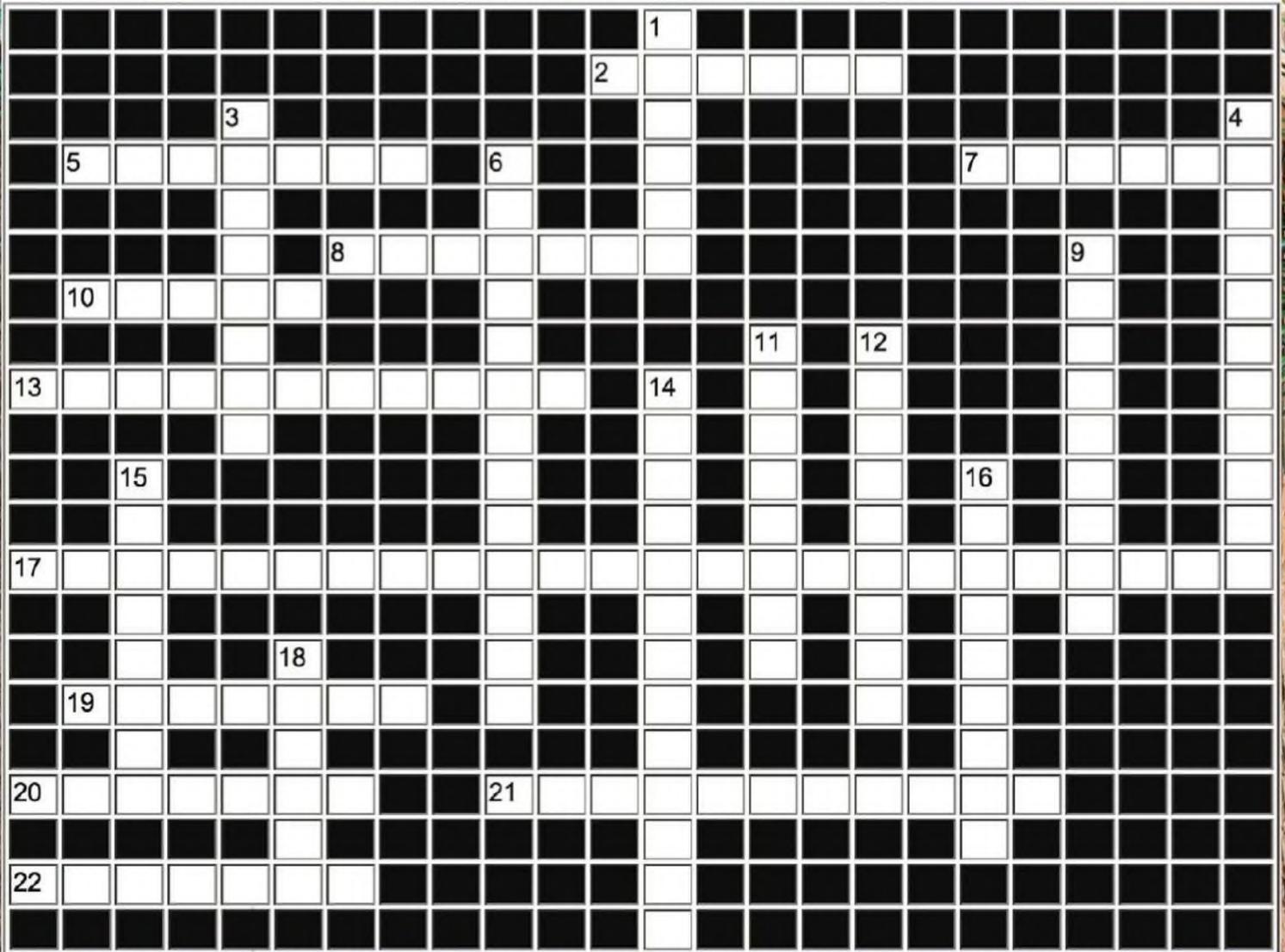
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ACROSS

- 2. Generic name for a PA system - plus a Scottish loudspeaker manufacturer (6)
- 5. Inventor of radio (7)
- 7. Home country of Focal loudspeakers (6)
- 8. Dutch company which combined with Sony to develop the CD (7)
- 10. Measurement of amplifier power (5)
- 13. Another name for a loudspeaker (10)
- 17. ADC stands for what? (8,7,9)
- 19. Jimi...(7)
- 20. Danish-based manufacturer of cartridges (7)
- 21. Hi-Fi World Publisher (4,7)
- 22. A high-frequency driver (6)

DOWN

- 1. The Chord Company manufactures these (6)
- 3. American hi-fi manufacturer based in Binghamton, New York (8)
- 4. Founder of Quad (5,6)
- 6. Founder of Wharfedale (7,6)
- 9. Base of Naim (9)
- 11. French hi-fi manufacturer (8)
- 12. A device for increasing bass (3,6)
- 14. The song No More Heroes Anymore - which band? (3,9)
- 15. Runaways guitarist who later wrote I Love Rock 'n' Roll (4,4)
- 16. The Beatles hailed from here (9)
- 18. A form of valve (6)

Answers

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- 2) Jannoy 5) Marconi 7) France 8) Philips 10) Watts
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- 20) Ortofon 21) Noel Keywood 22) Tweeter

Down:

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Introducing the latest ultrasonic vinyl record cleaner on the block, Paul Rigby reviews the Karmuss Audio KARC-1.

Cavitation - In The Nation

Arguably the fastest developing technology in hi-fi, ultrasonic vibration – long used in other industries for cleaning purposes – has risen to dominate midrange and high-end vinyl record cleaning too.

The idea here is to dip your vinyl into a specialist bath of distilled water (not low enough to wet the label, of course). That disc will normally be slowly mechanically rotated. Built-in transducers then introduce vibration in the water, producing

millions of rising bubbles that stretch and compress. The frequency of the transducers determine how large the bubbles become. Their structural integrity fails and they collapse... violently. If this happens near vinyl grooves, they agitate and remove surrounding particles. This is known as cavitation. Any surfactant (a substance to lower water's surface tension) added to the area attracts further bubbles.

Karmuss has taken three years to develop the KARC-1, focusing on the right ultrasonic frequency for

vinyl cleaning, the correct height to hold the record in the bath, using a degasser (unique in hi-fi vinyl cleaning) to improve cavitation efficiency, developing an effective surfactant and more.

DESIGN

The rear of the chassis features a power cable and rocker power switch. The right side features a drain pipe for the bath. The front sees a sturdy valve switch to open/close that pipe.

Top-right features the touch interface. A readout keeps a track of

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LINN K400 Bi-wire speaker cable. Two 25ft lengths. £100. Quad 44 pre amplifier, £250. Technics SL150 Mk1 turntable, SME S2 improved. £450. Marantz PM7001 amplifier. Boxed. Remote. £150. Tel: 01708 457 691

MITCHELL & JOHNSON DR 201V, black. DAB + FM tuner. £110. Delivered UK mainland. Tel: 01302 391 030 (Doncaster)

VINTAGE MERIDIAN rare black 101pre, 104 tuner, 105 (2x mono amps each with power supply) so stacked 3 high in pairs very good condition for the age. Tight and controlled stable imaging £695. 01704 628968 or 07968769595 (Southport)

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AUDIONOTE KIT One, £1200. Well tempered classic turntable, Rata turntable support, AudioNote ANV i/c Kondo. 0113 255 9475

TOM EVANS Groove MC phono amp 0.4mv new at 09/12. An exceptional sound really digs into any LP for the hidden details. A bargain at £650. Cyrus 3 amplifier £100. Best price seen. If bought together then £700 for both. Contact nigelsach42@tiscali.co.uk Tel mobile: 07913 121771. Items on the Wirral.

STAX HEADPHONES. SRM-T1S Driver Unit. Lambda-Nova Earspeakers. Boxed. Good condition. £350. Naim Flatcap Power Supply. Serial No.: 123416. Boxed. Good condition. £50. Power Block. Good condition. £10. Tel: 07785 724849 Oxfordshire

ICON AUDIO PS2 MM Valve Phono Stage 4 months old as new boxed superb sound £465 ono. Tel: Gary 0794 133 1670 (Tonbridge Kent)

VINTAGE KENWOOD L-07D turntable with correct tonearm and second AT1010 tonearm superb condition £3,400. Two Kenwood L-02A amplifiers superb condition but single remote power supply with correct cables. Email: brianwedge1@outlook.com

GARRARD 401 chassis £699, Rega RB300 tonearm £249, Goldring 1042 MM cartridge £219, Plinth for Garrard 401 £199, Power Supply for Class A amplifiers £299. Offers considered, Tel: 0207 499 8729.

LINN KEILIDH speakers, floor standing, dark rosewood. Old but great sound. Very good condition. Handbook. Cost £1200. Now £75. Buyer collects. Tel: 01621 856 480 (Maldon, Essex)

LINN EKOS. S/N 7007. Good condition, minor mark on the arm tube, plus usual headshell marks. £1000. Tel. 020 7253 4469. Email: andrekh Hyde@gmail.com

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The Kirmuss handles 7in, 10in and 12in discs.

the cavitation cleaning countdown (78s only need two minutes of ultrasonic cleaning whereas vinyl requires the default five minutes per cycle). Lights indicate the active process and current temperature. Other buttons activate the cavitation time, its duration and that degass operation.

The upper, removable, one-piece motor assembly features a series of cogs and belts that gently turn the record during cleaning. It fits snugly on top of the bath. In it are slots for two 12" discs, one 10" disc and a 7" disc. This format diversity is a real plus point for the Kirmuss.

IN USE

Cleaning a record is long-winded but effective. You initially flip-flop between exposing the record to cavitation for five minutes then you apply the company's own surfactant directly to the grooves as a spray, worked in by the company's supplied brush. The system is extremely thorough and will even remove old, hardened substances that have been resident in the grooves, sometimes for decades. Repeated applications might be necessary before the grooves are totally clean - a visual indication will guide you here (the company provides help to recognise the signs).

Adding a 70:30 alcohol/distilled water mix to the distilled water acts as a de-greaser. Audiophiles will recoil with alarm at the

use of alcohol but the company is adamant, after consultation with its own chemists, that no damage will occur because only 40ml is used, less than 1% of the bath total. Also, that 40ml is a 70/30 mix with distilled water and fully soluble so it never hits the vinyl in a concentrated form.

There are other steps/tools in the cleaning process that provide a post-wash and a de-fungal cycle for the vinyl record along with an anti-static application. The Kirmuss method is nothing if not thorough.

SOUND QUALITY

I initially cleaned a dirty record using the machine and surfactant only - no alcohol was introduced at this time. An old Ritchie Havens LP provided a consistent low-level Rice Krispie noise throughout.

After two ultrasonic cycles featuring the surfactant, the noise had almost gone. Only occasional (very) minor clicks remained.

I persisted until the noise reduction had reached a plateau of quality that would not change with further cleaning applications.

In addition to the low noise, sonics had also improved. Clarity was enhanced while extra air and space was heard across the soundstage.

I then added the alcohol mix to the bath water.

I listened again, further noise was removed, making this record pretty darned silent in terms of nasty clicks, pops and white noise-type effects.

What really amazed me, though, was the improvement in sonics. Focus, precision, clarity - all rose through the roof, as it were. Haven's voice was enhanced in terms of the texture and gravel-like nature of his crescendos while his acoustic guitar was powerful

and expressive during his powerful strumming routines. Transparency and tonal realism were the headline effects of adding the de-greaser. The improvements were impressive, to say the least.

Finally I cleaned a mucky

The supplied ancillaries contribute to the long yet thorough vinyl clean cycle.



REFERENCE

- Origin Live Sovereign turntable
- Origin Live Enterprise 12in arm
- Van Den Hul Crimson XGW Stradivarius cartridge
- Icon PS3 phono amplifier
- Aesthetix Calypso pre-amp
- Icon Audio MB845 Mk.II monoblock amplifiers
- Quad ESL-57 speakers with One Thing upgrade
- Vertex AQ & Tellurium Q cable
- Blue Horizon Professional Rack System
- Harmonic Resolution Systems Noise Reduction Components
- Audio Desk's Ultrasonic Pro Vinyl Cleaner

Jan Akkerman LP with my reference record cleaning machine, which reduced surface noise. Moving this record to the Kirmuss then improved the sonics by a clear distance while reducing noise a tad more and increasing gain by one to two decibels because the stylus tip had a purer contact with the groove. 'Cleaning' the same record, once more, with other record cleaning machines I have added a sonic veil to the presentation. It was as if they had coated the grooves with a new layer of grease or somesuch. Re-cleaning with the Kirmuss removed that sonic veil to enhance tonality once more.

CONCLUSION

To say that I was pleased with the performance of the Kirmuss was to issue a laughable understatement. The KARC-I not only removes troublesome noise efficiently, to give new life to your vinyl, it also provides a level of sonic transparency that is truly astounding. Once you hear the effects yourself, you'll realise that you've never actually heard your record collection. Not properly. As such, I have to declare that the KARC-I is the best record cleaner on the market. Bar none.



The hidden gearing rotates the records during the cavitation process.

**KIRMUSS
AUDIO KARC-1
ULTRASONIC
RECORD CLEANER
£1,197.60**



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
Changes the face of record cleaning in terms of technology, method and price.

FOR
- degauss option
- cleaning performance
- sonic improvements
- design

AGAINST
- footprint
- long cleaning process

www.kirmussaudio.com

NEXT MONTH

FEBRUARY 2019 ISSUE



B&W 603 LOUDSPEAKERS

Next month we bring you B&W's 603 floorstanding loudspeakers – top of their new range yet an affordable £1250. Gone are the distinctive yellow Kevlar cones of yore; incoming is a silver Continuum cone bass/midrange driver, plus an aluminium double dome tweeter above. Below sit paper cone bass units. Looks potent. Don't miss our in-depth review backed by measurement in the next issue. This may be the B&W for you.

Also, we hope to bring you –
FiiO M9 HI-RES MUSIC PLAYER
ZMF ATTICUS HEADPHONES
AUDIOLAB 6000A INTEGRATED AMP
VINCENT CD57 CD PLAYER
MICROMEGA M150 STREAMER
ATLAS FACTORY VISIT
ATLAS ASIMI LUXE ULTRA RCA
INTERCONNECTS
ATLAS ASIMI LUXE SPEAKER CABLES
IFI X SERIES HI-RES BLUETOOTH
PORTABLE USB DAC
...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, we cannot guarantee that all products listed above will appear.

PICK UP THE FEBRUARY 2019 ISSUE OF HI-FI WORLD ON SALE DECEMBER 28TH 2018, OR SUBSCRIBE AND GET IT DELIVERED TO YOUR DOOR: SEE PAGE 96.

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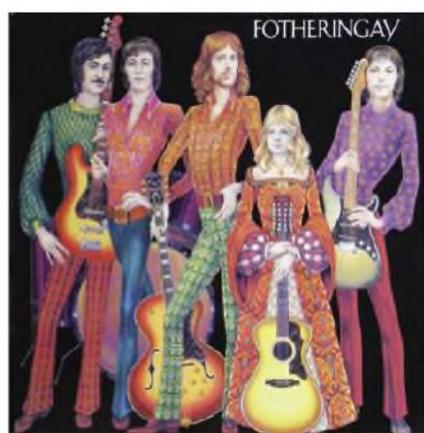
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FOTHERINGAY

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CAROLINE

1970



"Well, that's terribly interesting Sandy. And what do you see as the future of the coal industry?"

In 1969 folk legend, Sandy Denny, had just left Fairport Convention – also folk legends. At this moment (legend) John Peel interviewed Denny on her then-future movements. But the interview was far from legendary. "We're going to talk to Sandy about what you're going to do in 1970" said Peel in a slightly convoluted way.

"Oh dear," said an apprehensive Denny.

"Well, that's terribly interesting, Sandy.

And what do you see as the future of the coal industry? What are you going to do...actually" offered an increasingly tentative Peel.

"Well, that's terribly wide, isn't it?" evaded Denny.

"She's not being helpful at all" said Peel.

"What does that mean? Does it mean anything?"

"I don't know what I'm going to do" said Denny, lying through her teeth.

But then she offered this, overly general hint: "I'm going to sing again".

"Well, that would make a change from what you were doing before" said Peel, sarcasm running freely. Pushed further by the dogged Peel, Denny said "Well, I'll probably have a group of some sort".

The final twenty seconds of dead air was filled by Peel actually counting down from twenty to zero while Denny said "Oh dear". A lot. And in her finely honed English accent too.

The answer, of course, was Fotheringay (a name taken from the castle that had previously imprisoned Mary, Queen of Scots but that name was also attributed to an older Fairport song). The iconic sleeve design was painted by Marion Appleton, sister of band member, Trevor Lucas.

That band didn't last a long time but it, as they say, 'burned brightly' during its short lifespan. This self-titled LP was the group's only published studio release (an unfinished album, '2' was finished and released in 2008). The original group would eventually split in 1971.

Featuring Denny's own songs, the rest of the band featured Trevor Lucas and Gerry Conway from the folk-rock outfit, Election (another band, focusing on multi-part harmonies this time, that didn't last the pace and would only release a single album) and Jerry Donahue and Pat Donaldson on bass from Poet and the One Man Band (that group, also featuring Albert Lee, would - yes, you guessed it - only release

one album).

Completing the Fotheringay circle was producer, Joe Boyd and guest vocalist Linda Peters.

The resultant album had Denny stamped all over it with five of the eleven songs stemming from her pen or co-written with Lucas, two being traditional outings ('Gypsy Davey' and the grand, hypnotic, Napoleonic-era outing, beautifully sung by Denny, 'Banks of the Nile'), one from Bob Dylan ('Too Much of Nothing') plus a Gordon Lightfoot ditty, 'The Way I Feel'. The latter two are sung by Lucas, a man whose singing has sometimes been derided on this album, unfairly I feel.

Denny had a flair for extracting the essence from a song and lifting that element for you to view. You'll find this talent on songs such as Winter Winds and The Sea. Her skill was to focus on the important aspects of the song, stripping out the unnecessary and retaining the simple beauty of the lyric or the rhythmic melodies. She was good at sorting wheat from chaff.

This new reissue is presented in the original gatefold sleeve on 180gm vinyl. It marks the first time that the LP has been available on the vinyl format in more than 20 years.

In mastering terms, the album has received a very good attention indeed. The soundstage is laid out well with effective spot details from the musicians, adding drama and sonic highlights.

There is a hint of compression which I would guess has been installed to add a slight emphasis to stress certain details throughout the album but I can only really hear this effect on certain instruments at certain times. For example, the lead guitar on 'Nothing More' and, even then, the effect is subtle.

I really am nit picking, though, as I'm sure you can guess. Generally speaking, the album sounds very presentable. The key here is the Denny lead vocal. If there was an issue then the problem would lie with Denny's relatively high pitched delivery producing glare, as if a strong torch has been briefly shined into your eyes. That issue never arises. On the whole, listeners can be assured of an entertaining listen.

This is a top quality album, well worth reissuing. It's about time to see a new, official, vinyl release. **PR**

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Another artist would say: if it looks right, it is right. Or perhaps that should be...if it looks right, it sounds right.

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