

HI-FI WORLD

JANUARY 2017

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2016 AWARDS

THE PRODUCTS WE THINK YOU SIMPLY MUST HEAR...



QUADRAL



LUXMAN



ICON AUDIO

COMPETITION



WIN TELLURIUM Q ULTRA SILVER MAINS CABLE WORTH £1680 (UK ONLY)



FiiO



CHORD ELECTRONICS



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KENNERTON



TRANSFIGURATION



TIMESTEP



NAIM



BLACK RHODIUM

...AND ALSO REVIEWED IN THIS ISSUE

ROHDE & SCHWARZ MEASUREMENT

- KEF REFERENCE 3 LOUDSPEAKERS
- * RELOOP TURN 3 TURNTABLE
- * CAYIN i5 HI-RES PLAYER
- * CHRISTMAS CROSSWORD
- * CHRISTMAS QUIZ

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



JANUARY 2017



HI-FI WORLD



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

Chord Shawline Range
Hi-Fi World October 2016



RECOMMENDED

"The Shawlines are really top-class interconnects... Give them an audition and hear for yourself"

OUR VERDICT



Chord Shawline Analogue
Hi-Fi Choice July 2016

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COMPANY

welcome

EDITOR

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

DESIGN EDITOR

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

PRODUCTION EDITOR

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

SALES MANAGER

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

ADVERTISING EXECUTIVE

Joanna Holmes
mob +44 (0) 7958 602347
e-mail: joanna@hi-fiworld.co.uk

PUBLISHER

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

FREE READERS CLASSIFIEDS

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

SUBSCRIPTIONS

tel: +44 (0) 1442 820 580
e-mail: hi-fiworld@webscribe.co.uk

PHOTOGRAPHY

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

WRITERS

Paul Rigby, Jon Myles, Martin Pipe
Rafael Todes



It's that wonderful time of the year when we reveal the products that were a cut above the average – and memorable because of it – in our World Awards issue. These days few products are poor, most work well. But that doesn't mean they are brilliant in the sense that they bring a tingle to your spine, changing the way you view audio quality. Our top products for the year this year were those that moved us, where everyone in our London offices (who like to listen in!) murmured "ooh-aah" in unison.

Sometimes style and finish played an important part: I mean, how many manufacturers in this world re-create the wonder of 1970s build quality (well, the good bits, that is), complete with big, yellow illuminated analogue power meters – you know, the ones with real needles! Lux of Japan are one of very few and their prize winner this year was a delight to see and use – not a software menu anywhere!

Then my eyes wander to the Quadral Chromium Style 8 loudspeakers we keep recommending. Their sound was just superbly accurate and colour free, yet also dynamically exciting. The ribbon tweeter has been balanced perfectly so as to add a slight sheen but not to sound bright. Everyone loved these speakers for their sheer sophistication, and yet they are eminently affordable. A wonderful modern product then, one within the reach of most of us.

Almost in total contrast is the traditional Icon Audio Stereo 30 SE valve amplifier. It might look old fashioned, pre-dating even the faux-seventies Luxman, but in fact under the surface lies an amplifier based upon a recently designed valve, the KT-150. Unlike earlier attempts to produce a contemporary power valve (KT-90, KT-120) the new KT-150 sounds unquestionably superb, so much so that the world's manufacturers are voting with their soldering irons to use it. Here it delivers a solid 30 Watts from a Single Ended amplifier – and that's a lot, enough to drive modern floorstanders like the Quadral Chromium Style 8s.

It's lovely to think that old and new can be combined so successfully today to produce results that are truly an advance on the past. I'm so pleased our Award Winners highlight how high fidelity is moving ahead, even if at first glance you might think it is moving backwards!

Noel Keywood
Editor



hi-fi world

Audio Web Publishing
Studio 204,
Buspace Studio,
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verdicts



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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.



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Tel: 603 9283 8171 Fax: 603 9281 3762 e-mail: info@millennium-audio.com

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Description

Hi-Fi World brings you the best in hi-fi...from around the world!

- We listen and measure products in depth, at our London offices.
- Expert opinion from a team of renowned writers, musicians and engineers.
- International standard measurements using Rohde & Schwarz test equipment...

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news

SPENDOR D9 LOUDSPEAKER

The new Spendor D9 is a full-size, 3-way, 4-driver, floor-standing loudspeaker.

The Spendor LPZ tweeter is built around a stainless steel front plate that forms a damped acoustic chamber directly in front of a lightweight woven polyamide diaphragm. The front plate incorporates a phase correcting micro-foil to equalise sound wave path lengths across the diaphragm surface. Simultaneously it generates a symmetrical pressure environment on both faces of the diaphragm so the tweeter always operates in a balanced linear mode.

The D9 mid-bass drive unit has an EP77 polymer cone. Housed in an isolated enclosure at the top of the cabinet, it handles only mid-range frequencies, eliminating mid-low frequency intermodulation. The two D9 low frequency drivers have rigid, two part bonded, lightweight Kevlar composite cone assemblies. The bass drivers are in a large dedicated low-frequency acoustic enclosure. All three drivers feature cast magnesium alloy chassis motor systems.

Price is £6,495. To learn more telephone 01323 843474 or go to www.spendoraudio.com.



LUXMAN EQ-500 PHONO STAGE

Luxman's last top of the line phono stage, the solid state E-1, was released in 2001 and was only recently discontinued. Now they're back with a valve-based model

Featured within are two step-up transformers per channel— one each for low- and high-output moving-coil cartridges. There are also three dual-triode valves per channel, for gain and buffering. Additional gain comes from the Perma-alloy-cored, step-up transformers. There is also a valve rectifier to the power supply circuit for supplying a stable voltage to the amplifier circuit, employing a choke-coil. Valves include two ECC83/12AX7 dual-triode tubes (shunt-regulated push-pull) plus an ECC82/12AU7 dual-triode valve cathode-follower.

Price is £4,495. To read more log-on to www.luxman.com or call 01480 447700.

ROKSAN'S RADIUS 7: IT'S IN THE PINK

Roksan has announced a limited edition version of its Radius 7 record player. With every piece sold, Roksan will make a charitable donation to Breast Cancer Care. The Pink differs from the standard Radius 7 principally thanks to the pink tint in the glass-effect plinth. However, it's not just the turntable that has changed – The Pink also employs a special finish to the Nima tonearm with its own pink shading. Aside from these cosmetic enhancements, in all other ways The Pink offers the same performance as the original Radius 7. The Radius 7 employs a dual-layer Perspex plinth construction to decouple the turntable's core components from each other. The newest Radius boasts the convenience of a button to switch between 33 and 45rpm, premium bearing system and Nima uni-pivot tonearm. Price is £2,050. To learn more, click 01235 511 166 or go to henleydesigns.co.uk.



NUFORCE BE6I WIRELESS EARPHONES

The BE6i is the next evolution of the BE6. NuForce offers a battery life of up to eight hours, an increase of 25% to play time.

They are also IPX5 certified for greater protection from rain and sweat. The BE6i in-ear headphones are made from aluminium. In addition, the headphones feature Bluetooth with aptX and AAC compatibility.

The earphones can play music and take phone calls continuously and are equipped with an in-line remote control that can skip tracks, engage Siri or Google Voice and activate Bluetooth pairing mode. The design has a 30m range. Price is £100.

To learn more, click on www.nunudistribution.co.uk or call 0203 5442338.

PRO-JECT ESSENTIAL III

Pro-Ject Audio Systems has announced the availability of an improved version of the belt-driven Essential II called the Essential III.

Made from MDF and now wrapped in a high-gloss paint finish (available in red, white or black), the plinth is then mounted on three anti-vibration feet. One of the most obvious changes with the new model is in the use of an upgraded Acryl-IT E platter. Available separately for £85, the Acryl-IT E is said to reduce the unwanted effects of resonance. The Essential III uses the same 9V motor as its predecessor, with a built-in signal generator and a new aluminium pulley plus a new integrated grounding link. The included 8.6" aluminium tonearm includes a gimbal with sapphire bearings. Topping off the arm is the included Ortofon OM 10 cartridge instead of the Essential II's OM 5E cartridge.

Featuring a dust cover, felt mat and power supply and spanning 420 x 112 x 330mm, the two-speed turntable weighs in at 5kg. Price for the deck is £239.

For more information go to www.henleydesigns.co.uk or phone 01235 511166.



ATLAS ELEMENT & HYPER ANALOGUE CABLES

Atlas has introduced four new replacement turntable cables: Element TT, Element Tonearm, Hyper TT and Hyper Tonearm, fitted with earth cables (Element TT and Hyper TT) and – in the case of the Element and Hyper Tonearm – a dedicated straight or right angled 5-pin DIN connector to match DIN outlet tonearms.

The Tonearm versions are fitted with Atlas' own hard gold-plated 5-pin Din (straight or right-angled versions available) at the tonearm end and can also be supplied with a spade-terminated ground lead.

Prices start from £82.50 for the Element cables and £190 for the Hyper cables, per metre. To learn more call 01563 572666 or go to www.atlascables.com.

AERIX HAS INTRODUCED THE DUET

The new Aerix sound system comes complete with integrated CD player, as well as wireless music streaming.

The design incorporates two minimalist cubes with aluminium plating that sit on top of a matted chrome plate. They possess a DTS Play-Fi module and Bluetooth, letting you play from various sources, such as Spotify, Deezer, Pandora, Tidal and Songza.

The loudspeaker cube houses a circular horn diffuser for high notes and a subwoofer. It pushes sound waves outward in a 360 degree halo.

The Duet's LED light display, for navigating functional settings, is muted and hidden behind a layer of mesh aluminium.

Aerix Duet launches in the UK in January 2017 at £1499.

To learn more go to www.aerix.co.



WRAPS INTRODUCES CORE

Wraps has announced the launch of its new premium series of earphones called CORE.

The CORE range consists of upgraded 10mm titanium drivers and a fully adjustable faux leather bracelet. The earphone housings are available in four colours.

The patented design of Wraps means that earphones can be worn on the wrist when not in use.

Also included are a set of noise isolating foam tips. A universal one button microphone lets you to play or pause your tunes and answer calls on the go.

Available in Gold, Space Grey, Silver and Rose Gold from www.mywraps.com the price is £50.

TUCANA II ANNIVERSARY EDITION AMPLIFIER

Leema Acoustics has launched the Tucana II Anniversary Edition integrated amplifier. It benefits from a number of aesthetic enhancements including a new front panel with a machined and chrome-plated solid billet Leema Delta logo and Anniversary Edition badge.

Internally, the new amplifier features upgraded printed circuit boards with twice the amount of copper. All relevant capacitors have been upgraded to Nichicon's MUSE Series and the PCB-to-speaker-terminal wiring is now Leema's new Reference 2 cable which features 16 woven cores plus multi-strand high-purity copper. As with the previous Tucana II, all transistors are hand-selected and precision-matched in amplifier sets. Price is £4,995. For more information log-on to www.leema-acoustics.com.



VEGA, DORADO & LYRA II

Campfire Audio has announced three new earphone designs. The Vega (\$1,299) has a ADLC-coated non-crystalline 8.5mm diamond dome dynamic driver and a liquid metal alloy housing. Reportedly, Campfire Audio is the first company to use this diamond driver technology in an in-ear-monitor.

The Dorado (\$999) is the combination of a single 8.5mm beryllium PVD dynamic driver, dual Balanced Armature (BA) drivers and a liquid alloy metal housing. Campfire Audio says that it is the first company to use a beryllium PVD dynamic driver in an earphone plus the first to use dedicated dual BA drivers to be housed in a liquid metal enclosure.

Finally, the Lyra II (\$699) also arrives in a liquid alloy metal enclosure which is dent resistant and apparently harder than titanium. The Lyra II, along with the Dorado and Vega, also arrive with Litz wire, silver-plated copper conductors. To learn more click on www.campfireaudio.com or call 001 503 853-8608.



ROTH AUDIO'S VA4

Roth Audio has introduced the VA4 Active Speaker System. It is equipped with a switchable phono/analogue RCA input so that users can plug in their turntables. For line-level sources, such as a CD player, the same connection is used with the switch set to 'Line'. Alternatively, an optical digital input or the 3.5mm stereo input can be used. The unit also supports Bluetooth with aptX, for streaming of music wirelessly from smartphones, tablets or PC/Macs.

The VA4 features 102mm woofers and 25mm tweeters with 40 Watts built-in amplification.

A remote control offers source-selection, volume up and down, tone adjustment and standby mode. Completing the feature set, a USB charging socket is fitted.

The Black Ash cabinets come with a choice of baffle colours – gloss red, white and black. All come with detachable black cloth grilles.

Spanning 220 x 140 x 170mm and weighing 5.6kg, the speakers cost £199. To learn more go to www.rothaudio.uk or call 01753 682782



RUPERT NEVE HEADPHONE AMP

Based on the headphone output circuit in the Rupert Neve 5060 Centerpiece Desktop Mixer, the RNHP is a dedicated 24V headphone amplifier.

The chassis features a specifically-calibrated +4dBu balanced line (selected with the 'A' switch: the combo jack accepts either XLR or TRS inputs for balanced devices).

You will also find an unbalanced RCA (calibrated for -10dBV signals and is selected with the 'B' switch).

And look out for the 3.5mm sockets (stereo 3.5mm input specifically calibrated to work with mobile devices like phones, computers and digital cameras).

The whole thing is housed in a steel chassis built to industrial standards with an overhang to protect the connectors and main level control from glancing blows, as well as shock-absorbing rubberised feet.

To learn more go to www.rupertneve.com or telephone 01539 797300

Bowers & Wilkins

Designed for listening

The new CM Series loudspeakers are undoubtedly beautiful, capable of gracing any room with their clean lines and high-quality finishes. But as with all Bowers & Wilkins loudspeakers form must follow function, and thanks to our Decoupled Double Domes and tweeter-on-top technology you won't believe how beautiful your music can sound.

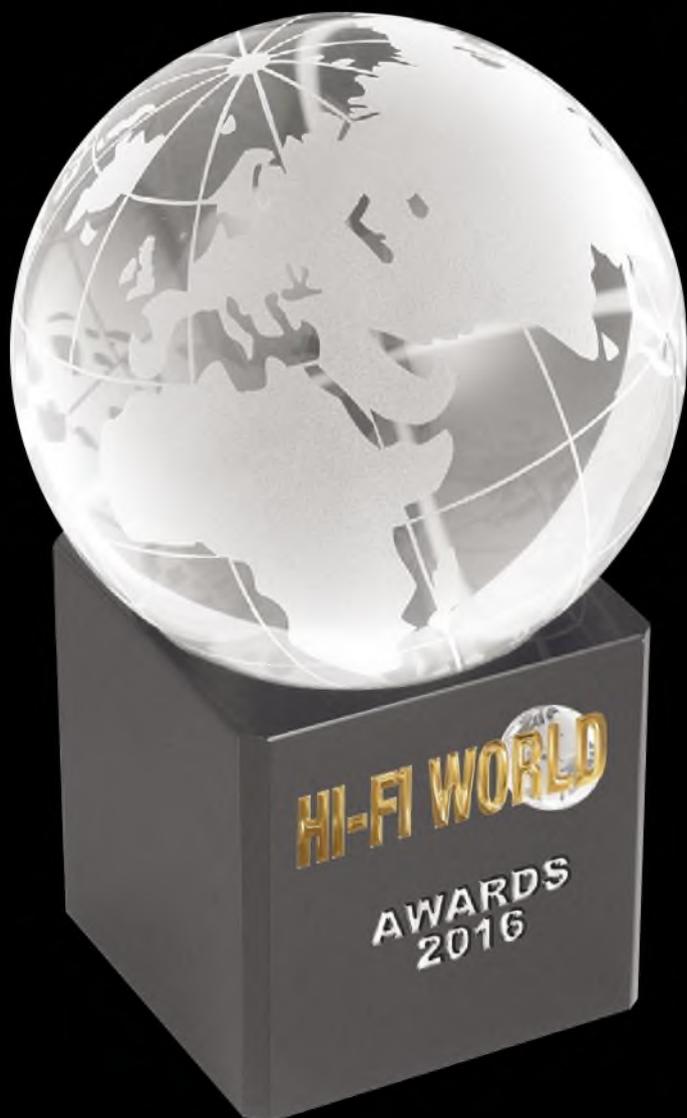
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Decoupled Double Dome tweeter



★ HI-FI WORLD AWARDS 2016



Welcome to Hi-Fi World's 2016 Awards. Our expert review team tests hundreds of products each year to bring you the best from the world of hi-fi. But, inevitably, 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...

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**BEST
LOUDSPEAKER**

QUADRAL
CHROMIUM
STYLE 8



Reviewed March 2016 issue

German manufacturer Quadral have gained a formidable reputation across Europe for combining excellent sound with value-for-money prices.

Their Chromium Style 8 is a true three-way, reflex-ported loudspeaker with titanium-coated drivers handling the bass and midrange, and an aluminium ribbon tweeter reaching 55kHz for fast, detailed treble.

All these go together to produce a seamlessly integrated soundstage with excellent coherence and a natural, rhythmic swing to the music.

Bass goes deep without sounding forced or boomy while the ribbon tweeter has a pin-sharp quality that never strays into harshness. Unerringly musical, the Quadral's get everything right in their presentation. Add in typical German standards of construction and an eminently affordable price tag of £1750 and the Chromium 8s are hard to beat.

For the original review, see page 25.



★ BEST AMPLIFIER

LUXMAN L-590AX MKII

Reviewed: June 2016 issue

It might be retro in looks with lines of buttons and two big, illuminated power meters – but there's nothing old-fashioned about the delicious sound of the Luxman L-590AX MKII integrated amplifier.

Biased into Class A operation up to 30 Watts, it can deliver 160 Watts in Class A/B if the occasion demands, so will drive just about any loudspeaker. And it does so with authority – producing a smooth, rich sound with plenty of clarity and life. On Led Zeppelin's 'Whole Lotta Love' the bass line was punchy and tuneful while Jimmy Page's guitar riff stopped and started with no smear.

While the Luxman likes to rock it also has a great sense of delicacy, giving female vocals superb atmosphere.

There's a built-in MM/MC phono stage, high-quality headphone out, defeatable tone controls and two pairs of loudspeaker outputs.

It all adds up to a hugely impressive package that not only looks good but sounds sublime too.

For the original review, see page 28.





**BEST VALVE
AMPLIFIER**



**ICON AUDIO
STEREO 30SE**

Reviewed: November 2016 issue

Single-ended Class A valve amplifiers have a sound that never fails to seduce – but the trade-off is low power output. But with the Stereo 30SE integrated Icon Audio has designed something that combines good power with finesse. By using Tung-Sol's recently designed KT-150 output valves it produces a healthy 28 Watts in Ultralinear mode - enough to drive modern loudspeakers to high levels.

Biasing those valves is easy thanks to the illuminated meter on the fascia and once done the sound is a delight – clean, pure and fast with the sort of detail and clarity that just draws you into the music.

Playing The Allegri Quartet's 'String Quartets by Alec Roth' the timbral accuracy of the strings was uncanny. So too was the bass when playing the likes of James Blake's 'Limit To Your Love', where SE valve amps can sound flabby and ill-defined the Icon Audio kept a firm grip on the loudspeakers, never letting go even of deeper registers.

For the original review, see page 32.



★ BEST PORTABLE HIGH-RESOLUTION PLAYER

FiiO X7

Reviewed: April 2016 issue

FiiO made its name producing budget high-resolution portable digital music players. The X7, however, is its new flagship and a truly impressive performer. Instead of the usual track-dial of the other models it has a touch screen that makes navigation easier. There's 32GB of in-built memory and a microSD card slot providing an extra 128GB.

Wi-Fi and Bluetooth capability is also provided but the most important part of the X7 is its sound. It uses ESS Technology's ES9018S DAC which supports file sizes up to 32bit/384kHz as well as DSD and has a delicious, natural sound. With a high-resolution 24/96 file of 'Mahler's No 1' through a pair of good headphones you'll hear every element of the orchestra in vivid detail. Switch to The Swans 'Beautiful Child' and the detail remains but the full power of this aural assault comes through.

In terms of build plus sound quality the new FiiO X7 has been the best new DAP we've heard over the past 12 months.

For the original review, see page 36.





★ **BEST DAC**

CHORD DAVE



Reviewed: November 2016 issue

Chord's top-of-the-range Dave DAC is a tour-de-force of digital engineering. Unlike other manufacturers who buy in off-the-shelf digital converter chips, Chord use a custom design from renowned digital guru Rob Watts.

The new Dave boasts 10 times the processing power of Chord's previous QBD76 flagship. The Watts Time Aligned filter alone, for example, boasts some 164000 taps.

It means Dave can accept sample rates up to 768kHz as well as DSD64, 128, 256 and 512. There's also a digital pre-amp so you can plug it straight into a power amp, as well as a headphone circuit.

All this digital firepower is reflected in a truly remarkable musical presentation. Whether playing high-resolution or standard CD, the Chord conveys music with timing, resolution and class-leading detail. Instrumental separation is exceptional - meaning you can hear right into the mix on even the densest of tracks.

This is a real benchmark product and a worthy award winner.

For the original review, see page 40.



★ BEST NETWORK PLAYER

CAMBRIDGE CXN

Reviewed: February 2016 issue

The CXN is versatile, user friendly, good looking and possessed of a punchy, dynamic sound. It has a full-colour screen to display album artwork, radio station logos and various menus. It also has a digital pre-amp facility, Spotify Connect compatibility, Apple AirPlay, Internet radio, UPnP, asynchronous USB, Coax and Toslink digital inputs as well as DSD64 support.

Streaming music from a NAS drive showed just how strong the Cambridge's performance is. Bass lines were tight and well-defined, detail was plentiful, while rhythmically the unit had a grip on tempo. This got the best from high-resolution tracks, but lower bit-rate Spotify still sounded fluid and natural.

To add to its features Cambridge Audio's Connect app (Android and iOS) allows control of the unit from a smartphone or tablet device.

If you are looking for a streamer to slot into an existing hi-fi system, the CXN has it all at a cost of just £700.

For the original review, see page 45.





★ **BEST
TURNTABLE**

**TIMESTEP EVOKE
SL-1200GAE**



Reviewed: September 2016 issue

How do you make Technics' latest SL-1200GAE Direct Drive turntable even better? Simple - give it a UK makeover courtesy of the experts at Timestep.

So, out goes Technics tonearm, replaced by the excellent SME IV. The on-board switch-mode power supply is replaced by Timestep's external linear unit. A high-quality Audio Technica AT33PTG/II MC cartridge is fitted to complete the package.

The upgrades elevate the Technics to something special. What's apparent is a great sense of force to the sound, underpinned by superb timing. Up-tempo music burst from the loudspeakers, yet with gentler material such as Marian Thorsen playing Mozart piano concertos backed by the Trondheim soloists the sound of bow upon violin strings was luscious and tonally natural.

In short, the Timestep EVOKE SL-1200GAE is a turntable of fabulous performance in all areas which also looks magnificent and is easy to use. It really could not be much better.

For the original review, see page 49.



★ BEST CARTRIDGE

TRANSFIGURATION PROTEUS

Reviewed: May 2016 issue

Transfiguration's flagship Proteus moving coil cartridge (£3295) features a low mass, non resonant chassis with new dampening material, housing a 0.3mm diameter solid boron, diamond-tipped cantilever and 1 Ohm coil for best transient response.

The Proteus gave a scrupulous and trustworthy account of the music contained in vinyl's grooves - although it does not gloss over pressing deficiencies.

Playing Frank Sinatra's 'London By Night: And Other Famous Standards' trumpets and saxophones were allowed to disengage from the vocal to give the impression the brass was arranged around Sinatra in perfect symmetry.

At all times the Proteus was inventive and incisive in terms of extracting detail from even the most complex of tracks bringing out the textural quality of instruments.

The Proteus is an absolute delight and a worthy Hi-Fi World Award winner.

For the original review, see page 57.





BEST WIRELESS LOUDSPEAKER



NAIM MU-SO QB

Reviewed: April 2016 issue

In the £595 Mu-so Qb there are five active front-firing drivers - one woofer, two mid-range units and a pair of tweeters. They inhabit a sculpted glass-filled polymer housing, angled for better sound dispersion. Lower frequencies are augmented by a pair of passive bass radiators on each side.

An amplifier and network connection provide music streaming Spotify and Tidal compatibility, UPnP network play, Apple AirPlay, internet radio. The amplifier has digital and analogue inputs.

Qb has the traditional Naim virtues of drive and an inherently foot-tapping sound. Its relatively small form factor belies a room-filling sound that never got congested - even with volume high. Bass was rich, not boomy, and careful placement of the drivers ensured good stereo separation.

This is not just a wireless loudspeaker - but more a full hi-fi system in a compact package.

For the original review, see page 61.



★ BEST LOUDSPEAKER CABLE

BLACK RHODIUM QUICKSTEP

Reviewed: November 2016 issue

Derby-based Black Rhodium's latest loudspeaker cable is based upon the design elements of its range-topping Thunder - but costs significantly less at £400 for a three-metre terminated pair. It shares the same attributes, though.

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

In use we found they timed immaculately - imparting no smear or cloud to the sound, allowing instruments and vocals to breathe in a natural way. Mid-range detail was a particular highlight with a crisp, tonally accurate vitality to the presentation.

The Quicksteps have the ability to bring the best out of what you have in place. As such they make an excellent buy.

For the original review, see page 64.





★
**BEST
HEADPHONES**



**KENNERTON
MAGISTER**

Reviewed: July 2016 issue

Kennerton's over-ear Magisters have earcups carved from wood aged for hundreds of years, a lamb skin headband and soft calfskin cushioning.

Their proprietary 42mm drivers use a mylar diaphragm strengthened with a titanium coating to add rigidity.

It makes for a headphone slightly larger than some competitors but they are extremely comfortable over extended listening.

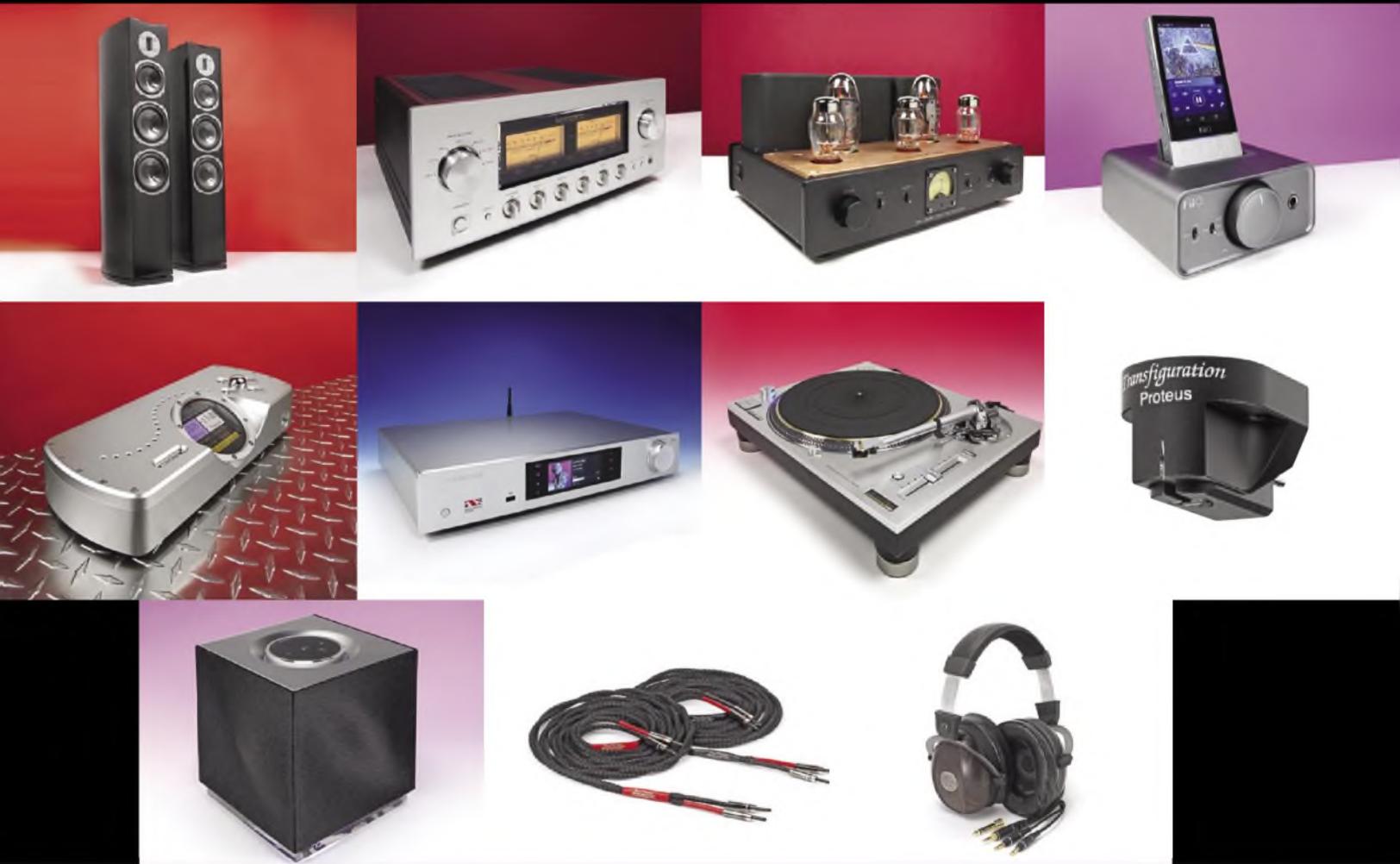
With Miles Davis's 'Porgy And Bess' the trumpet hung in the air - not too sharp but neither too muted as to rob the instrument of bite. For a closed-back design the soundstage is much larger than expected, giving a sense of scale instead of the feeling the sound is being rammed into your ear canals. There's a little warmth in the midband but not so much as to mask detail or make the Kennertons sound laid-back.

From the moment you put on the Magisters they are a joy to hear - the mark of any good headphone.

For the original review, see page 65.

Hi-Fi World 2016 Awards

ORIGINAL REVIEWS



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Great Eight!

Quadral's new Chromium Style 8 floorstander marries German engineering excellence to a captivating sound – for just £1750. Jon Myles says it's a true hi-fi bargain.

Germany's Quadral may not have quite the same brand recognition here in the UK as the likes of Tannoy, KEF and Wharfedale - but over in mainland Europe the company has an enviable reputation for producing exceptionally well-engineered and clean-sounding loudspeakers that can go head-to-head with the best at their respective price points.

For evidence, look no further than the Rhodium 400 I reviewed in the December 2015 edition of Hi-Fi World. There was a compact floorstander costing just £895 but

with a sophisticated sonic signature out of all proportion to its size. Where some similarly priced rivals have artificially enhanced bass or treble, the Rhodium was by contrast supremely smooth and even - and all the better for it. With a cabinet measuring just 135mm x 828mm X 232mm (W/H/D) and a front-firing reflex port these 'speakers were ideal for use in small to medium-sized rooms - especially if domestic arrangements dictate they must be positioned close to a rear wall.

But the Quadral catalogue is extensive and one step up from the Rhodium series of 'speakers comes the larger Chromium range - with bigger cabinets and drive units, plus - in the case of the Chromium Style 8 on review here - a ribbon tweeter for extended high frequencies.

Measuring 100.6cm x 20.85cm x 34.35cm (H/W/D), this is a true three-way loudspeaker, bass duties being handled by a pair of 180mm titanium-coated drivers.

"with the likes of the free jazz of 'Interstellar Space', Rashied Ali's cymbal work had a glorious shimmering quality while John Coltrane's tenor saxophone had just the right metallic edge"

They work with a 155mm midrange unit of similar construction and the aforementioned aluminium ribbon tweeter - said to extend upward to 55kHz.

The cabinet itself has a deep gloss finish (black or white available) with gently curved side walls to minimise internal standing waves; a discrete Quadral logo is etched on top. Around at the back is a single pair of 'speaker binding posts (so no bi-wiring), above which sits the rear-firing reflex port.

The cabinet sits on an integral base plate, decoupled by spacers to provide a rigid foundation.

All in all, this is an impressive-looking package with a feeling of solidity that fully justifies its £1750 price tag.

SOUND QUALITY

Straight from the off the Chromium 8s impressed me with their coherence and seamlessly integrated soundstage. These aren't 'speakers that seek to wow the listener with pumped-up bass or razor sharp



Quadral's ribbon tweeter has been well integrated with the midrange driver - giving the loudspeaker an extremely accurate response.

treble but instead major on a natural, unforced rendition of the music.

Listening to the Buena Vista Social Club's Ibrahim Ferrer via a Creek Evolution 100A integrated amplifier coupled with Tellurium Q's open-sounding Silver Diamond cables, the Cuban maestro's vocals were rich and sonorous, whilst the band's instruments were separated cleanly both beside and behind him.

Quadral's ribbon tweeter was particularly impressive, having a pin-sharp tonality that never veered into harshness. So with the likes of the free jazz of 'Interstellar Space', Rashied Ali's cymbal work had a

glorious shimmering quality while John Coltrane's tenor saxophone had just the right metallic edge.

Lower down, the twin metal woofers mean bass was tight and fast but still had a real punch when the music demanded it. Through the Quadrals the dissonant low-frequency rumble on James Blake's 'Limit To Your Love' had power to it. It didn't hit me in the chest in the way a 12-inch drive unit would but the Chromium 8s certainly let you know there's some seriously heavy bass here.

I've heard bigger floorstanders struggle to handle the dynamics of this track - either failing to convey the scale of the low-end or making it sound flabby and ill-defined. The Quadrals, by contrast, gave bass just the right weight, while never allowing it to dominate the piano - nor Blake's plaintive vocals higher up the scale. It was all of a whole and a visceral experience.

It's a quality that extends right through the sonic spectrum, the Chromium 8s having a natural, even tonal balance that didn't over-emphasise any particular frequency to the detriment of others.

As such they are adept at revealing the differences between partnering equipment. Using the Creek as a pre-amp with a Naim NAP 200 power amplifier immediately showed the increased drive and tempo the latter is famous for - while switching in a pair of Quad's excellent QMP monoblocks added a degree of smooth sophistication to the sound.

Importantly, the Chromium Style 8s are also easy to drive. Both the Naim and Creek could push them extremely loud without any undue strain and valve amplifiers of around 20 Watts would probably be a good match.

Whatever you choose the Quadrals will let you know exactly what's being delivered thanks to their eminently accurate nature.

That's because, in essence, the Quadrals are imposing very little of their own character on the sound but simply allowing the music to flow through in an uninhibited manner. Which means that if your tastes tend towards acoustic jazz then the Quadrals will let you know all about the tone and pacing of the instruments being played while they'll be equally happy pounding out the likes of Deep Purple's 'Smoke On the Water', relaying the power of a full-



The large diameter rear reflex port means bass response is strong but also well-controlled so it doesn't over-dominate a room.

scale Mahler orchestral crescendo or playing just about anything in-between.

CONCLUSION

The Quadral Chromium 8s are a handsome-looking floorstander with a quality of performance that belies their £1750 asking price. They are unerringly musical with a natural, balanced sound that allies detail to a punchy bass and rich treble. I've heard loudspeakers costing twice as much which don't have the all-round quality of the Quadral's - which makes them something of a bargain!

NOEL SAYS -

We were very impressed by the Style 8s. Reviewer Martin Pipe has now inherited our Quadral Wotan Vills and he is very impressed with their smooth, yet accurate presentation, graced by wonderful treble from a ribbon tweeter – a perfect reviewers tool.

The Style 8s on review here offer a similar experience. They are supremely neutral in their sound and Quadral have, if anything, slightly lowered output from the tweeter so it hardly makes itself known. Yet it does. I used the Style 8s a lot over months of listening, with a wide variety of amplifiers – and always I could detect the razor sharp delineation of highs that ribbons bring; cymbals positively shimmered in a lovely clear light, each tap of stick against brass picked out with military precision. No matter how good domes can seem, they never quite match a good ribbon.

Now, every loudspeaker engineer is, or should be saying in his head "ah, but what about integration?", because ribbons don't go low enough to well match cone drive units, a reason for their avoidance (as well as cost!). For this Quadral use a titanium coated midrange unit that reaches up smoothly to meet the tweeter, and our impedance curve shows they crossover quite low down, at around 3kHz, where wavelengths are long, so easing potential problems. As a result the Style 8 is consistent in its forward sound over a good range of ear height. It is well integrated.

By engineering in good integration with no midrange crossover dip Quadral have ensured the Style 8 is insightful and delivers strong detail, yet by keeping tweeter output in check they have also ensured these 'speakers are smoothies over the long term. I was consistently struck by their sophistication in this respect; at no time did I feel one part of the audio spectrum was out of alignment with another part. Nor did I hear any zing or rasp from the drivers that in themselves have well damped cones of neutral character.

Down in the bass department, the Style 8s go low, very low, covering subsonics right down to 20Hz. And they are well damped, so play a bass tune. They don't have the slam of bigger cones; a pair of giant Tannoy Westminster GRs reminded us, with their 15in Dual-Concentrics, but then you can get Style 8s into your lounge!

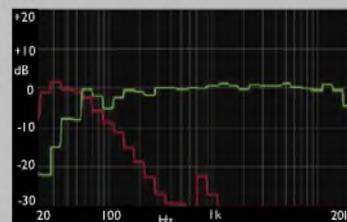
What this loudspeaker has is conspicuous balance and sophistication, allied to superb imaging across a wide soundstage – I loved their sound. Audition before all else, I suggest.

MEASURED PERFORMANCE

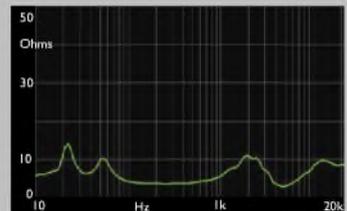
The Quadral Chromium Style 8 has a smooth and even frequency response, our analysis shows. The lack of 'ups and downs' – perturbations – means there are few local resonances in the cone, or the cabinet behind, to colour the sound. The ribbon tweeter has been integrated in perfectly; most designers choose to give a ribbon slight prominence to show off its properties, but Quadral have avoided this completely, making the Style 8 superbly accurate in its high frequency portrayal.

FREQUENCY RESPONSE

*Green - driver output
Red - port output*



IMPEDANCE



a similar fashion there's no bass emphasis, low frequencies running down to 45Hz from frontal output, below which the rear port takes over (red trace) to extend output smoothly down to 20Hz, our analysis shows. Sound pressure at the port was the same as that of the cones at 80Hz, where it is commonly +6dB higher, so port output isn't especially strong in SPL terms, but it's a large diameter port so sound power was still strong. Overall then, the Chromium Style 8 produces deep bass and subsonics, at a well judged level to not over-drive a room into boom.

Sensitivity was very high, measuring 89dB sound pressure level from one nominal Watt (2.8V) of input, so the speaker goes very loud from little power and 60 Watts is more than enough; 20 Watts would suffice.

Impedance measured 5.5 Ohms overall and a 5 Ohm dcr bass unit is used, although our impedance curve dips to 3 Ohms. The Style 8 is substantially resistive as a load, but it is a low load all the same and will draw current from an amplifier, magnifying amplifier differences.

The Chromium Style 8 is both smooth and accurate under measurement – and likely to sound well balanced and refined in use as a result.

NK

QUADRAL CHROMIUM 8
£1750



OUTSTANDING - amongst the best.

VALUE - keenly priced.

VERDICT
A refined sound from a sophisticated product. Superb.

FOR
- natural, balanced sound
- deep, clean bass
- extended treble

AGAINST
- nothing at the price

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Luscious Luxman



Luxman's new flagship L-590AX MKII integrated amplifier looks retro – but its sound is right up-to-date, says Jon Myles.

For music lovers back in the late 1970s and early 1980s Luxman was an aspirational hi-fi amplifier brand – a beautifully-built slice of Japanese exotica festooned with buttons and featuring just about every facility you could want. And Luxmans sounded good at a time when this wasn't guaranteed by other brands.

Predominantly Class A operation meant an inherently smooth sound with none of the sonic nasties that

plagued some cheaper amplifiers of the time. No wonder the name Luxman became a by-word for quality.

Somewhere along the road though, the company managed to lose its way as it made an ill-judged foray into the budget end of the market – a move that cost it dear. Luxman withdrew from all territories apart from its home market of Japan as it sought to rebuild its reputation.

Since 2009, though, the firm has enjoyed something a renaissance

under a partnership with the IAG audio group.

So much so that I gave the Luxman L-550AX integrated amplifier our full five globes back in the July 2015 issue of Hi-Fi World, it was so good.

Now there's a new flagship model in Luxman's integrated range in the shape of the L-590AX MKII. Priced at £6495 it's essentially a step-up from the L-550AX (which still remains in the range) offering greater power and upgraded components.

Not that you'd immediately notice it from the exterior as the new L-590AX MKII mirrors the L-550AX in terms of design – meaning it resembles those battleship-grade Far-East amplifiers many of us lusted over way back when. So it's big and glossy with an array of buttons on the fascia below two big, illuminated power meters. As you expect, it is beautifully made and finished, the rotary controls moving with silky precision.

Features include a switchable MM/MC phono stage, bass and treble controls, a loudness button, line straight, balance control, two pairs of switchable loudspeaker outputs, plus a high-quality headphone circuit.

Round the back are the Phono inputs for a turntable, four line-level inputs, and two balanced XLR line inputs. A well-finished and admirably easy to use remote control completes the package. The only thing missing is any form of digital input; this is an all-analogue amplifier.

Not surprisingly, with all these features the L-590AX MKII is big, measuring 193mm x 440mm x 463mm (H/W/D) and weighing just over 28kg – heavy. You'll need a decent sized rack with plenty of clearance for the top-mounted ventilation grilles.

These are essential as the amplifier operates mainly in Class A, meaning it gets warm to the touch after a while – although never enough to cause discomfort or burn.

Luxman says the L-590AX MKII is a pure Class A design – although this isn't strictly accurate. Instead it is Class A up to 30 Watts from where it moves into Class B to give a quoted peak power performance of some 160 Watts (see Measured Performance).

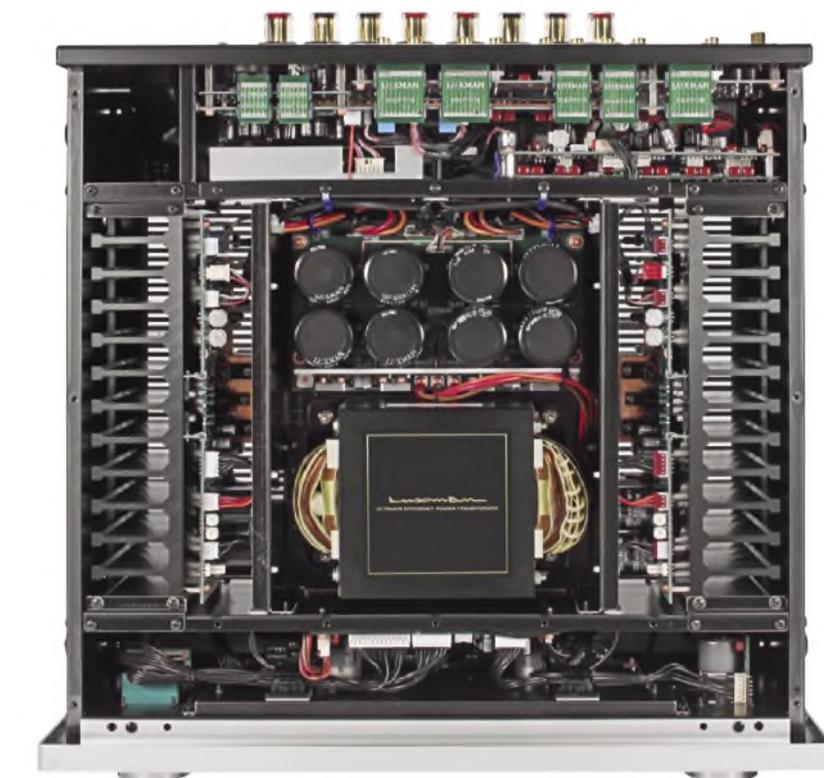
To be fair, though, you'd have to be using this amplifier in a ballroom the size of the Strictly Come Dancing set with a pair of pretty insensitive loudspeakers to get anywhere near pushing it to its limits into Class B operation.

SOUND QUALITY

The Luxman may be handsomely equipped and bedecked with controls – but at its heart it is a wonderfully no-nonsense performer.

This is one piece of equipment that simply gets on with the job of music-making in a thoroughly engaging manner.

Connecting it to a pair of Spondor's big SP200 Classic



Internally, the Luxman L-590AX MkII demonstrates this company's immaculate build quality and attention to detail. At lower centre is the mains transformer and above it rows of circular smoothing capacitors of the power supply. At left and right are large heatsinks to keep the output transistors cool under Class A operation.

loudspeakers (see review Hi-Fi World May 2016) and queuing up 'Whole Lotta Love' from Led Zeppelin II, first impressions were of a smooth, rich sound with plenty of clarity and life.

The bass line was punchy and tuneful but never overly-dominant. Above that Jimmy Page's classic guitar riff stopped and started with no sense of smear while Robert Plant's vocals had lovely purity.

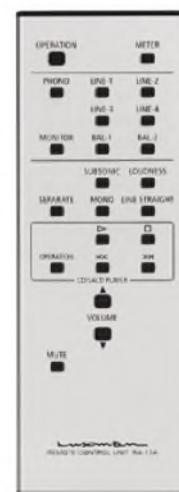
It may be a transistor amplifier but Class A operation means there's none of the hash or slight blurring of detail. Instead the Luxman just cuts right to the very heart of the music.

Playing John Coltrane's 'One Down, One Up; Live At The Half Note' and the drums, piano, saxophone and double bass were all anchored in their own instrumental space, stage left and right, even the sound of the audience's conversations and clinking glasses coming through loud and clear between tracks. This isn't the clearest or most high-fidelity of recordings but through the Luxman that ceased to be a concern, the amplifier dredging up every last bit of detail.

That clarity extended to whatever I played and was combined with an innate musicality that

brought timing to the fore. Ike and Tina Turner's 'River Deep, Mountain High' and Phil Spector's orchestral wall of sound production swelled from the 'speakers. The Luxman kept a firm grip on the Spondor's twin 12-inch bass drivers to create a giant soundstage in front of me.

Switching from the Spondors to the new Opera Prima standpoint loudspeaker (see review this issue) was interesting. They require more power than the Spondors to come on song and obviously – because of their smaller cabinet – do not have the absolute low-end authority of the Spondors. But pairing them together introduced a certain synergy. The low-end on John Campbell's rendition of 'Down In The Hole' was firm and potent, providing a solid foundation for the guitar and rasping vocals which give so much



The remote even has a Mono button to lessen hiss on LPs.

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

John Myles. HiFi World

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

Jeff Dorgay, Tone Audio

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

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atmosphere to the track. This is where the Luxman really shines – it's happy enough powering a pair of giant standmount loudspeakers but adds life to small standmounts.

This was all with the Line Straight mode engaged to by-pass the tone controls. Switching them in I could gently tailor bass and treble. I did find there was a slight loss in absolute detail, but they were useful in taming some of brightest recordings I have. Oasis's 'Live Forever', for example, benefitted by having the searing treble diminished. They are there, can be used if needed but left out if not.

Moving on to vinyl through the built-in phono stage it was clear this also is no mere cosmetic addition. It shares the same overall tonal clarity as the line-level inputs with an extremely low noise floor. Playing Leonard Cohen's 'First We Take Manhattan' there was body and depth to the vocals while the electronic backing track had weight and definition. Also noticeable was a refreshing absence of background noise. I've heard some standalone phono stages costing a good third of the Luxman's total



The rear panel of the Luxman shows the range of inputs available - balanced XLR sockets at right, plus unbalanced RCAs including a single switched MM/MC input at far left. Gold plated speaker terminals accept bare wires, spades and 4mm banana plugs.

price which don't sound as good - which just goes to show how good in every area this package is.

But that's the beauty of the L-590AX MKII. It seems to do everything very well without drawing too much attention to itself. Instead it just enables music to flow in a purely effortless way. Yes, it's reminiscent of Japanese amplifiers from the 1970s in terms of both looks and features but its sound is right up-to-date, being both vibrant and utterly involving. In short, this is

one piece of equipment that cannot fail to put a smile on your face.

CONCLUSION

The original L-550AX was a very good amplifier by market standards. But Luxman have taken all its essential elements and improved on them for the flagship L-590AX MKII. It has more power and detail yet retains the same easy-going musicality and foot-tapping sound. It's an absolute gem, to both look at and use.

MEASURED PERFORMANCE

The Luxman L-590AX MK II produced 90 Watts into 8 Ohms and 156 Watts into 4 Ohms. Working substantially into Class A it passes a lot of current through the output stages and gets quite hot after a while, independent of whether it is producing music or not. All the same, this is plenty enough power to go very loud irrespective of loudspeakers or room size.

Distortion was low at all levels, although at high frequencies there was a rise to 0.2% or so at very low outputs, below 1 Watt – a little crossover distortion.

Line input sensitivity was high, just 180mV from both the unbalanced phono socket inputs and the balanced XLR inputs, so the unit matches all outside sources with ease.

Frequency response (Direct) measured flat from 3Hz to 52kHz, so this is a wideband amplifier. The tone controls gave +/-8dB lift or cut and reasonably good resolution, although subtle levels of change of 2dB or so needed very little control movement. Lift and cut acted over a wide frequency band centred at 1kHz; the controls don't adjust just spectrum extremes.

The MM and MC phono stages differed slightly. MM gave an essentially flat response with just a small of bass

shelf loss of -0.2dB, whilst the MC input was the opposite, with a similar amount of lower frequency lift below 1kHz. Subsonic cut from the optional Subsonic filter was extreme, rolling off deep bass fast below 60Hz (-1dB), curtailing deep bass as well as warps – somewhat drastic.

Phono sensitivity measured MM 3mV and MC 0.3mV, the latter suitable for low output MC cartridges. With low equivalent input noise value (IEC A weighted) of 0.12µV, MC hiss was minimal; this is just 3.5dB higher than input transformers (0.08µV).

The L-590AX MK II measured well in all areas. It is powerful, runs heavily in Class A and has low distortion. It has a very good moving coil (MC) cartridge input stage with high gain and low noise that will suit expensive MC cartridges.

NK

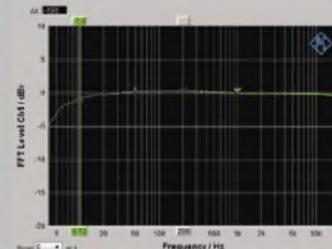
Power 90watts

CD/tuner/aux. Frequency response 3Hz-52kHz
Separation 87dB
Noise -105dB
Distortion 0.04%
Sensitivity 180mV

Disc (MM/MC)

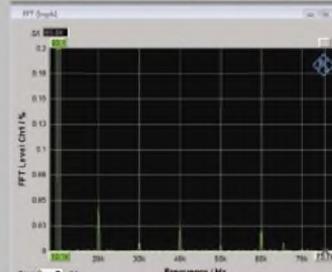
Frequency response	6Hz-20kHz
Separation	87dB
Noise	-87/-68dB
Distortion	0.06%
Sensitivity	3/0.3mV
Overload	12/120mV

FREQUENCY RESPONSE MC



DISTORTION

THD @ 1%	Level (dB)	Frequency
CH1: 0.0568 %	2.0748 V	10.000 kHz
CH2: OFF	OFF	OFF



LUXMAN L-590AX MKII £6495



OUTSTANDING - amongst the best.

VERDICT

Class A operation, retro looks and a host of features add up to one of the best integrated amplifiers you can buy at the price.

FOR

- foot-tapping sound detail
- smooth delivery
- MM/MC phono stage

AGAINST

- looks might not be to everyone's taste

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A New Icon

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

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

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

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

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

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

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

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

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

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

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



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

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

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

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

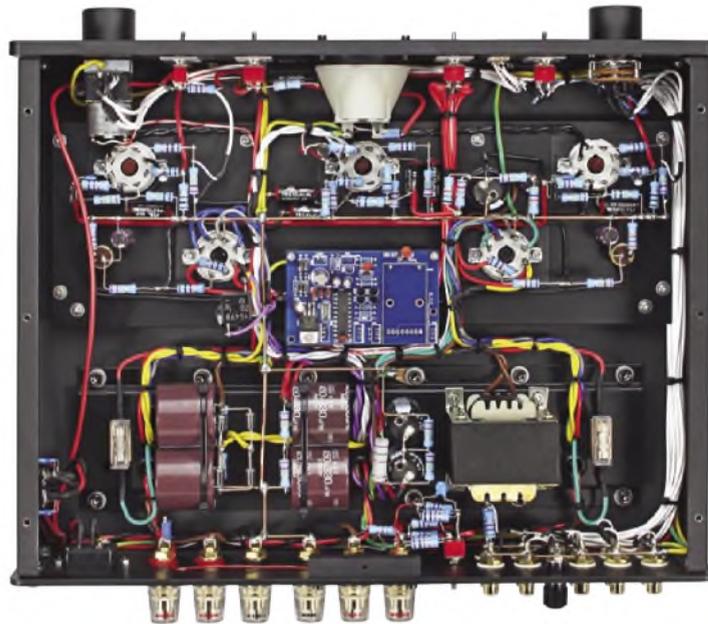
SOUND QUALITY

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

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



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



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

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

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

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

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

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

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

Used in this mode the Icon

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



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

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

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

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



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

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

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

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

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

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

In fact, I could imagine many dedicated transistor amplifier

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

CONCLUSION

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



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

MEASURED PERFORMANCE

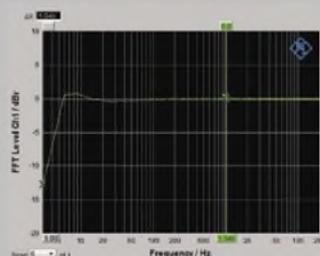
The single KT-150 pentode power valve used in each channel of the ST-30se produced a healthy (as SEs go) 28 Watts into 8 Ohms under test, in Ultralinear mode, and 21 Watts in Triode mode. These are relatively high power values for a Single-Ended (SE) amplifier, that typically come in at around 9 Watts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

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

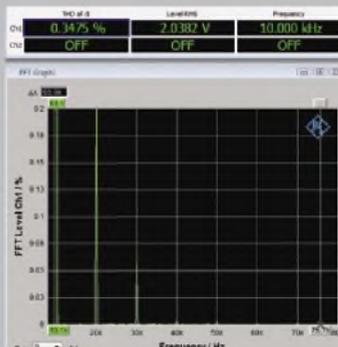
As valve amplifiers go damping factor was high at 6, due to the use of feedback. This also helped keep distortion levels reasonable at around 0.2% in Ultralinear mode and 0.4% in Triode mode, at low power outputs. Distortion rose steadily as power rose, to 1% just below clipping. However, it comprised

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

FREQUENCY RESPONSE



DISTORTION



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

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

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

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

ICON AUDIO ST30SE £1999.95



OUTSTANDING - amongst the best.

VERDICT

Combines all the benefits of single-ended valve operation with a healthy dose of power for a superb listening experience.

FOR

- power
- clean, open sound
- detail
- easy operation

AGAINST

- nothing at the price

Icon Audio
+44 (0) 116 2440593
www.iconaudio.com

The X Factor

Top of FiiO's portable digital player range is the new X7 that uses Android as an operating system and offers a host of capabilities. Noel Keywood gets to grip with its complexities.

Portable audio is a global market so large it can support investment in high technology and FiiO are leveraging this to gain advantage with their new X7 high-resolution digital player. It's a technology showcase, aimed at Astell&Kern players that have lead the market by technical prowess and great sound quality for some years now. But as Astell&Kern's prices have risen substantially, a gap

has opened up for others to exploit – and FiiO have done so most effectively. The X7 is top of FiiO's range, but at £500 it is priced little differently to the AK100, at the bottom of Astell&Kern's range.

All of which is to get this player into market context. In case you're new to the breed, the X7's basic role is to drive headphones, but it can also drive a hi-fi system, delivering sound quality better than CD – something I look at closely with portables. In this case the picture is a bit more complicated than usual: at a functional level the X7 best integrates through a docking station, the K5 costing £96, and this needs to be considered as part of the package, although it is not essential as I will explain.

FiiO say the player uses top-quality audio parts that consume high current, so it needed to be fairly chunky – and it is – to house a large 3500mAh re-chargeable battery, with a claimed battery life of 10 hours. Measuring 130mm high, 64mm wide and 17mm deep the X7 is pocketable, if a bit much for a shirt pocket. Its chassis is machined from a block of aluminium and it feels like it – strong and impressively rigid. Aluminium may be light, but

a weight of 208gms registered on our scales all the same – quite substantial. This puts it well above FiiO's other models, such as the 165gm X5, but below other fully spec'd hi-fi players like Lotoo's FAW Gold at 280gms, reviewed in our October 2015 issue.

FiiO's stated weight for the X7 is 220gms, higher than our measured weight, but that's because the review sample came with a standard 'low power' (as they put it) AM1 bolt-on module, designed for in-ear headphones. There are, in addition, medium and high-power modules, as well as a balanced output module, but little info is available on them and when I contacted the factory for details they were away for the CNY, they said (Chinese New Year). The modules are secured by two tiny Torx screws; a screwdriver and spare screws are supplied.

Where players I have reviewed over the years seemed to gain outputs as their price rose, the X7 with AM1 goes back to basics. There is one headphone output in the AM1 module, a standard 3.5mm stereo jack at the bottom of the player, a slightly awkward place to be. The top face carries the only other output, a switched Line/Coax socket, Coax meaning an electrical digital connection in this case, not a co-





This top view shows the Line/Coax (digital) 3.5mm four pole output jack. The left side has volume, on/off buttons and a microSD card slot.

axial optical output within a 3.5mm headphone socket, as used by Apple and Astell&Kern.

FiiO supply a special adaptor cable with four-pole jack to phono line socket so a standard digital coax S/PDIF connecting cable can be used. You can't use this socket for headphones because Line has no volume control: when switched to Line it is a fixed output suitable for the CD input of a hi-fi amplifier, using a 3.5mm stereo jack to Phono adaptor lead, not supplied.

In addition to these two sockets a microUSB carries power and mates either with the K5 docking station or connects to a computer through a microUSB-to-USB A cable so music files can be uploaded; it is seen as a



The Pure Music mode play window shows album artwork, graphic equaliser, favourites ... and more.

mass storage device. Our X7 could not be used as a DAC; FiiO said on their website at time of review that this would be made available in firmware FW1.8, but after upgrading our sample to FW1.8 there was no sign of it, either in the menus as a

selectable option, or as an available Output on a Mac (running OS-X 10.11.3, El Capitan).

As FiiO's top player, you can be assured that the X7 plays all digital audio file formats, normal and double rate DSD (but not quad) in .dsf and .dff file formats, as well as .iso (SACD) files.

FiiO say the player will in a future firmware upgrade also support DoP through its digital output so DSD can be sent to an external DAC like Mojo. Mojo offers better performance, measurement shows, so this is a potential upgrade. All Apple file formats are supported, WAV and FLAC of course, DXD and all the old compressed formats.

The X7 runs on Android, unlike their other players, and this complicates its user interface by introducing two basic modes: Android and Pure Music mode. I ran in the latter, but had to switch to the former to go online etc; a re-boot is needed – not exactly convenient.

The player has wi-fi that, FiiO say, facilitates auto-updating, but in our early sample player this did not work and it had to be manually updated.

The Pure Music mode interface was usable but needed clarification by use of colour in Settings category headlines, for example; its monochromatic nature was neither attractive nor helpful.

FiiO provide few sound options, Low or High gain (meaning output), Gapless playback, Line/Coax. A 10 band equaliser is available, but only during track play; it has eight presets and a user definable mode. Info/option screens can be slid in from bottom, left and top, with a finger swipe.

Storage comprises 32GB of on-board memory, that contains Android OS support files, plus a music files folder. You only see the latter in Pure Music mode; you see them all when uploading via USB from a computer. Additionally, there is one microSD card slot that will address 128GB maximum; a card is not supplied.

Like Astell&Kern players, but unlike FiiO's less expensive players, the X7 has a touch screen, eliminating the rotating selector and

offering more screen area. Overall, however, I did not find the X7 easier to understand or use. I am no fan of gratuitous complexity and Android moves the X7 toward a mobile phone-type user interface, with lots of bells and whistles – and my pockets and home already have plenty of these, with clocks, apps., accelerometers, web browsers etc. popping up all over. I may be in a minority here by not being wowed by this stuff – and it is why I like the straightforward



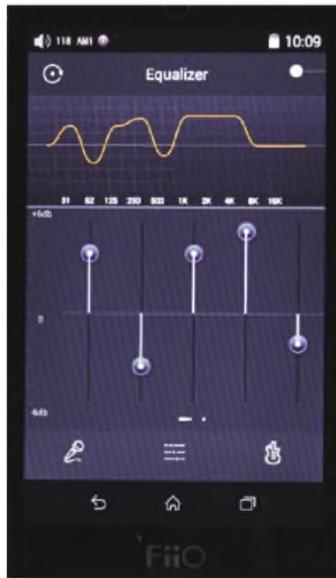
The bottom of the player with an AM1 module attached. It carries the headphone output and microUSB connector that meets the OTG (OnTheGo) standard.

simplicity of FiiO's less grandiose players.

The touch screen controls are duplicated on the right side by a transport control and there's a volume control at left, comprising Up/Down buttons. Start up is a not so fast at 28 seconds, from what FiiO proudly describe as a Rockchip RK3188 CPU. However, more interesting because of its direct relevance to sound quality, was their



The track listing screen in Pure Music mode carries artwork thumbnails.



The graphic equaliser has a range of preset modes, plus a user adjustable mode. It shows user response in a graph.

use of an ES9018S DAC chip in the X7, from the renowned Sabre32 series produced by ESS of California. With four of its eight channels paralleled per stereo side this offers, potentially, 123dB Dynamic range, and most manufacturers (e.g. Audiolab) achieve 120-122dB our measurements show.

However, in conjunction with an OPA1612 acting as current-to-voltage convertor, and one as a low pass filter, plus OPA1612 feeding an AD8397 headphone driver in the AM1 module, FiiO achieve 117dB dynamic range from the X7 our measurements showed, 5dB below what is possible. All the same, as portables go, this is a good performance – ignoring the 125dB achieved by Chord's Mojo.

I must quickly mention that our review sample had early FW1.0 firmware and it would not update automatically over wi-fi from FiiO's website, as claimed, nor would it update manually from a file downloaded onto a Mac (OSX 10.11.3). Macs automatically unbundle zip files so FW1.8 had to be re-compressed, but still no joy. In the past hidden Mac desktop files were the cause of this problem but these days Mac-zipped files usually run. The X7 only updated from a PC (Windows 7) download, I found, saved straight to the X7's root directory, so Mac owners are going to have problems unless FiiO either sort this out, or warn of the issue on their website/instructions.

IN THE DOCK

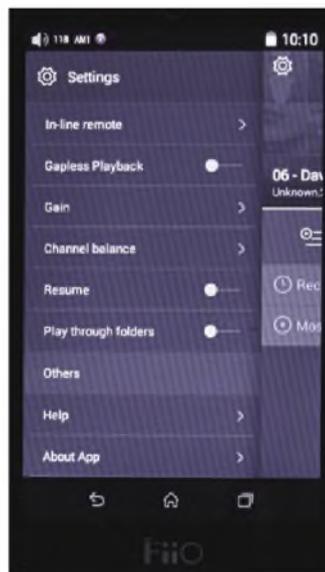
The K5 dock is a small desktop unit 120mm wide and 130mm deep, not including protruding plugs etc. The X7 simply plugs in on top, connecting through its small microUSB OTG connector. This is usually a 5pin serial digital link but as the rear digital inputs are simply pass-throughs to allow file loading from a computer, it seems that X7 connects to K5 through an analogue link within microUSB, not digitally. There is no DAC in the K5 it seems, hence no independent digital input as such: the digital inputs are pass throughs to the player.

This link feeds a Texas Instruments TPA 6120 A2 headphone drive chip and it gives quite different

results to the X7's AD8397, delivering a massive 7.7V output maximum to headphones through the large 1/4in stereo headphone socket on the front panel – more than enough to drive any headphones; the big knob at front is a volume control.

At rear are two 3.5mm stereo jack sockets, carrying Left and Right balanced outputs intended for the balanced (XLR) inputs of stereo amplifiers. There are also analogue inputs and outputs.

FiiO say K5 has an internal power supply but it does not, coming with an external switch-mode delivering 15V at 1.5A – and unidentified as 'FiiO' or 'K5' by a sticker, so its identity and purpose will be lost amongst all the other under a desk if it becomes disconnected. The dock charges the X7.



The Settings menu is poorly delineated by same-colour category headers.

SOUND QUALITY

The X7 running solo as a portable – not docked in other words – was full-bodied and almost mild-mannered in its delivery, it was so creamy smooth across the midband.

The 9018S lacks glare and shout, and this came across playing Rock. The drum synth in Queen's 'Radio GaGa' (24/96) was seemingly mighty in its power, if a little soft in leading-edge definition. Queen's harmonies stretched wide though, out far left and right. In true ESS fashion I could hear right into the vocals – this is a very revealing DAC. Treble was finely detailed too, forming a rich tapestry at the high end of the audio scale, and this was delightful.

Unfortunately, when the screen timed out to save battery power, volume became locked, so I found



FiiO's K5 dock has a small, plastic flip-up door on top that covers the docking connector when not in use. Front switches select input and gain.



The K5's rear carries balanced outputs through three-pole 3.5mm jack sockets, rather than XLR sockets. There are digital pass-through inputs and connector for an external power supply, as well as Line inputs/outputs.

myself constantly stabbing the On button for revival to access volume; setting screen sleep to its maximum of 30 minutes alleviated the issue, but volume should be accessible with the screen off.

Playing through a wide variety of Rock I found the AM1 module mild-mannered and full-bodied, lacking the speed and punch of my Astell&Kern AK120 and far off a Chord Mojo DAC in terms of scale and definition – temporal and spatial.

However, the FiiO is optimised for in-ear monitors - which tend to be more explicit - as Jon Myles found with his Noble K10s it proved very lively (see box-out for more details).

Moving on to Classical, and with 'Saturn' from The Planets I was treated to a lovely peaceful background behind the orchestra as slow kettle drum strikes and horns increased in intensity towards a climax; the X7 sounded magisterial in this role.

On the K5 dock the X7 gained both speed and bite in its timing, sounding altogether larger bodied and less somnambulant. There was less of the smooth creamy-ness I heard from AM1 alone but drums gained size and impact, and bass lines suddenly formed a solid backing against which other band members could work. Kettle drum strikes in 'Saturn' now shook the earpieces of my Fidelio X1 headphones – impressive stuff.

CONCLUSION

Our review sample of the X7 was, judging by its firmware, an early unit. Even with a firmware upgrade to FW1.8 its USB DAC function was unavailable – puzzling. Since the microUSB OTG Standard had 5 pins, as per standard and not 11 as claimed, I wonder whether this had something to do with it. There are mysteries here that needing sorting out with the factory when they return from

Chinese New Year.

Our X7 sounded smooth, full-bodied and sweetly detailed but pace and punch were lacking with over-ear headphones. However using good quality in-ear monitors things were markedly different and the FiiO proved a sterling performer.

It remains to be seen whether the currently unavailable Medium Power (AM2), High Power (AM4) and Balanced (AM3) modules will have

more to offer for users of different headphones.

The optional K5 dock adds scale for an extra £99 but not subtlety.

The X7 is a complex design that tries to meet all requirements. It is for those who want a web browser, Bluetooth, VU meter apps and such like, all of which its Android operating system make possible.

JON MYLES GOES ON THE ROAD WITH THE X7

If you are like me, then the primary function of a portable digital audio player (DAP) is for listening to music while out and about via a set of good quality in-ear monitors. In this respect FiiO really has set the standard in terms of sound-per-pound ratio with its X1, X3 and X5 models. The X1, especially, at just £99 for a 24bit/192kHz capable player which sounds silky smooth is an absolute bargain.

So how does the X7 compare? Driving a pair of my reference Noble K10s as well as Etymotic ER4s it was apparent the new flagship model has the signature FiiO sound - which is detailed with a touch of midband warmth but lively and involving.

In-ear monitors, by their very nature, sound sharper and more explicit than over-ear headphones and here the X7s balance worked well. Playing The Libertines' 'Belly Of The Beast' the pounding drum and bass intro was ferociously powerful – yet when the guitars cut in there was just the right edge to the sound without it being too harsh. It's a subtle balance and the X7 errs on the right side.

That also gives an appreciable sense of ambience. So on Kraftwerk's 'Minimum-Maximum' the group, hall and audience are placed in a definite soundstage. And a very realistic one, too. Sitting on London's Tube playing 'Autobahn' on the X7 with the Etymotics I was – very nearly – transported to Germany. Comparing this to the same track on a FiiO X3, the X7 has much more definition, depth and overall organic flow to it.

Neither have the outright dynamic drive of Astell&Kern's models but the trade-off is the FiiOs sound rather smoother through in-ears.

If there was one thing I missed on the X7, though, it was the sheer ease of use of FiiO's other players. The new touch screen looks nice but lacks simplicity and makes selecting tracks or albums less intuitive.

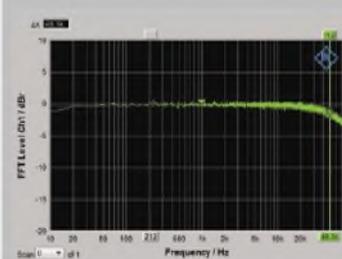
But in the end it's the sound that matters - and here the X7 thoroughly impressed me. Use it with a good pair of in-ear monitors and you have a winning combination.

MEASURED PERFORMANCE

With volume at maximum, headphone output measured 1.8V, enough to go very loud with all headphones, including insensitive high quality magnetic planars. Switched to Line mode, output measured 1.4V, less than a CD player but enough to drive any line input.

Dynamic Range (EIAJ) measured 117dB with high-resolution (24bit) digital via both headphone and Line outputs, a high value for a portable. Switching Line from analogue to digital allows an external hi-fi DAC to be used, where 120-125dB is possible with good modern designs.

FREQUENCY RESPONSE



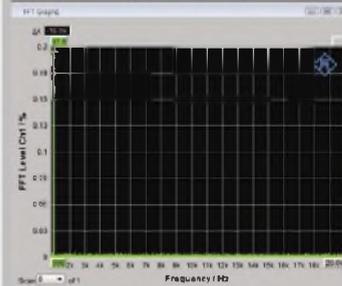
Distortion was very low at 0.02%, as shown in our analysis. No distortion components are visible so 'distortion' here is noise, even though a narrow band harmonic-only analysis was used.

Frequency response, with 192kHz sample rate files, reached 34kHz before a slow roll away to the 96kHz upper half-sample-rate limit.

DISTORTION

THD @ 1kHz	THD @ 10kHz	Frequency
0.0164 %	1.8101 mV	997.00 Hz
OFF	OFF	OFF

In all, the X7 with AM1 module produced a good measured performance all round. It can drive high-quality headphones and has sufficient dynamic range to exploit the improvement offered by hi-res digital files. NK



Frequency response (-1dB)	
4Hz-34kHz	
Distortion (%)	24bit
0dB	0.003
-60dB	0.02
Separation (1kHz)	101dB
Noise (IEC A)	-115dB
Dynamic range	117dB
Output (headphone)	1.8V

FiiO X7 PLAYER
£500

FiiO K5 DOCK
£96



OUTSTANDING - amongst the best.

VALUE - keenly priced

VERDICT

An ambitiously designed player with complex options but fragmented user interface. Good sound for IEMs from AM1 module.

FOR

- build quality
- big screen
- output amp options

AGAINST

- no USB DAC function
- no dock balanced headphone
- big
- heavy

E A Audio
www.ea-audio.co.uk

Dave Strikes a Chord

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

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

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

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

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

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

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

flagship.

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

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

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





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

EBU balanced digital input.

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

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

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

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

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

Other facilities include a switch to select positive or negative phase

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

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

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

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



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

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

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

So, is it...?

SOUND QUALITY

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

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

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

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

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

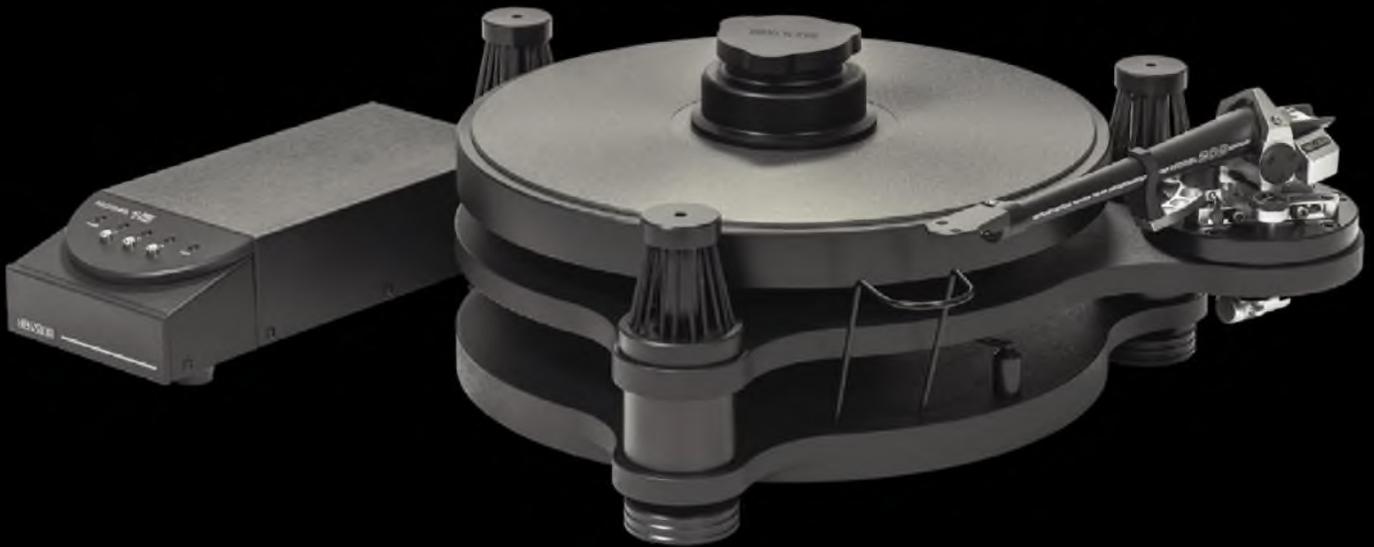
Those qualities come through no matter what the source material - be it CD, high-res of whatever flavour or DSD. Indeed Michael Tilson Thomas and the San Francisco Symphony's DSD recording of 'Mahler's No 1' sounded better than I'd ever heard it before. Not only did the Chord deliver the crescendos with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



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

SME

MODEL 15



Experience a New Dimension in Sound

The Model 15 could be described as "the ultimate in recovery vehicles", allowing the cartridge to retrieve the last nth of recorded material whether digital or analogue, from the vinyl disc and thus approaches the ultimate in perfection.

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

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

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

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

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

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

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

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

CONCLUSION

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

MEASURED PERFORMANCE

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

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

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

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

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

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

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

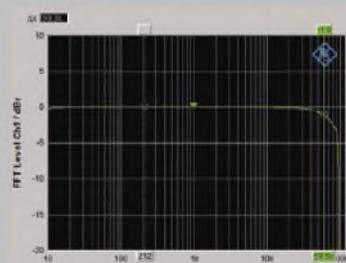
Frequency response measured flat to 55kHz (-1dB) with a 192kHz sample rate signal, our analysis shows, filter out. With the filter in output starts to fall above 22kHz, again with a 192kHz sample rate signal. So the filter will barely be audible in effect, serving to reduce supersonics and likely improve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

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

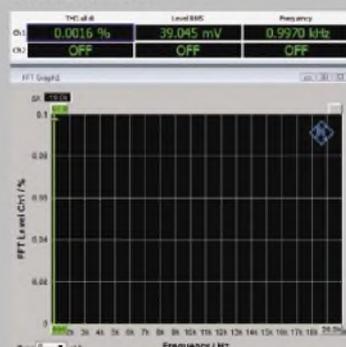
The USB input worked up to 768kHz sample rate with Mac's El Capitan operating system (OSX-10.11.3) and dynamic range via USB was also 129dB, so Dave is not noisy through USB.

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

FREQUENCY RESPONSE



DISTORTION



CHORD DAVE
£7950

OUTSTANDING - amongst the best

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

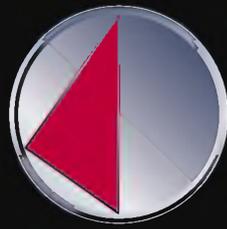
FOR

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

AGAINST:

- controls take a little getting used to

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The Classic



August 2016



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Glorious App-ening

Martin Pipe sings the praises of Cambridge's potent CXN streamer

Last year, I clapped my ears on the Cambridge Stream Magic 6 v2 – a versatile digital source component that combined the roles of network streamer, Spotify client, DAC and Internet radio tuner. It has since been supplanted by the CXN, a similarly-priced unit that spearheads Cambridge's elegantly-styled CX series – claimed, in the firm's own words, to combine “effortless compatibility with your digital music with beautiful design”.

And although the common heritage of the two is evident – buttons ranged around the information screen, a USB port for ‘local’ media playback and a large multifunction knob – there are some obvious physical differences between

the Stream Magic 6 v2 and the CXN. Gone is the button that gives you control over the digital filtering; with the CXN you're stuck with the characteristic that Cambridge's engineering team plumped for.

Offset against this omission is a major revision of the front panel screen. It's in full colour and will display radio station logos, album artwork and so on.

In terms of basic functionality, little has changed; no bad thing! In addition to Internet radio, you get the ability to stream (and, via USB, play locally) a wide range of audio files ranging from MP3 to 192/24-bit FLAC and convert external digital sources to analogue. One of these could be Cambridge's matching CXC, a CD transport with no analogue

capability.

The only significant additions are compatibility with AirPlay – something that should please Apple devotees – and streaming DSD64 compatibility. The latter, added via a firmware update during the review period, addresses a concern of some would-be buyers. Its inclusion is interesting, considering that the DACs employed – as in the Stream Magic 6 v2, each stereo channel is served by a Wolfson WWM8740 operating in dual-differential mode – only accept PCM data and cannot, unlike some other chips, operate natively in DSP mode. In other words, conversion between DSD and PCM has to take place inside the CXN.

This is fulfilled within the CXN's Analog Devices Sharc 32-



bit DSP chip – using code written by the Cambridge team. Other features they worked on during the CXN development stage included Cambridge's proprietary ATF2 upsampling technology and the Zander audio streaming module. We should not forget the volume control, which is active when the unit's 'digital preamp' feature is engaged. This implemented digitally, and although there's theoretical loss of resolution at low levels it worked very well in my experiences are anything to go by.

I tried turning it down, compensating for the change in level by adjusting my amplifier's volume control and I got none of the expected 'roughness'. But then again, the work is being done at a resolution of at least 24 bits. Owners of power amps and active speakers can couple the CXN with confidence. Another advantage of digital control is its freedom from future 'pot crackle'.

The CXN is easy enough to use, after getting over an initial misconception that its screen was a 'touch' variant! It's easy to assign specific radio stations as 'presets', but it's a shame you can't do the same with networked folders. There are only

eight presets, which can be accessed directly via buttons on the remote.

Also worth mentioning is the excellent 'Connect' app, which is a much speedier proposition than the front panel when it comes to selecting new radio stations or networked music for playback. For the latter, you're given a folder view. Swiping through them to find what you're after – tracks can, out of interest, be added to a playback 'queue' – is a doddle! Given that the app makes the front panel redundant, I can't help wondering if Cambridge could make a cheaper 'black box' version.

In connectivity terms, the CXN is similar to the Stream Magic 6 v2. You get optical and coaxial digital inputs, plus an asynchronous Type B USB port (with 'ground lift' facility, which may be useful in the event of an audible hum). This will enable the CXN to be used as a USB Audio 'Class 2' computer DAC with support for DSD64 and PCM all the



Cambridge also takes pride in the internal layouts of its products. The CXN's analogue electronics – note the two Wolfson DAC chips, high-quality capacitors and muting relays – is at the opposite end of the enclosure to the switch-mode power supply. The green sub-board is the Zander streaming module.

way to 24/192. To take full advantage of the USB interface, you may need to change (via a menu) from the default 'lowest common denominator' driverless 'Class 1' mode. Windows drivers for Class 2 mode are available from the Cambridge website.

There are also rear (and front) panel USB ports for playing local media and a third port for a Wi-Fi dongle that provides an alternative to wired Ethernet. The supplied unit is 2.4GHz but I hope that Cambridge introduces a model for the less-

held on smartphones.

But then Cambridge offers a superior solution. Use the Connect app (which, by the way, is also compatible with the Stream Magic 6 v2) and you can 'push' music to the CXN app via a Wi-fi connection. Simply select the relevant folder on your device, and click on the tracks you want. The files are streamed 'as-is', and so there's no needless music-mangling.

OK, that's how you can get music into the player. In terms of

"The CXN is incredibly versatile. It was able to play every track I threw at it and convey their sound quality accurately"

crowded 5GHz band. On the subject of wireless connectivity, I should point out that Bluetooth is a £100 option. This 'BT100' device plugs into one of the USB ports.

The reliance on extra hardware is unexpected, considering that lesser units provide this feature as 'standard'. (Re)compressing your music so it can be squeezed down a Bluetooth link isn't good news for sound but it works well in practice, and countless music collections are

outputs, you get balanced XLRs and unbalanced phonos for analogue – optical and coaxial outputs are provided too. No headphone socket, though.

SOUND QUALITY

For most of the listening, I coupled the CXN to a Benchmark DAC2 HGC DAC/preamp/headphone amp (via analogue), AHB2 power amp and SMSI speakers. The first thing I tried was radio. Radio 4, that only gets a

128kbps MP3 stream, demonstrated a neutral tonal balance. The speech programmes that constitute the bulk of its output are presented naturally with no untoward sibilance or throatiness.

Furthermore the only artifacting, glitches and hiss that posed an audible problem were from the BBC's own outside-broadcast links!

6 Music, also carried at 128kbps MP3, performed better than expected with a surprisingly-convincing musicality – especially with the live session recordings that the broadcaster does so well. Compared to album tracks, though, I noted an increase in congestion. Hardly unexpected – and not the CXN's fault.

That it makes these low-bitrate services so listenable is itself a remarkable accomplishment! The CXN's streaming potential is perhaps better realised via Radio 3's 320kbps stream – which is available here. Again, you get an engaging and full-bodied performance.

Then there's the atmosphere. The ambient drone of A Winged Victory for the Sullen's eponymous album fared particularly well here; you're enveloped within the music. Piano attack and decay convince, and on occasions I could pick out individual contributions within the strings.

Still on the subject of strings, I derived much pleasure indulging



The neat rear panel of the CXN, with all connections arranged into logical groups. Cambridge's painstaking attention to detail extends to the 'upside-down' labelling – which appears the correct way up when you're peering down with a bunch of cables to connect!

myself in parts of ELO's back catalogue – in particular 'Out of the Blue' and 'Discovery'.

Take, for example, the former's 'Concerto for a Rainy Day', which culminates in the instantly-recognisable 'Mr. Blue Sky'. There was a tremendously 'big' sound and a wide variety of musical textures on offer here; the CXN meets their challenge. Subtler details were evident too, yet there was no hint of confusion when it all cranks up. Basslines were tight and well-defined, and rhythms impeccably-timed.

Hardly surprisingly, large-scale orchestral works also fared well with the CXN.

I then switched to something

completely-different – a DSD of Keith Greeninger and Dayan Kai's minimalist 'Looking For A Home'. Every string-scraps, vocal breath and dobro twang of this stunningly-beautiful track was there to be heard.

CONCLUSION

The CXN is an incredibly versatile piece of equipment. It was able to play every track I threw at it - AAC, MP3, FLAC, WMA, WAV, DSD and convey their sound quality accurately. It is also supremely user-friendly, courtesy of the Connect app and colour front-panel display. The digital preamp mode, Spotify functionality and Internet radio tuner are merely the icing on a delicious cake.

MEASURED PERFORMANCE

Both the electrical and optical S/PDIF digital inputs of the CXN accepted up to 192kHz sample rate. Since many optical inputs manage 96kHz maximum, this is a good result, enabling the CXN to reproduce 192kHz digital from the optical output of Astell&Kern portable players for example, where others fall silent.

Dynamic range measured a high-ish 115dB from 24bit, and a respectable 103dB from 16bit (CD) digital inputs.

Dynamic range values were identical through both balanced XLR and unbalanced phono socket outputs, another plus point. However, 120dB is being achieved with 24bit nowadays by many DACs, so the Cambridge is behind the best in this important parameter.

Distortion was low at 0.04% from 24bit and 0.2% from CD, both excellent results.

Output from the XLR measured 4.2V and phono 2.1V, both normal figures.

The USB B socket input for computer connection worked to 96kHz sample

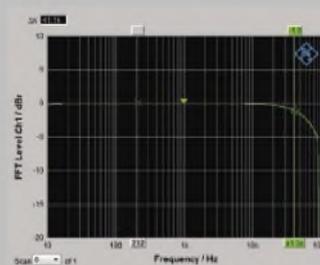
rate maximum, an unusual limitation since many USBs accept up to 384kHz. Yet from a USB key (memory stick) mass storage device the CXN read up to 192kHz sample rate. Both USB inputs gave 115dB Dynamic Range, like S/PDIF; there was no degradation here as sometimes occurs.

The upper frequency response limit was 41kHz our analysis shows, with 192kHz sample rate digital, with a slow roll off to the 96kHz analogue limit.

The CXN measured well all round. It isn't class leading in its figures but it is consistent in terms of dynamic range. NK

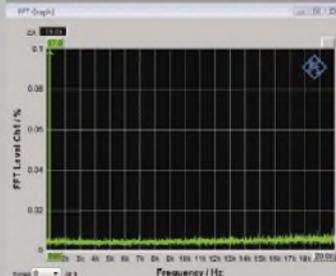
Frequency response (-1dB)	4Hz-41kHz
Distortion (%)	
0dB	0.008
-60dB	0.04
Separation (1kHz)	96dB
Noise (IEC A)	-114dB
Dynamic range	115dB
Output (phono/XLR)	2.1 / 4.2V

FREQUENCY RESPONSE



DISTORTION

THD @ 10%	Level @ 10%	Frequency
0.0380 %	4.1888 mV	997.00 Hz
OFF	OFF	OFF



CAMBRIDGE CXN STREAMER/DAC, £700



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

One of the best streamers I've yet come across. I'll be sorry to see it go...

FOR

- punchy, dynamic and focused
- wonderfully versatile
- good-looking and easy to use

AGAINST

- no Bluetooth
- no 5GHz Wi-fi support

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Ken Kessler, Hi-Fi News (April 2016)

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Step Ahead

Timestep have introduced an upgrade for Technics' new SL-1200GAE Direct Drive turntable, moving it ahead in crucial ways. Noel Keywood goes for a spin.

Anyone with an interest in spinning LPs will surely have seen – and likely considered buying – a Technics SL-1210 Mk2 Direct Drive turntable.

Released in 1972, it has become recognised around the world for its attractive appearance, ease of use and reliably stable speed – oh, and low price. Yet recently Technics ceased production, replacing it with a new design, the SL-1200GAE, a single pre-production sample of which has been available in the UK for review.

What we've been waiting for, however, was a UK upgraded hi-fi version of a production model, the

Timestep EVOke SL-1200GAE you see here, with SME IV pickup arm and off-board linear power supply. The price is £5764 complete with Audio Technica AT33PTG/II moving coil cartridge.

Like its predecessor, the new SL-1200GAE turntable from Technics comes with their own pickup arm. It's a fairly standard design with magnesium alloy tube and removable headshell on the initial limited edition GAE (1000 only and most have been sold) and alloy tube on the succeeding SL-1200G. Surprisingly, even though the new turntable is aimed at the hi-fi market, not DJs as before, the arm is not easily

removable; Technics still see this model as a package. If you want the whizzy new DD turntable you have to accept its somewhat prosaic arm.

This seems a little odd perhaps, but Technics will almost certainly offer a more expensive, up-market 'studio' version without arm in future. In the meantime they know this famous turntable offers them a way back into the high-end audio market at its surprising new frontier: vinyl replay. You buy an SL-1200GAE, or the succeeding SL-1200G the thinking goes – because there are no rivals – and you buy Technics hi-fi to go with it. It acts as a brand magnet in effect.



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For full specifications and to find your nearest Naim retailer visit naimaudio.com.



Go Deeper





Audio Technica's AT33PTG/II moving coil cartridge mounted in the SME IV arm, embellished by gold attachment screws and finger lift. Note also the strengthening web that makes SME's headshell so resistant to vibration.

Interestingly, Technics currently don't discourage after-market modification and co-operated with Timestep (Sound Hi-Fi) over this upgraded version. Likely they're aware that Timestep have developed a power supply unit that runs the

carries machined-in markings, just like my Garrard 401 – don't you just love it! This is the bit that adds visual allure and intrigue – just what is going on? Turntables catch the eye with their mechanical complexity, in a way CD players never could.

"It kicked in with rifle bolt speed, making me jump a little. I could sense straight away that nothing was going to slow this turntable"

SL-1210 Mk2 motor anywhere from 16rpm to 80rpm, specifically for archival purposes, and is used in US libraries and universities to transcribe old recordings. It employs a quartz-locked frequency reference, with divide down conversion, as used in modern radios, to provide 1rpm speed increments. This has served to get the SL-1210 Mk2 into places it might not otherwise have reached, operated by people who are influential. In Japan – ever sensitive to the US market – this rings bells.

However, although the new SL-1200GAE looks similar to the now deceased SL-1210 Mk2, the motor is a new design because Direct Drive motor technology has come a long way since the 1970s.

Although the motor and platter have been improved, Technics have wisely changed little in basic layout. You still get a lovely big Start button – and the platter races up to speed in an instant. There are 33 and 45 rpm speed select push buttons too, so speed change is simple and immediate. A blue stroboscope illuminates the edge of a platter that

Mk2 could not. The new motor is a concealed brute. Which bodes well for sound quality because torque, as well as platter weight and inertia, help keep the sound stable.

There's still the ability to vary speed with a slide control at right on the plinth. When the slider is set to 0 in a detent at the centre of its travel, it triggers phase lock against the quartz reference confirmed by illumination of a green LED, to ensure perfectly accurate 33 or 45rpm.

Move it up or down and you get +/-8% speed variation, doubled by pressing a (new) x2 button.

Doing it this way doubles resolution, allowing precise speed to be set. Mechanical devices that are well honed, like the SL-1210 Mk2 and new SL-1200GAE, are so deliciously responsive and unchallenging, but correct. No chance of a screen warning you about an "illegal command" here: you get the doggies without the dodgy.

Press both buttons and you get 78rpm that is adjustable up to 90rpm needed for old 78 shellac records – something collectors will appreciate.

A rotary On/Off switch sits atop the stroboscope pillar at left, and switching on triggers the blue strobe light that shines on the platter's edge. There's a hinged dust cover too, that can be lifted off easily if preferred.

All this is built into an updated plinth that has been made heavier and less resonant. Plinth dimensions are 453mm wide, 170mm high with dust cover on but closed, and 372mm deep. Weight is now a substantial 18kgs due to the updated plinth construction comprising 10mm thick



This view shows clearly how the SME IV magnesium arm tube tapers up to a large diameter at the rear bearing assembly for maximum strength and rigidity.



At the right side lies a turntable speed adjustment slide-control. At centre it provides correct speed, held steady by phase lock against a quartz crystal reference. Total adjustment range is +/-8%, or double that by pressing the oblong x2 button. The SME IV arm is a gorgeous visual match for the Technics.

aluminium top panel with brushed finish, a die-cast aluminium motor frame assembly, Bulk Moulding Compound internal chassis parts and heavy rubber outer plinth. The dust cover hinges upward and space is needed above the turntable to accommodate this, as always, or it can be removed.

The SME IV arm of the Timestep EVOke is a simplified version of the top SMEV, with suitable matching silver finish – and ours came with a touch of gold in its finger lift and cartridge attachment screws. It's price when bought alone is around £1800. This is a one piece arm with a super-rigid tapered magnesium arm tube, stable gimbal bearings of superb quality, a lift/lower platform that is smooth in action and easy downforce adjustment. The SME IV is more than capable of complementing the finest pickup cartridges and with the AT33PTG/II fitted was entirely free of arm tube resonance, our measurements revealed.

The Audio Technica AT33PTG/II is a popular moving coil in Japan – and it is hardly surprising. Inexpensive at £420 or so, it has a tapered boron cantilever fitted with a Microlinear stylus at one end and twin PCOCC copper signal coils at the other. The body carries a powerful Neodymium magnet. As you can see, the gold lettering was complemented by a gold finger lift and attachment screws on our sample – a very nice touch.

TIMESTEP POWER SUPPLY

Feeding the motor and on-board electronic circuits is a switch-mode power supply, necessary because there's limited space in the chassis

and switch-modes can be made small, and also because they accept 110V-240V at 50Hz or 60Hz, so work anywhere. However, they radiate radio-frequency rubbish and the SL-1200GAE unit is unscreened, as our pictures show. Ouch.

So it has been removed by Timestep, to avoid possible interference into a sensitive pickup cartridge (Grados, for example, have no screening) and lessen noise. Instead, power now comes from an external Timestep linear supply that does not by its nature produce radio rubbish. It is housed in a solid and attractive metal case with power switch, matching blue LED and measures 175mm wide, 240mm deep and 65mm high. There's a Furutech gold plated IEC 3 pin mains input

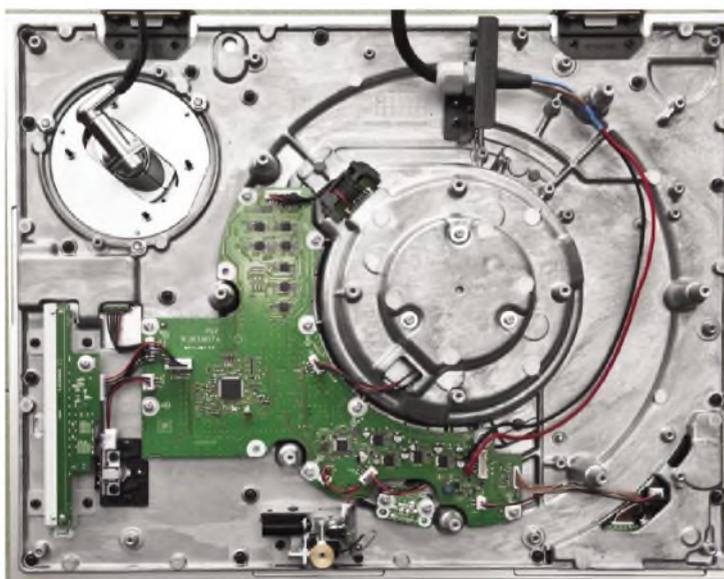
and a gold plated XLR power output socket. The turntable has a fixed power lead, 1.5m long, terminated in a matching gold plated XLR plug that pushes in and locks.

SOUND QUALITY

I spent a day with the Timestep EVOke SL-1200GAE directly after reviewing the McIntosh MT5-6 belt drive turntable, in last month's issue – and they were a fascinating contrast. I mention this because it seems an appropriate way to get the Technics into context, subjectively. Technologically, the Technics uses advanced Direct Drive motor technology that measures better than any belt drive. And I could hear it: this turntable had precision timing that made synthesiser beats in particular metronomically accurate. The MT5 was well timed, but it was not as clinically concise. Whether it would matter to you I do not know. Belt drives are commonly vague in tempo, something you only realise after encountering a Direct Drive. You can hear Direct Drive in this sense: events stream forth from the loudspeakers in rigid order.

But as many people would want to exclaim at this point, there's more that affects sound quality of a turntable than just the motor and speed stability. Structure, including structural materials, also come into it.

The Technics had a lighter patina to its sound than the McIntosh. Their differing mechanical structures play some part in this, especially the large, heavy acrylic platter used by McIntosh, that contrasts with



An underside view showing the upgraded unit with power supply removed and SME arm installed. The base plate is a rigid alloy casting, where its predecessor was a sheet steel stamping.

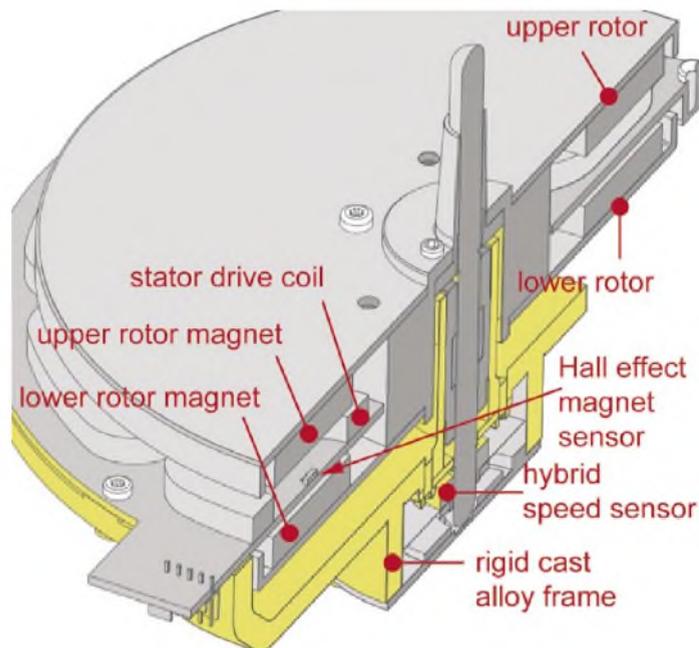
the metal platter used by Technics, of die cast aluminium with a brass insert. Since I can hear my heavy Garrard platter – it is responsible for that slightly hard, grey tinge to the midband that characterises the 401 – it comes as no surprise to me that Technics all-metal platter has subliminal influence in spite of underside damping and rubber platter mat.

Imagine then a brighter hue to the sound – airier one could say – from the Technics, accompanied by an unmatched sense of precision timing. As the Technics is £5764 as a package and the MT5 £7495 they make an interesting comparison. I'm not attempting a comparative review here, so much as trying to convey to you how the Technics sounds in outline, in basic sonic form as it were, against others.

Writing about its sonic signature before setting out system and circumstance has been provoked by the disconcerting way high-end turntables affect LP sound quality; they shouldn't have a 'sound' but they do. Circumstance was our revealing system of Quad QMP monoblock amplifiers driving Martin Logan Renaissance loudspeakers. An Icon Audio PS3 valve phono stage with volume control was used to drive the Quads direct.

The Timestep EVOke SL-1200GAE comes with an Audio Technica AT33PTG/II moving coil cartridge (£420) that has a refined sound, there's no doubt about that. Additionally, I used our Ortofon Cadenza Bronze (£1300) moving coil in its SME IV arm to check that its greater sense of body and stage depth, underpinned by deeper and fuller bass, would be resolved. It's a cartridge I use regularly and know well, allowing me to separate the sound of the turntable from the sound of the cartridge. An SME IV arm can take any cartridge and do it justice; I could have used our Ortofon A-95 (£3000) for example, but Dave Cawley of Sound Hi-Fi wanted the set seen as a value package, rather than a top flight turntable it has the potential to be with a more ambitious cartridge fitted.

I started listening with a suitably named track: Time. This old fave from the Floyd announced itself by the sudden entrance of the alarm clock, centre stage. It kicked in with rifle bolt speed, making me jump a little. I could sense straight away that nothing was going to slow this



The new Direct Drive motor is large and built onto a sturdy cast alloy frame (yellow). It has two rotors, where the outgoing SL-1210 Mk2 had just one. This greatly increases motor torque. Technics say rotational inertia is double that of the SL-1210.

turntable: the clock announced itself with sharp immediacy. With the deep heartbeat pounding rhythmically, the metronome jumped into the soundscape – and it had rubidium accuracy, it seemed to me (we had been talking about rubidium clocks in turntable measurement!). There was a perfectly controlled event sequence here, each instrument being kept in a

with a great sense of drive and force. It was exciting stuff, perfectly controlled – and again I got the feeling of unstopability from the Technics: it crashed its way through these musical events, hurling them from the loudspeakers.

With gentler material, such as Marianne Thorsen playing Mozart piano concertos, backed by the



Timestep's external linear power supply, with its single front LED of blue that matches the turntable's strobe lights.

rigid time grip.

Pressing the 45rpm button, I span Billy Ocean's 12in single, Get Outta My Dreams, Get Into My Car – and was met by a torrent of quick fire sounds of a car starting, door slamming etc that form an entrance to this amusing ditty. The introductory synth line built with power, launching the song suddenly,

Trondheim Soloists, a DXD recording cut onto 180gm vinyl, the impressively fine and deep resolution of the AT33PTG/II stylus made itself known in the reproduction of her violin: it came over as smooth and all of a piece, the bow upon strings sounding luscious in nature, neither a screech, nor a simulacrum.

It was with Amy Winehouse,



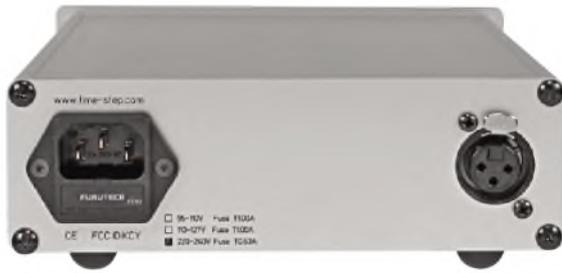
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The rear of the power supply supports a gold-plated Furutech IEC mains input socket (left) and gold-plated XLR power output socket.

Tears Dry On Their Own (12in 45rpm single), and Mark Knopfler's True Love Will Never Fade, on Kill To Get Crimson, that I made a move to the Cadenza Bronze to increase stage depth and get a greater sense of body to the midband, and presence to bass, albeit with less obvious treble. The Timestep EVOke

with SME IV handled this change perfectly, being well able to resolve a move upward in cartridge quality (and cost!).

CONCLUSION

A turntable of the extraordinary complexity of the new Technics SL-1200GAE demands more than

the arm Technics choose to fit. By giving it a top quality tapered magnesium SME IV arm instead, and by eliminating the on-board switch mode power supply, Timestep have come up with a magnificent package in the Timestep EVOke SL-1200GAE. It's a top flight turntable that anyone can use – and it looks and feels superb. There's nothing like it.

TIMESTEP EVOKE SL-1200GAE PARTS COST

Technics SL-1200GAE turntable	£2,700
SME IV tonearm	£1,860
Tonearm mounting plate for 9" SME arm	£90
Audio Technica AT33PTG/II MC cartridge	£419
Timestep PSU	£495

Total cost of fully finished turntable package (as above, plus £200 fitting cost) £5,764

MEASURED PERFORMANCE

Measuring a tuned Direct Drive turntable like this, with SME arm and smoothed linear external power supply, raises issues of the measurement system that can't be ignored, if a meaningful result is to be achieved. Most speed stability test records aren't as speed stable as such a turntable, since they are cut on a record lathe that itself will suffer speed variation; such test records have limitations.

In practice that turns out to be most of them. Of them all (which we have) the DIN 45 545 test disc is the best by far – and up to the job, if not perfect. To get a meaningful result this disc had to be perfectly centred to less than 0.1mm of eccentricity, measured by tracking a locked outer groove and looking for cartridge swing against a reference.

The disc also had to be placed at different angular positions to ensure test disc wow at basic rotational frequency (0.55Hz) was not adding to, or subtracting from turntable wow, to give a false high or low reading.

Basic speed was shown as 3154Hz from a nominally 3150Hz tone – a negligible error. Speed was held almost perfectly, the reading varying by 1Hz or so, where belt drives typically wander by +/-5Hz or so over a short period of seconds. Because the Technics is quartz locked against a reference it held this value over time. So the SL-1200GAE was near perfect in terms of speed accuracy, both immediately and over an infinitely long time period. This is where quartz locked Direct Drive consummately outperforms all other turntable drive systems.

So much for basic speed accuracy and drift from it. Wow is regular, cyclic change of speed at a higher rate, from 0.1Hz to 10Hz. Most common at 33rpm is basic rate wow at 0.55Hz, due mostly to bearing eccentricity. The SL-1200GAE has negligible amounts of this, our spectrum analysis of the demodulated 3150Hz tone from a wow and flutter meter shows. The peak at 0.55Hz reaches 0.022% – an astonishingly low value, well below audibility (circa 0.2%). So the SL-1200GAE is rock steady in terms of wow – and better than all else.

There are some 'cogging' components at 6.6Hz, exactly the same problem that crops up in the SL-1210 Mk2, because they both use a 12 pole motor. However, to keep this in perspective level is very low at 0.022% – again inaudible.

When wow and flutter are summed and weighted for subjective audibility the total is, using the Japanese JIS standard, 0.04%. This is around half that of the best alternatives, meaning well engineered belt drives.

To summarise, the Timestep EVOke SL-1200GAE delivered a measured performance unrivalled by most else in terms of speed stability.

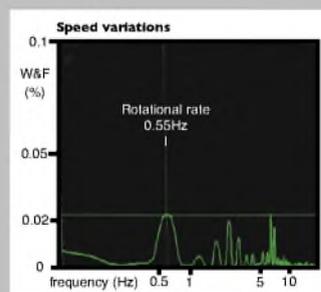
We also measured the SME IV arm with Audio Technica AT33PTG/II cartridge for inter-related structural resonances, using a Bruel&Kjaer accelerometer attached to the headshell. This reads vibrations in the headshell, caused by music frequencies. Our analysis shown here reveals an almost totally quiet system, free of basic tube bending

modes. Much of this is due to the SME's rigid and physically asymmetric webbed headshell, its inside edge strengthening web being especially effective, as well as its enormously strong tapered magnesium arm tube.

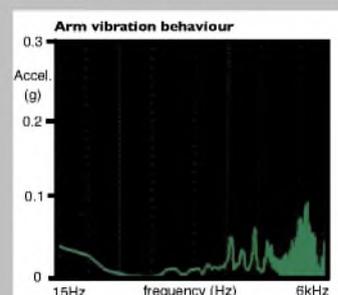
The Timestep EVOke SL-1200GAE, with SME IV arm and Audio Technica AT33PTG/II MC cartridge come together to form a unique turntable package under measurement. Few get close. **NK**

Speed error	0%
Wow	0.04%
Flutter	0.025%
Total (wtd)	0.04%

WOW & FLUTTER



ARM VIBRATION



TIMESTEP EVOke SL-1200GAE TURNTABLE



OUTSTANDING - amongst the best.

VERDICT

A turntable of fabulous performance in all areas, and also one that looks magnificent and is easy to use. It couldn't be better.

FOR

- sound quality
- adjustable speed
- 78rpm

AGAINST

- very heavy
- all manual
- 78rpm cartridge fitment

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Prophetic Sound

It stands as Transfiguration's top-of-the-range cartridge. Paul Rigby reviews the moving coil marvel that is the Proteus.

Proteus was a man of myth, the son of a sea god who could assume different forms and had prophetic abilities. I wanted to see if Transfiguration's prophecy of top quality sound from this Proteus cartridge would match the myth.

Featuring a dual-ring magnet assembly (both neodymium), the cartridge offers a very low internal impedance of just 1 Ohm. The idea is that, the lower the internal impedance (which is also helped by reducing the coil windings, all made from pure silver, incidentally), the less phase shift, so improving transients. That's the theory, anyway. This cartridge offers a low mass too which should aid the speed and response in mechanical terms.

The chassis is a non-resonant type with a new dampening

material that promised greater clarity. Hanging from it is a 0.3mm diameter solid boron diamond-tipped cantilever with a recommended tracking force of 2g while the cartridge itself weighs in at 7.8g, which is a pretty normal figure, so no arm balancing problems.

Installation was both tricky (the overhang measurement was complicated by the cantilever being positioned well under the body) but also advantageous because unlike, say, a Glider with its protruding cantilever, you won't be flicking off the Proteus' tip accidentally any time soon. I also liked the sturdy stylus guard, useful for initial fitting, and the screw-threaded mounting holes.

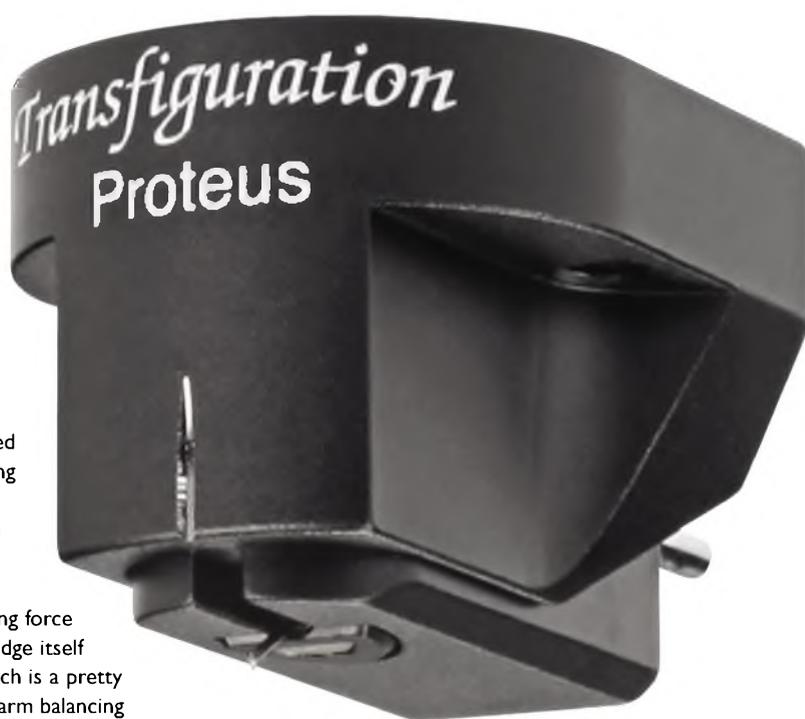
SOUND QUALITY

I began with Neil Young's well pressed 1990 LP 'Ragged Glory' where he is, once more, in cahoots with his favourite backing band, Crazy Horse – and the first track 'Country Home', with Young on lead guitar and generally hopeful lyrics. I chose this LP

because Young spends his time playing a rather 'dirty' guitar while his vocal sometimes drags and slurs, purposefully removing much of the potential precision from his delivery.

As the guitar-dominated parts of the song progressed, the soundstage is drenched in feedback, reverb and other noise which can mask other, more delicate instruments, as well as challenge the tracking abilities of any cartridge, but the Proteus handled this difficult track with ease largely because, I suspect, it has very secure tracking ability. It teased apart Young's lazy and potentially blurring ructions and allowed my ear to easily locate the delicate treble-infused cymbal taps, as well as retrieve complex harmonic backing vocals. This produced an incisive and rather brisk upper frequency content – quite a feat on this track.

Next? I wanted to utilise a Frank Sinatra LP to achieve the ultimate pairing: the most 'honest' of cartridges with the most 'emotionally revealing' and 'public' of singers. I happened upon 'London By Night: And Other Famous Standards'



The cartridge uses a 0.3mm diameter solid boron diamond-tipped cantilever.

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harsh ingredient had to be countered by lowering the gain at times.

Nevertheless, the music content conveyed by the Proteus itself remained fascinating, inventive and incisive in terms of how the detail from a complex conglomeration of instruments was portrayed.

Even simple

sounds such as percussive rim shots were both sharp and brisk, managing to remain informative and tonally correct while the guitar strumming on the track 'Sauna' caught each string in turn, adding a rich textural quality to the instrument.

CONCLUSION

If you want a scrupulous, reliable, incorruptible and downright trustworthy account of the music emanating from your vinyl's grooves then this cartridge will give it to you

The chassis uses a non-resonant material and has tapped screw holes.

which, incidentally, appears to be one of the rarer Sinatra LPs out there, one of the few excellent 'T' compilations from England and Australia. To really 'get' Sinatra, you need to closely follow this legendary vocalist's delivery if you want to hear his message in full. This is what the Proteus did, over and over again. On 'Jeepers Creepers', the popular 1938 Harry Warren/Johnny Mercer song, Sinatra sang the ditty with his mouth agape it seemed to me. He really was surprised when he exclaimed, "Where d'ya get those eyes?". The Proteus delivered Sinatra in a startled yet delighted fashion.

Meanwhile, the trumpets and saxophones were allowed to disengage from the vocal, there was enough instrumental separation, air and space to give the impression that the brass was openly arranged around Sinatra. The overall effect was entertaining.

Finally, on Ennio Morricone's orchestral arrangement for 'Metti, uni Sera a Cena' a female 'scat' vocal gently flows over the orchestra. I found it interesting that I could track the exhalation of breath of the singer up to the point where I was thinking, 'Uh oh, she'll need to take a breath in a second, she's pushing that single note too far.' That is, the slight element of vocal tension in this situation was easily conveyed by the Proteus and this gave me further insight into the performance.

That said, the pressing I was spinning, while reasonable, was not the very best and this resulted in some unpleasant groove distortion that it seems was caused by this cartridge's treble lift. This rather

straight. No messing.

You need to provide the best possible ancillaries to support it, though. My Icon Audio PS3 Mk.II proved to be a little noisy with such a low output cartridge, for example, because I could detect a little hum at the higher volume setting I was forced to use.

And you may have to make some choices about vinyl pressing quality to avoid the cartridge's treble lift being either obvious or obstructive to balanced reproduction. Nevertheless, suitably fettled and managed, the Transfiguration Proteus is likely to add to your musical enjoyment, making music fascinating once more.

SYSTEM USED

- Origin Live Sovereign turntable
- Origin Live Enterprise 12" arm
- Miyajima Takumi
- Transfiguration Phoenix
- Icon Audio PS3 phonostage
- Aesthetix Calypso pre-amp
- Icon Audio MB 845 Mk.II monoblocks
- Quad ESL-57 speakers with One Thing mods
- Vertex AQ & Atlas cabling

MEASURED PERFORMANCE

The Transfiguration Proteus has very low output of 0.21mV at 3.54cms/sec rms, so it must be used with a high gain (65dB +), very low noise MC phono stage. The benefit is very good tracking; few coil turns result in low effective tip mass. And sure enough the Proteus walked through an ultra-high level midband (1kHz) test track on B&K QR2010 test disc that few cartridges are able to traverse; some even fly out of the groove. So it has exceptional tracking ability, at the recommended downforce of 2gms.

Tip mass resonance goes untamed in this cartridge, unlike most modern MCs, and as a result treble rises by +8dB above 15kHz our response analysis with JVC TRS-1007 test disc shows. This is significant, adding sharpness to treble and giving the Proteus a "fast" sound. Inner groove tracing loss is low (red trace), due to efficient stylus profile geometry so +5dB lift exists even on inner grooves. With poor quality discs this will emphasise distortion and add coarseness; treble lift on inner grooves isn't a good idea.

Channel balance was good and separation values balanced, Shure TTR-109 test disc showed, meaning

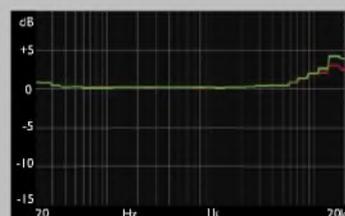
generator alignment is correct.

Lateral distortion was low but a high measured vertical tracking angle (DIN 45542 test disc) of 30 degrees resulted in 6% distortion on vertical modulation (CBS STR-112, 45µm) where 2% or so is possible.

The Proteus is a very low output MC with excellent tracking but a bright sound balance. It measures reasonably well, but more accurate MCs are available. **NK**

Tracking force	2gms
Weight	7.8gms
Vertical tracking angle	30 degrees
Frequency response	20Hz - 12kHz
Channel separation	24dB
Tracking ability (300Hz)	
lateral	90µm
vertical	45µm
lateral (1kHz)	25cms/sec.
Output (5cms/sec rms)	0.3mV

FREQUENCY RESPONSE



TRANSFIGURATION PROTEUS £3295



OUTSTANDING - amongst the best.

VERDICT

Offering excellent tracking abilities, this cartridge is both perceptive and sensitive to even the most delicate nuances of vinyl.

FOR

- midrange honesty
- incisive detail
- dynamics
- effective with all music genres

AGAINST

- accentuated treble

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Box Clever

Naim's new Mu-so Qb takes the one-box wireless streaming loudspeaker concept to a new level, says Jon Myles.



The way people listen to music is changing rapidly – and manufacturers are having to adapt. For evidence, look no further than Naim. This was, remember, the company that held out longer than most before embracing the CD revolution. Yet it was one of the first to produce true hi-fi streaming products

with its ground-breaking Uniti range.

Now it has enthusiastically entered the one-box wireless 'speaker market. First came the Mu-so – a handsome standalone product that packs six drivers, 450 Watts of amplification, network connection, Bluetooth, native Tidal and Spotify compatibility, Bluetooth, internet radio, Apple AirPlay and digital

connections (up to 24bit/192kHz) into a single chassis. It looks like no other Naim product that has gone before but more importantly is both a joy to use and listen to.

Now the design and engineering team in Salisbury have taken the same concept and features but built them into a more compact package in the shape of the Mu-so Qb.



The top-mounted touch-sensitive dial controls volume, inputs and radio pre-sets.

Thinking of this as a Mu-so-lite, though, would be missing the point. Yes, it's smaller and less expensive (£595) but it's been engineered from the ground up to provide that traditional Naim sound in a form factor that suits some of our more bijou living spaces but also allows you to listen to your music from the



Five active front-firing speakers are angled to provide wide sound dispersion. They are augmented by two passive bass radiators.

same range of inputs as the original Mu-so.

So, as the name (sort of) suggests it's in the shape of a cube measuring 210mm x 218mm x 212mm (H/W/D) and weighing 5.6kg. Behind the wraparound grille are five active front-firing drivers – one woofer, two mid-range units and a pair of tweeters.

These are set into a sculpted and extremely rigid glass-filled polymer housing that angles the mids and tweeters to left and right for better sound dispersion. Lower frequencies are also augmented by a pair of passive bass radiators on each side.

Inside, individual Class D amplifiers power each of the active drivers (50 Watts apiece for the mid/tweeters and 100 Watts for the bass), controlled by Naim's in-house designed DSP signal-processing engine.

And talking of control, you'll need Naim's free app for mobiles or tablets (both iOS and Android supported) to set the unit up and take full advantage of its capabilities for selecting music from your network. This is a fine piece of software which guides you through all the various options available without too many confusing sub-menus. Once done, volume, source, radio

play/pause and forward/back when playing music.

For existing owners of Naim streaming products Mu-so Qbs can be added to their home network for multi-room music streaming.

As supplied the Qb comes with a standard black speaker grille but other colours will be made available soon for users that wish to match their unit with the home decor.

SOUND QUALITY

The Naim Mu-so Qb may have a small form factor but it also has a very potent sound.

Obviously, as a one-box unit, you don't get true stereo sound or that last iota of detail, but it trades that



The rear of the Mu-so Qb has an integral heatsink as well as containing all the inputs.

"it combines versatility, ease of use and great sound with superb design"

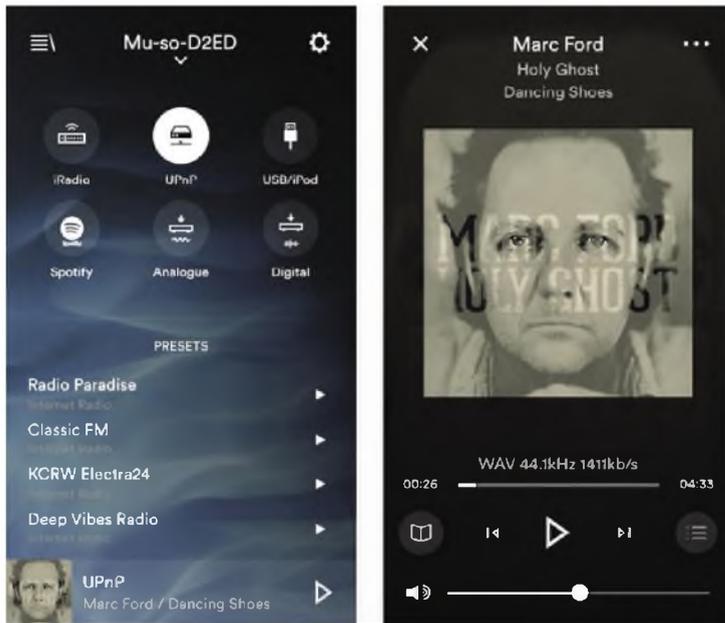
presets, play/pause, track forward/back can also be accessed from the unit's top-mounted illuminated dial.

This first appeared on Naim's flagship Statement pre/power combination before finding its way onto the Mu-so and, while not offering as many functions as the app, is so smooth and tactile that you can't help but keep using it to adjust volume. It's also touch sensitive to allow selection of inputs as well as

for a rather up-tempo, foot-tapping sound that is extremely enjoyable.

Overall it sounds smooth and fast. Listening to The Killers 'Smile Like You Mean It' (24/96) via wireless highlighted what it does well: there's an ability to latch onto the essentials in the music so although 'obvious' bass or ringing treble may seemingly be missing, the overall sound more than compensates with its smooth accuracy

Similarly, on 'Go Easy' from



Control of the Mu-so Qb is easy through Naim's free app for both iOS and Android mobiles and tablets. The app will let you select inputs, alter volume and display album artwork.

John Martyn's 'Bless The Weather' the gentle guitar strumming was portrayed with depth and realism - a strong sense of plectrum hitting strings. There was not the definition you'd get from a full-size system - but it was rather captivating all the same for something of the size.

Where the Qb impressed me was across the midband and higher frequencies – the way it integrates everything into a whole. For example on 'Where The Wild Roses Grow' from Nick Cave and The Bad Seeds' 'Murder Ballads' the interplay between Cave's gruff, menacing voice and Kylie Minogue's innocent replies wasn't just relayed mechanically – it had real frisson to it.

On the same album, when 'The Curse Of Millhaven' starts, the descending organ riff gave me a start – just as it should. After that the Qb let me hear just how well the drums, bass, guitar and occasional keyboard meld together to create the atmosphere of the track.

Shutting my eyes, it was hard to believe the sound was coming from a box the size of the Mu-so Qb. The only thing I wanted was a bit more bass power - but that's probably being a bit greedy considering how well-judged the rest of the sound is.

Switching to internet radio the Qb was even more impressive. With Radio 3's 339kpbs stream of Arthur Rubinstein playing Schubert's 'Opus 90/4' there was no lack of definition, or the sense of his deft

touch between left or right hand on the keyboard. The same went for voices on radio: they came over as natural and free of either chestiness or sibilance.

All this was using the Qb in a living room measuring 6.5m x 5.2m – which it managed with some ease without the volume control progressing past the halfway point.

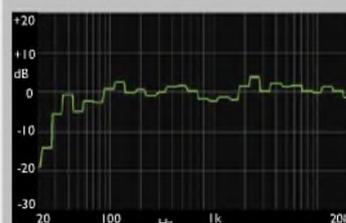


Inputs include USB, optical digital, ethernet as well as 3.5mm analogue line-in.

MEASURED PERFORMANCE

Our third-octave analysis of frequency response, using a pink noise test signal, shows the Mu-so Qb has been carefully engineered to give an impressively flat response, extending the full width of the audio band. The small tweeters

FREQUENCY RESPONSE



Having said that there are two small controls that help let you get the best out of the unit. The first is a loudness control which seems to be turned on by default – you need to go into the app settings menu to turn it off and I much preferred the sound this way.

Secondly, you can set the DSP for operation for more or less than 25cm from a rear wall. This is rather more subtle and is worth experimenting with but can be done on the fly from the app.

That might, though, take you a little time to get around to - because even without those tweaks the Mu-so Qb sounds rather captivating straight out of the box. As it stands I'm struggling to think of anything that comes close to it in terms of functionality and price at anywhere near the price. I'd recommend you take a listen.

CONCLUSION

Not so much a wireless 'speaker' – more a classy hi-fi system in a compact package for just £600. It combines versatility, ease of use and great sound with superb design. It also offers the cheapest and probably most convenient way into the Naim sound – and offers existing Naim streamer owners an alternative to the likes of Sonos in providing multi-room streaming in an easy package.

NAIM MU-SO QB
£595



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Sets the standard for one-box music systems at an affordable price. A real innovative product.

FOR

- design
- smooth yet punchy sound
- easy set-up
- intuitive control app

AGAINST

- nothing at the price

Naim
T: +44 (0) 1722 426 600
www.naimaudio.com

Special Quickstep

Jon Myles finds Black Rhodium's new Quickstep a potent loudspeaker cable.



Black Rhodium owner and chief designer Graham Nalty knows a thing or two about hi-fi cables. The brand has built a loyal following over the years and makes much of the fact that the majority of its cables are designed and built at its premises in Derby in the East Midlands.

So when Graham announced he'd come up with a new loudspeaker cable based upon the outstandingly clean-sounding top-of-the-range Thunder we were naturally interested. After all, a 3-metre terminated pair of Thunder cables will set you back almost £5000 while the new Black Rhodium Quickstep comes in at £400. However the two share some design elements.

The Quickstep is available in a range of colours – black is standard but blue, green, red, white and yellow are options – and comes equipped with the proprietary Graham Nalty Legacy Range GN-1 rhodium-plated straight line connectors which are sturdy and provide a firm fit.

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

telephones and even central heating systems.

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

SOUND QUALITY

Having listened to the range-topping Thunder cables a few months ago, I was impressed at how similar in presentation the Quicksteps are. They are not quite as crystal clear but they have the attribute of letting the music flow in an uninhibited nature without adding too much character of their own.

Used between a Creek Evolution 100A integrated amplifier and a pair of Martin Logan ElectroMotion ESL-X electrostatic loudspeakers they had excellent detail and an ability to let me hear what the components were doing.

Jacques Brel's voice on 'Ne Me Quitte Pas' from the Infiniment CD collection was especially well-defined. There was no sense of any smear or cloud to the vocals, but instead a

naturalness to the presentation. The catch in his voice when he starts the final verse also came out of an almost eerie silence, adding to the emotional impact.

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

Listening to guitar on Pierre Bensusan's 'Altiplanos', the leading edges of notes were picked out starkly while it was easy to hear where he had changed the tuning of his instrument on some tracks. Not all cables will give you such an insight. The only downside is that if you are looking for cables to tune a system these Black Rhodiums are probably not for you as they will not mask problems by accentuating bass or smoothing off treble response. They are a lot more honest than that – which is a good thing if you are happy with your source, amplifier and loudspeakers as they have the ability to bring the best out of them.

CONCLUSION

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

BLACK RHODIUM QUICKSTEP LOUDSPEAKER CABLE £400 3 METRE TERMINATED PAIR



**OUTSTANDING - amongst
the best.**

VERDICT

Open, engaging cables that allow you to hear exactly what your components are doing.

FOR

- crystal clear sound
- construction
- flexibility
- reduce smear

AGAINST

- won't flatter poor components

Black Rhodium
+44 (0) 1332 342233
www.blackrhodium.co.uk

Kennerton Class

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

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

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

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

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

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

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

SOUND QUALITY

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

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

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

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

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

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

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



KENNERTON MAGISTER £695



OUTSTANDING - amongst the best

VERDICT

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

FOR

- build
- musicality
- rhythmic ability

AGAINST

- big

Nu Nu Distribution
+44 (0)203 5442338
www.nunudistribution.co.uk

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

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

CONCLUSION

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



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3 Is The Magic Number

KEF has expanded its Reference loudspeaker range with the new Number 3 floorstander. Jon Myles listens in and decides it is an outstanding performer.

KEF is amongst the most iconic names of the UK hi-fi loudspeaker industry, with a history stretching back over half a century.

It is no surprise, then, that the Kent-based company's product line-up is amongst the most comprehensive on the market, ranging up from the Q300 bookshelf £250 'speaker to the much more exotic and exquisitely-engineered Muon and Blade loudspeakers (think around £16000 for the latter).

A stalwart of the range is the Reference series - aimed at offering true hi-fi sound quality through in-house cabinet design and the use of innovative drivers.

For the latter, KEF's major selling point is their proprietary Uni-Q mid/high frequency array which places a 25mm vented aluminium dome tweeter in the centre of a 125mm midrange, so together they act as a single 'point source'.

The latest iteration of the Uni-Q appeared in the Reference I standmounts, warranting a five globe





The latest iteration of KEF's Uni-Q midrange/treble driver, with the company's proprietary Tangerine waveguide in front of the tweeter, is used in the Reference 3.

review from us last year (see Hi-Fi World August 2015).

The Reference 3s are a significantly larger floorstander, though - standing 47.3" (1.2m) tall on their plinth and measuring 18.5" (47cm) deep with a width of 13.7" (35cm). They are a true three-way design with two 165mm aluminium bass



KEF's novel link system makes adjusting the loudspeakers for bi-wire or single wire operation extremely simple.

units positioned above and below that Uni-Q driver in a D'Appolito arrangement.

The rear features two reflex ports for bass extension as well as twin 'speaker binding posts for bi-wiring - or bi-amping if that's your

thing. These feature KEF's innovative link system where instead of jumper links two large, silver rotary controls are used. Simply turn them fully to the left to accommodate bi-wiring or the right for single-wire. It's an elegant solution that shows superb attention to detail.

And on the subject of attention to detail KEF also incorporate a tuning system for the bass reflex ports. Two port tubes are supplied - a long one for extracting deeper bass while a shorter alternative gives a faster sound with less low-end extension (see Measured

bass the KEFs could deliver. There's real heft to the low-end but it's firm and substantial - with no thump. That provided just the right foundation for Peter Buck's jangling guitar lines that had a crisp tonality, Michael Stipe's vocals being projected into the room with height and depth.

On 'Shiny Happy People' the KEFs propelled the track along superbly, imparting just the right amount of drive while never losing grasp of detail.

It was impossible not to be impressed by the integration between the drive units. The

'Playing REM's 'Out Of Time' I was immediately struck by just how much bass the KEFs could extract. There was heft to the low-end"

Performance for more details).

Experimentation is recommended here, to accommodate musical tastes, 'speaker positioning relative to rear walls and room size. Price for all this is £7499.

The Reference 3s come in a variety of finishes including Deep Piano Black, Satin American Walnut, Luxury Gloss Rosewood, Blue Ice White and Copper Black Aluminium. Ours came in white - not my favourite colour but seemingly becoming ever more popular!

SOUND QUALITY

Anchored firmly on their metal, screw-on plinths and with the longer ports in place to start with, the KEFs were pressed into service with our powerful yet refined reference McIntosh MC152 power amplifier.

First impressions can often be deceptive with loudspeakers and so it proved with the Reference 3s. They are engineered to be extremely smooth and accurate - which some might mistake for a certain tameness in showroom demonstrations.

Listen for a longer period, though, and their qualities start to shine through. They are both clean and detailed, courtesy of the blue anodised Uni-Q driver, yet can punch out the music when the volume is turned up, doing so with admirable control and authority.

Playing REM's 'Out Of Time' I was immediately struck by just how much

Uni-Q array projects vocals with pinpoint accuracy so they hang in the air in front of the plane of the loudspeakers. This unit is well matched well to the twin aluminium bass drivers, so there was never a feeling of listening to a disparate collection of transducers, as can be the case with some multi-driver floorstanders.

The Uni-Q drive unit is an especially refined performer. Its treble is well-etched but never edgy: it didn't tire me over extended listening periods.

Moving onto high-resolution material with The Clash's 'The Card Cheat' (24/96) the KEFs showed commendable instrumental separation. This track has a dense,



Rear-facing reflex ports accept supplied tuning tubes of different lengths, to tune bass output.



The rear panel carries two reflex ports that can be tuned with the supplied tubes, to adjust bass according to personal taste, room positioning and room size.

Phil Spector-like Wall Of Sound production that can sound congested through smaller 'speakers but the Reference 3s let me hear through the mix to make out all the studio multi-tracking employed.

Swapping over the port tubes brought a little leaner bass response but it was still firm and weighty with plenty of punch. I'd recommend experimenting in your room to find which suits you best. It's easy to do as the ports can be swapped over in a matter of minutes.

Whichever port you prefer, though, the KEFs retain their assured, authoritative nature. I'm not a fan

of brass ensembles but playing the new 'Various War Memorials' CD by the Tredgar Town Band and Cory Band brought out the nuances of the instruments. Each piece dripped with emotion - but especially Benjamin Britten's 'St Edmundsbury Fanfare' where the echo and atmosphere of the recording venue shone through. As each note faded away I could hear it disappearing into the distance, decaying naturally just as you might hear it in a concert hall.

CONCLUSION

The longer I listened to the Reference 3s the more impressive they became. Chief amongst their attributes was an even-handed way of going about their job. Neither treble nor bass is pumped-up to provide a superficial but ultimately fatiguing listening experience. Instead these 'speakers seduce over the longer term by their ability to give an gloriously smooth and accurate representation of the music. The Reference 3s were powerful and punchy, detailed – and totally enjoyable.



The longer black port tuning tube gives a deeper bass response while the shorter grey one gives less low-end output but a faster sound.

MEASURED PERFORMANCE

Our frequency response shows the Reference 3s have an unusually smooth characteristic, one that trends down slightly toward high frequencies. The flatness is due to lack of local (mechanical) resonances, especially in the blue alloy mid-range/tweeter unit, meaning very low colouration and a neutral sounding delivery.

The gentle downward trend ensures the speaker will not sound sharp or

bright, and will have a sense of body or weight to its sound. Bass and lower midrange has been slightly raised in fact, to ensure this is so. Treble extends very smoothly all the way to 20kHz.

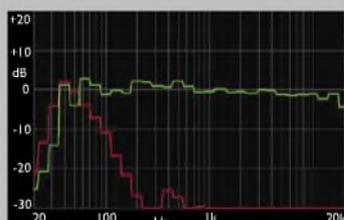
The long ports of the speaker's interchangeable port system gave best bass extension, introducing extra output at 40Hz, as our analysis shows. The Reference 3 has strong bass, that goes low (30Hz) before cutting off sharply; subsonics are not produced. KEF's short port rolls down output a little earlier (60Hz) and will give the speaker a slightly faster sound in the bass.

The impedance curve shows the Reference 3 is for the most part a 4 Ohm loudspeaker, and it measured 4.6 Ohms overall. An amplifier with good current delivery is needed and amplifier sound quality differences will be quite obvious. Sensitivity was high, 89dB sound pressure level (loud) being delivered from 1 Watt. A 40 Watt (valve) amplifier would be fine and little more than 60 Watts is more than enough to go very loud. Low power specialist amps (e.g. Sudden Class A) will suit the Reference 3s.

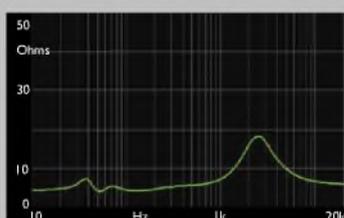
The Reference 3s will sound unusually smooth and colour free, very detailed and have a big bodied, easy going sound balance. **NK**

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



KEF REFERENCE 3 £7499



OUTSTANDING - amongst the best.

VERDICT

KEF's excellent Uni-Q point-source mid/treble driver is allied with two bass units to provide a loudspeaker that is truly exceptional.

FOR:

- accurate bass
- smooth delivery
- soundstage
- flexibility

AGAINST:

- no subsonics

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Festive Quiz

Welcome to our seasonal Christmas quiz - where you can test your knowledge of all things hi-fi and musical. The answers are below - but no peeking until you've completed all twenty questions!

1) The late Gilbert Briggs is associated with which hi-fi company...?

KEF
Naim
Wharfedale
Neat

2)...and in which Yorkshire town did he build his first product?

Ilkley
Harrogate
Brighouse
Bradford

3) Which musician received the 2016 Nobel Prize for Literature?

Leonard Cohen
Sting
Paul Simon
Bob Dylan

4) How many other musicians have won the same accolade?

1
3
2
0

5) "The Closest Approach To The Original Sound" is used by which British hi-fi manufacturer to describe its products?

Audiolab
Quad
Castle
Mission

6) What measure is used for amplifiers to describe output power?

Watts
Impedance
Sensitivity
Volume

7) Masura Ibuka and Akio Morita founded which Japanese company?

Nintendo
Sanyo
Sony
Onkyo

8) Which legendary technology guru once said "If the vault was on fire and I could grab only one set of master tapes, I would grab the Beatles"?

Alan Turing
Steve Jobs
Bill Gates
Mark Zuckerberg

9) The acronym NAS stands for what?

Notionally Asymmetrical Soundwave
Network Attached Storage
New Audio Standard
Not Always Sane

10) Valve amplifier manufacturer Icon Audio is based in which English city?

Leicester
Basingstoke
London
Milton Keynes

11) Fleetwood Mac's 'The Chain' features as the theme tune to TV coverage of what sport?

Match Of The Day
Wimbledon
Formula 1
Bowls

12) Naim supplies bespoke in-car sound systems for which luxury car producer?

Rolls Royce
Bugatti
Bentley
Ferrari

13) Which track by The Killers did David Cameron select on his Desert Island Discs playlist?

All These Things That I've Done
Mr Brightside
Read My Mind
Human

14) Loudspeaker manufacturer Focal is based in which country?

France
Belgium
Italy
Ireland

15) Joe Strummer, Grace Jones and Elvis Costello all feature in which film by director Alex Cox?

Straight To Hell
Sid And Nancy
Repo Man
Walker

16) Who presented BBC 2's The Old Grey Whistle Test?

John Peel
Bob Harris
Davina McCall
Tony Blackburn

17) Frank Zappa's band were known as?

The Fathers Of Necessity
The Sons Of Zappa
The Mothers of Invention
The Frank Zappa Band

18) David Robert Jones was better known by what name?

Dave Jones
Johnny Rotten
Little Dave
David Bowie

19) Singer/songwriter Jacques Brel was born in which country?

Belgium
France
Holland
Nepal

20) A sealed box loudspeaker is known by what other name?

Portless
Limited Extension
Infinite Baffle
Totally Sealed Cabinet

RATE YOURSELF (CORRECT ANSWER = 1 POINT)

5 points or less: Shameful. You haven't been paying attention to Hi-Fi World... try reading a few back issues!

5-15 points: You are a well-balanced individual who knows a lot, but do not own an anorak - yet. Congrats!

15-20 points: Very impressive - claim two tots of Brandy on your Christmas pudding - just don't bend the stylus afterword!

ANSWERS:

1) Wharfedale; 2) Ilkley; 3) Bob Dylan; 4) 0; 5) Quad; 6) Watts;
7) Sony; 8) Steve Jobs; 9) Network Attached Storage;
10) Leicester; 11) Formula 1; 12) Bentley; 13) All These Things That I've Done; 14) France; 15) Straight To Hell;
16) Bob Harris; 17) The Mothers of Invention; 18) David Bowie;
19) Belgium; 20) Totally Sealed Cabinet.



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then £101.33
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for 30 months



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Uniti Atom | all-in-one player

Retail price:
£1,600

0% Finance example*:

£320.00 initial
20% deposit
then £106.67
per month
for 12 months



new

Uniti Star | all-in-one player

Retail price:
£2,999

0% Finance example*:

£599.80 initial
20% deposit
then £99.97
per month
for 24 months



new

Uniti Core | hard disk player

Retail price:
£1,650

0% Finance example*:

£330.00 initial
20% deposit
then £110.00
per month
for 12 months



new

*Other finance terms available. Finance is subject to status & conditions. Please ask for further information.

LETTER OF THE MONTH PRIZE

Mail



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 QUAD S2 loudspeakers.

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



QUAD S2 LOUDSPEAKERS

CHOICES OF COLOUR: **BLACK OR MAHOGANY**

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

A pair of QUAD S2 loudspeakers are on their way to **ASHLEY GARBETT**, Letter of the Month winner in our December 2016 issue.

Letter of the Month



A Jadis Defy 7 amplifier: three banks of KT88s working in push-pull pairs giving 60 Watts in Triode mode, in Geoff Wilton's system. But why does this amplifier now hum, asks Geoff?

HUM BUG

I have an analogue music system that, since moving house, has developed a noticeable hum. It is, naturally, a valve amp. A Jadis Defy 7, modified to run in triode mode at 60W and Jadis DPL2 preamp connected to WD 25 speakers, the XL version, that I built about 10 years ago. The hum is present when

the power amp is switched on, and not affected by the preamp volume control.

Is it possible to reduce the hum with a mains conditioner or are the speakers too sensitive for the amp? The 25s would stay of course, moving over to the 'cinema' set up and I am considering going back to Martin Logans. I have owned the Sequel II in

the past, and now the Electromotion would be my choice, pricewise. Do you think the hum would be less noticeable with these?

The front end is a Linn Axis that was given to me and which has now an Ortofon 2M Bronze fitted, but there is also a Garrard 401, also a gift from another friend, waiting to step up when

I get it refurbished. Do you have a recommendation for this work please? Thank you for keeping your excellent magazine going. It is right up my (audio) street.

Regards

Geoff Wilton.

Hi Geoff. If your system developed a hum after moving, this strongly suggests something has been affected by the move. Either the amplifier has suffered, or more likely the earthing in your new set up is different to that of your old one. This is not an easy problem to solve at a distance, but there are diagnostic routines that can shed insight.

First thing to do is to disconnect everything from the valve amp except the loudspeakers, then short the amp's inputs. Either use shorting plugs, or insert a phono lead and use a piece of wire to short the centre pin to ground at the free end. Don't worry about this: there are no dangerous voltages and no chance of damaging the amp. You must short both channels.

If, under these circumstances, the hum is still there, then the amplifier has developed a fault, as a result of the move. If only one channel is humming then the fault lies in that channel and is unlikely to be in the amp's internal power supply.

Most likely the hum will be in both channels, in which case I would suspect a power supply problem, likely a smoothing capacitor has become disconnected, as a result of a dry joint being jolted. This demands expert repair. However, valve amp power supplies are not complex and it should amount to a few hours work, say one hour to diagnose and one hour to fix. Contact either the dealer who supplied the amp, or Dave Tutt, 2 Maunders Close, Chatham, Kent ME5 0AU, tel: 07759 105932, www.tutt-technology.co.uk.

If the hum isn't there under these circumstances then you likely have a hum loop. In which case connecting the preamp with its volume at zero will invoke the hum. The quick and dirty solution is to disconnect the preamp mains earth, but as readers will be keen to point out, this compromises primary safety. The preamp will still be earthed in fact, through the screen of the interconnect to the power amplifier.

All the same something has changed in the move and the preamp has now become earthed causing a

A wide range of Garrard 301 and 401 turntable parts are available from Peak Hi-Fi.

hum loop, where it was not before. It is unlikely, but a possibility.

A solution is to fit an earth-lift mains adaptor, if you can find one; I believe they have been withdrawn on safety grounds, even though hi-fi products continue to use earth lift resistors to prevent inevitable hum loops.

It's useful to point out here that these problems don't arise with balanced connections, where earth and signal are separated; we are in effect suffering from old connection arrangements of the past.

Another possibility is that the preamp's output stages (after the volume control) are now close to the power amp (where they were not before) and that you are suffering induced hum from the power amp's mains transformer, in which case simply separate the units progressively until the hum disappears.

I hope this gives you some idea of how to trouble shoot the system.

A mains conditioner won't help

and if the speakers are the same as before then this cannot be the problem.

If however you were using different and less sensitive loudspeakers in your previous setup, and the hum you now hear is relatively weak – only audible right next to a drive unit – then yes, sensitive loudspeakers may well be the cause. Valve amps produce around 2mV of hum at worst however, if they are designed/working properly, and this is inaudible 6ft or more away from the loudspeakers, so it should not be worrying you – unless in the new room you are sitting a few feet from the loudspeakers (I jest).

As a general observation here, valve amps are today technically very quiet. However, for reasons I suspect many manufacturers don't understand, internal leakage currents from their very high voltage power supplies make effective grounding more of an issue. So whilst products are individually quiet and hum free,

when coupled together they may well not be, especially with high gain phono stages in the signal chain. Again, only the use of balanced connections can eradicate this issue.

A Linn Axis and Garrard 401 from friends? They are great friends to have! Ask 'em what else they've got. Long ago, someone at Hi-Fi World bought a Garrard 401 new in its box for £250 from a charity shop and sold it on eBay for £1700; to Japan inevitably. This is to bemuse readers!

Another anecdote: I knew a dealer in the early 1990s who was loading containers full of them, for export to Japan; yes – that was his living. Tells us a lot about Japan I must point out. They got it a long time ago, where we are just getting it today. I find retro at this level bewildering.

Anyway, enough of the historical musings, and on to the nitty gritty. My 401 was renovated long ago by Dr Martin Bastin, who also put it into a solid plinth of his own making – and all has worked well ever after (25 years to date). At this moment I have not been able to speak to him for permission to publish his number, but it is on the 'net and I am told he is very busy still with this work. Peak Hi-Fi and Loricraft are also Garrard restoration experts and can be found on the 'net. I hope this helps.

AK NOT OK

Everyone seems to be raving about Astell&Kern's new AK70 player and having spent the last two weeks with one I agree that it can sound fantastic. Compared to other portable DAPs (Digital Audio Players) I can see why audiophiles find that it gives a level of musical satisfaction that others cannot reach. But for me the AK70 is one of the least focused products I have had the misfortune to use and, in my opinion, is not fit for purpose.

The biggest problem with this DAP is its wonderful sound – yes that's right, because to obtain the musical satisfaction I have mentioned one has to devote all of one's attention to the music to experience the AK70's multiple layers of detail, neutrality and tonal qualities.

However, when I use a portable player I tend to be doing other stuff, such as cleaning the car or doing my tax return – and I found with the AK70 that as soon as I lost hundred percent focus on listening, the music became background lounge music and was no



The Astell&Kern AK70 - "one of the least focused products I have had the misfortune to use" says Dean Marshall.

longer a musical experience or fun.

It seemed to me that a portable player's musical reproduction has to continually remind me that it is still there so as to squeeze real music between all the other tasks that are occupying my tiny mind. To achieve this, a portable DAP needs to be a little more forward and strident but with a delicate warmth, whilst still maintaining a lot of the detail, spacious presentation and the tonal qualities that I expect.

Personally, I think A&K just don't understand what a portable DAP is – and how it is used. For me the FiiO X5, at half the price, hits this balance perfectly and as a portable it trounces the AK70; I even prefer the £100 FiiO X1 to the AK70!

If this wasn't enough condemnation, then as a rounded product the AK70 is very poor. Amongst other things, it looks like it was knocked up in a shed, Bluetooth connection is pants, the interface is fiddly to use, the line-out performance was underwhelming and it doesn't even have an internet radio app!

Then I tried to contact A&K support to help source a manual in English (which is not supplied or available from their poorly constructed website) to find that their e-mail address was unrecognised! There is obviously a great deal of technical talent at A&K but I get the feeling that it's more about marketing and profit than music – and this view is no more evident than in the brand name.

If you think of most high quality hi-fi, such as Naim, Chord and Linn,

then the brand name conjures up an expectation based upon years of producing great products. However, if someone told me that they had just bought a new Astell and Kern car this would immediately conjure up an image of something sleek, sporty, luxurious with high performance. This is very clever, but for me it is also cynical branding. So why are they getting away with it?

Well, I believe that the hi-fi media are falling for it because they review A&K products as audiophiles – and not as audiophiles who use portable devices as they are intended. And as for the general product design and features, well I can only surmise that the many faults are overlooked by reviewers because these are secondary to the sound quality. How on earth are A&K getting away with charging £3,500 for a portable that, if the AK70 is any indicator, is in fact not a portable at all!

So for me the AK70 is the most hateful Hi-Fi product I have come across in 40 years as an audiophile and needless to say I have binned it and have instead found portable musical satisfaction on the go with the X5. If you are interested in A&K products then please look beyond the hype and make



COMING NEXT MONTH

FiiO X1 MkII.

If you are interested in digital portables, don't miss our in-depth review of the new FiiO X1 (£120) next issue.



sure

"I have found portable musical satisfaction on the go with the FiiO X5" says Dean Marshall.

you audition it doing whatever you usually do when using a portable, the mind boggles!

Regards

D J Marshall

Hi Dean. Thanks for your intense view that works slowly up to volcanic! I sympathise – sort of.

'Sort of' because I love DAPs – their technology and their sound. But like you I dislike their interfaces, flaky software, unfathomable user manuals and tortuous software upgrade routines.

Technologically, DAPs are frontier devices: loaded with the most complex electronic systems available today, driven by permanently changing software – and flaky as a result.

But Astell&Kern justify their reputation I feel, and so do FiiO.

Astell&Kern (Korea) kicked off the hi-spec DAP craze with their superb AK100 (reviewed March 2013 issue). Their success was followed by many Far East companies, FiiO of China being most notable. That's the historical time line.

Astell&Kern produce great players with a fast, tight sound and we have spoken to them at length, at the Hi-End Show, Munich, to know they are a very serious and dedicated company. I still use and enjoy my AK120, for its sound, ease of use

and portability. However, their prices have risen substantially and the more expensive designs are difficult to justify. This is where FiiO have stepped in and both the X3 and X5 are better value, as you say.

The AK70 User Manual is available at <http://www.iriverinc.com/download>, the English one being 2016071215001366477.pdf. That the languages are unstated is poor, but as you note Korean and Chinese sites often are – er – 'difficult to understand'.

I tend not to use the analogue audio outputs of any DAP, Headphone or Line, to feed a hi-fi, simply because sound quality is dynamically flat and lacklustre in most cases. It's best to use the digital output, fed to a hi-fi DAC – Chord Mojo or Audiolab M-DAC+ being preferred choices here. Weak battery supplies are most likely the reason for this, explaining why most players are afflicted, not just

Astell&Kerns.

I have no beef with Astell&Kern either as a quality brand – which they are – or as an audiophile player. It is of course a contrived brand name, by iRiver that was founded by Samsung employees I believe. The products are fine though and, as DAPs go, relatively easy to understand and use against much of what is out there. It is just that FiiO do a fine job at a lower price and seem to be winning out as a result. **NK**

POWER DOWN

I have a discussion point to put regarding amplifiers. I have just upgraded my speakers to Quadral Chromium Style 8s and even though they are still running in, the sound improvement over my old stand mounts is substantial.

One thing I have noticed though is the increase in efficiency, all sources sound louder and consequently I am having to turn my amplifier down to



Quadral Chromium Style 8 loudspeakers - "all sources sound louder and consequently I am having to turn my amplifier down to compensate" says Andrew Burtchaell.



Icon Audio Stereo 30 SE Single-Ended valve amplifier. SEs produce no crossover distortion and have a super smooth sound as a result. They are highly specialised though and produce low power, often less than 10 Watts. However, the Stereo 30 SE gives 30 Watts and is liftable - just!

compensate. Now I, like probably most of you readers live in a semi-detached house and have to try not to annoy my neighbours as well all like our own space/privacy.

So this leads on to my question. Why are most amplifiers designed to produce so much power? in fact it sometimes seems to be a selling point that amplifier X is 100 Watts per channel, when you can realistically only ever use a fraction of the power available.

Surely with the efficiency of speakers and the real world volumes we can use, a maximum power output of 30 Watts per channel would be more than adequate (excluding VERY large rooms/VERY inefficient speakers or living in a detached house!).

Wouldn't it be better for manufacturers to design quality amplifiers that produce their best quality output at say 15 Watts per channel? Now don't get me wrong, I'm not trying to impose a maximum limit on all amplifiers, just that the majority of amplifiers sold would be more practical with most audiophiles with a lower maximum output.

I own a valve amplifier that can output 40 wpc but I doubt I will get anywhere near that volume level, luckily valve amplifiers do tend to output very good quality at lower volumes but even I am starting to look at a low power SE valve amplifiers (as I would like to get the amplifier working in it's middle range rather than barely passed the off point!).

It seems like the manufacturers are in a Watts per Channel arms race with no actual point to it! Surely what we all want is to listen to our music at good volumes but with the highest quality we can obtain (as in my book quality always outshines quantity).

So maybe we should start asking the manufacturers to move towards high quality lower power amplifiers, that way we can use the power properly and get the best results?

Andrew Burtchaell

The power output figure of an amplifier is viewed as a straightforward and understandable figure of goodness by most people, so they buy on that. People are scared of having insufficient power for their needs so play safe by buying the 100 Watts or so available today at relatively low cost, especially in AV receivers and other mass-market electronic paraphernalia.

With modern, efficient floor standing loudspeakers like the superb Quadral Chromium Style 8s you have, it is difficult to use more than 15 Watts on peaks I have found – and that is to go very loud. A ceiling of 40 Watts gives a 4dB power margin over this – more than enough.

It is conceivable that in a big room, within a detached house with distant neighbours, to play really loud you may peak out at 100 Watts or more, but if you do do this then

other issues arise: voice coils can burn out, drive units bottom out mechanically and distortion will rise dramatically.

If you can, try and listen to the new Icon Audio Stereo 30 SE amplifier in conjunction with the Chromium Style 8s; they are a superb match. Single Ended amplifiers by definition have no crossover distortion and are super-purist, if usually low power. With the Stereo 30 SE (30 Watts) Icon Audio have used the newly designed and superb KT-150 power valve (tube) to get a great modern sound. And believe me, you cannot get a better sound than this: your system will then withstand comparison to the best. **NK**

MAINS SPUR

I have been a reader of your excellent magazine for many years now and have found your articles and advice invaluable as my system has progressed over the years.

Sources now are a Rega P9/Hana SH cartridge, Astin Trew AT 3500 plus CD player and Naim Tuner into Croft series 25R pre/series 7R power driving lovely sensitive Audionote ANE speakers.

I feel very fortunate to own such a system and further temptation to upgrade has generally abated. But my system had to be disconnected recently and stored upstairs due to non hi-fi but essential redecorating and a new carpet in the room. This was combined



"I have an Isotek Vision mains conditioner that has definitely improved the system" says Mark Armitage.

with some updating of our electricity supply including a new fuse box. This provided an ideal opportunity to have the electricians install a dedicated mains spur to a socket by my system. This was something that Haden Boardman had recommended to me a few years ago and mains quality remains a subject of much discussion and debate.

I already have an Isotek Vision mains conditioner which had definitely improved the system, so was not expecting vast changes. After carefully rebuilding the system, taking the opportunity to clean and treat relevant connections, I was slightly exhausted (imagine shifting Audionote ANEs on sand filled metal stands) and just hoping everything had survived its transportation.

With great anticipation, I put a familiar LP on the Rega and everything immediately sounded better than ever. Turning up the volume with no input, the amps were even quieter. Lowering the stylus again produced a wonderful room filling sound. CD almost seemed to benefit more, making modern recordings more listenable. What has been most noticeable has been the improvements in vocals with more air and space and being able to follow lyrics more distinctly. Bass notes are more clearly delineated and flowing, with the top end extended but more integrated and not harsh.

This is not an easy upgrade compared to connecting a new amp or pair of speakers. It needs the services of a sympathetic and qualified electrician, removal of carpets, floorboard and often careful negotiation with partners. But if all the factors align, it is not expensive in a realm where a good £300.00 Moving Coil cartridge is budget esoterica and vast amounts can be spent on mains cables and conditioning. Hi-Fi enthusiasts, please try it you can.

Kind regards,

**Mark Armitage
Exeter**

Hi Mark. Thanks for your observations. One simple request to any electrician installing or renovating

a ring mains is to use the heaviest cable possible, rather than what is deemed adequate according to standards. I got mine to install double cables (he thought I was nuts).

Another fascinating idea is to set up a balanced supply, something that little known about in domestic installation. We take the liberty of repeating info on this published in our June 2016 issue.

CARDS IN CREDIT

How's your microSD card collection coming along? I have two 128GB cards (one, a SanDisk Ultra, is used for high resolution music, it being able to provide the data fast enough for my Fiio X3 to handle; the other, a Samsung 128 EVO, is not fast enough for the high bandwidth stuff, so is used for less demanding CD rips), along with four 64GB and two 32GB. All of them are pretty much full.

That's a total of 768GB, which is just about three quarters of a terabyte of storage/music in a little microSD card-holding wallet that fits in my pocket (along with the X3).

What would we have made of such



"A SanDisk Ultra is used for high resolution music, it being able to provide the data fast enough for my Fiio X3" says John Malcolm.

capacity in years gone by, and all of it just for the relatively trivial use of a music collection?!

How times have changed...!

John Malcolm

Hi John, I am still on my hands and knees trying to find the cards that got away! They have a tendency to jump like fleas I find, or alternatively ping out of the card slot, across the room – and into oblivion!

Like you I tend to carry a player and a collection of cards, with all sorts of weird stuff on them, including suites of test tones that I have to be careful not to accidentally play through headphones. And just like you a music collection I find runs into the high GBs, especially with DSD. But a card a day keeps the tedium away! **NK**

PROBLEM SOLVED

I was thrilled to see my letter published and really appreciate your reply. I thought I'd update you and possibly help others with what's happened subsequently. I thought that before spending £200 to £500 on a new stylus or cartridge that I should get my Goldring 1042 checked for wear and then decide what to do. I sent it off to Johnnie at Audio Origami and for a very reasonable £15 he checked, cleaned and sent before and after photos to me with the verdict that whilst a bit grubby before, now it was all clean and that there was minimal wear. This is great news as it will give me time to save up to try the Ortofon 2M Black once the 1042 is worn out!!

Best regards,

**Paul Grele
Reigate,
Surrey**

Thanks for letting us know your solution Paul. It will be helpful to other readers I am, sure. So they understand your original dilemma, your original request is published below. **NK**

"My dilemma is this; I've been using a Goldring 1042 for the last while and I really like it but should I change it? History: The previous 2 styluses were 1012GXs which again I loved and felt the 1042 was an improvement. However, upon reading your 1012/1042 review and revisiting Mr. Bolt's review from April 2012 of the 1022 (& 1042) I wonder whether I should return to the 1012 OR change completely to the Hana EL



RS Components sell a Carroll & Meynell 1.65kVA fixed, encased transformer for 'garage use' that can deliver 15A from twin centre tapped 110V secondaries (Part No CM 3300 WMO, price £296.75). It must be wired in by an electrician. Downloadable safety instructions provide detail.

(Feb 2016) OR something else. I'm using a Linn Axis with Linn Basik Plus arm through a Trichord Dino into a Cyrus 8vs outputting via Kimber 8TC cables into XTZ 99.25 (and sometimes my old B&W DM620s).

Musically I play rock (progressive to classic to hard), pop, electronica, jazz but crucially never classical. This is the part that I picked up on in both reviews, that the 1042 is better suited to classical and the 1012/1022 for rock. Likewise with the EL I noted the musical engagement and

bass comments. My Dino will handle all types of cartridge inputs. I like a holistic, musical sound and am not interested in forensic detail if it loses the soul".

ROCKY PATH TO HEAVEN

As I'm fast approaching my half century interest in hi-fi I thought I'd share my thoughts and experiences over the last 50 years. My first experience of "stereo" was via Bush RP50 record player that had a mystical stereo socket on the front. To assuage my curiosity I ordered a lead with the correct DIN plug attached and waited impatiently for delivery. After collecting it I raced home, connected to my brother's Philips tape recorder, securing the bare wires with matchsticks and put Led Zep 2 on. I was immediately hooked. Robert Plant et al were circling my bedroom. So, after much research, mainly via hi-fi mags of the time I ordered a Garrard Zero 100 deck, a thing of beauty and wonderment but not very hi-fi, a Leak Stereo 30 plus, no pesky valves to worry about, and a pair of Celestion Ditton 15 speakers with an ABR, whatever that is, purchased through the Discount Buying Agency. This as the name suggests was a mail order discount company.

Anyway the main point of my letter is how fads and fashions can influence our perception of what hi-fi should be so I put my pen to paper, sorry finger to keypad. One school of thought suckered me into believing that belt drive was far superior to idler drive. So out went my Garrard 401 and in came a Thorens TD 150. CD is far superior to Vinyl. Luckily I kept most of my albums. Transistors and MOSFETs kicked valves into touch.....really?

One issue I can't resolve is interconnects. They seem to be the

modern equivalent of tone controls and filters. Affecting the sound in subtle ways. They may even improve the sound but wouldn't getting a better piece of equipment achieve the same end and satisfy the upgrade syndrome?

Which brings me on to another point I've always purchased my equipment from the budget end of the market, the most exotic piece of kit being a Unison Research Unico amp, just beautiful to look at with an RF remote! However, I am now a convert to the synergistic (is that a word) philosophy of hi-fi. Everything should be of the equivalent quality. The old adage of not putting crossplys on a GT40 holds firm.

I would suggest that rather than following an upgrade path you should save your money until you can change everything in one go and then sell the old stuff or part ex it. This would avoid the dreaded hi-fi enthusiasts nightmare of an SE or equivalent version of something coming out before you've upgraded another item. Perhaps buying as much as you can from one manufacturer might result in a system being greater than the sum of its parts.

Also we tread worryingly into the thorny issue of the law of diminishing returns. I think that the current equivalent price of hi-fi hasn't changed much over the years i.e. You can get a serviceable system for about the price of a weeks wages for each piece. Obviously, if you win the lottery the sky's the limit but in the real world is a £10,000 power/pre amp that much better than a £3,000 integrated. There are many more issues I could touch on but my iPads running out of ink and in the words of the great John Lennon "I've got a blister on my finger!"

Dave Arnold Bromley



"Garrard Zero 100 deck, a thing of beauty and wonderment but not very hi-fi" says Dave Arnold Bromley.

High Five!

Cayin's new i5 portable digital audio player boasts an impressive range of technological features. But how does it perform? Noel Keywood puts it through its paces.

When I saw the Cayin i5 portable player was fitted with UV meters I put on my sunglasses to get into the right groove. There's nothing like UV to warm things up and the Cayin is technologically hot.

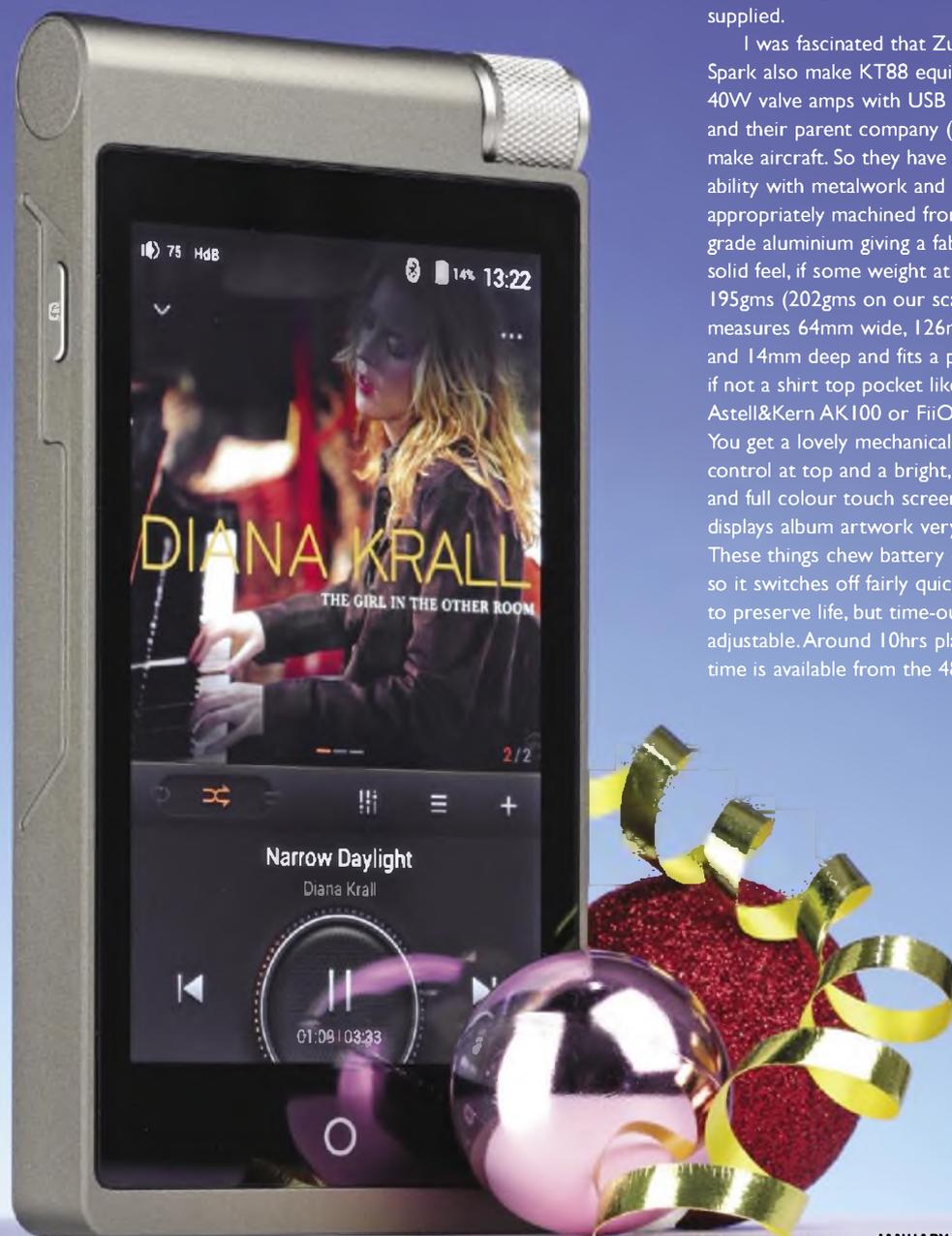
Portable high-resolution digital music players like the i5 are tech fests. The i5 boasts a massive

catalogue of technological ability. It has a touch screen, prodigious on-board computing power courtesy of a quad-core Cortex A7 processor, ARM9 power management and a well-specified array of audio processing chips, including an Asahi Kasei AK4490 DAC (Japan) and BUF634 headphone drive amps with low output impedance/high current drive capability.

The i5 processes all digital music

files including WAV, Flac, Apple's ALAC and Aiff, and DSD 64 and 128 as well as SACD Iso tracks (see a full list at www.en.cayin.cn, under Parameters). You can store music files on 32GB of internal memory, or on a removable micro-SD card, addressable up to 200GB. Cayin (Zuhai Spark Co) say – enough for hours of replay – and of course you can store and transport music on micro-SD cards or an On The Go (OTG) storage device that comes supplied.

I was fascinated that Zuhai Spark also make KT88 equipped 40W valve amps with USB inputs, and their parent company (AVIC) make aircraft. So they have plenty of ability with metalwork and the i5 is appropriately machined from aircraft grade aluminium giving a fabulously solid feel, if some weight at a quoted 195gms (202gms on our scales). It measures 64mm wide, 126mm high and 14mm deep and fits a pocket, if not a shirt top pocket like the Astell&Kern AK100 or FiiO X1. You get a lovely mechanical volume control at top and a bright, detailed and full colour touch screen that displays album artwork very well. These things chew battery current so it switches off fairly quickly to preserve life, but time-out is adjustable. Around 10hrs playing time is available from the 4800mAh





A knurled volume control and 3.5mm jack sockets for headphones and Line output (analogue only).

internal, rechargeable battery.

Switch on is by holding down the power button and takes 35 seconds, but the player mostly sits in low consumption standby mode, where start is instantaneous.

There are Play/Pause, and track skip buttons at right, two 3.5mm jack sockets at top and one USB socket on the bottom – quite a small complement. A major point to note here is the USB is a new USB 3 type, so forget all your old USB cables! The player comes with one USB 3 - USB 2 Type A cable. So you can't access digital in the form of S/PDIF with this, as shown in one of the connection diagrams. What you can do is connect digitally via USB to an external device and, with Version 2 software onward, also play out through the i5, using it as an external DAC.

Although the internal customised Android 4.4 operating system works with Windows and Mac OS-X (not iOS they say), it does not work with Android! I hooked up to a Mac (MacOS 10.12 Sierra) without problem. The player comes up as mass storage so files can be copied direct in, including to a micro-SD card.

To play through a computer Windows drivers need to be installed as always, whilst Mac does not. However, the player does not hide Mac desktop files so non-playing blank 'duplicates' (prefixed by a stop) appear in the memory music file lists when it is loaded from a Mac, although not in the Track listings that are played from in use; Cayin need stop this to avoid user confusion.

The player comes with Wi-Fi to connect to the net for streaming services and also Bluetooth to play wirelessly via a hi-fi. It also sees music servers on a Local Area Network, or LAN.

Software update can be managed OTA (over the air) via Wi-Fi but I upgraded to Version 2 from 1.5 installed in our review sample – and it was a 200MB file that would take an age to transmit over wi-fi. Consequently I downloaded it for manual install to find it is sent as

a compressed Zip file for speed – and Macs unpack these automatically to the desktop. Luckily I know this little problem, so promptly re-zipped it before installation. None of this is mentioned in the brief instruction sheet supplied and no User Manual is available on the website. I foresee user confusion as a result.

I was confused too, after switching on. I have reviewed most DAPs, including Cayin's, but the i5 user interface was like nothing I have come across before. I eventually understood it and having done so found the player reasonably easy to use. However, absence of a clear music progress bar was irritating. Cayin's preference for a circle of fine red dots around the Start/Pause button being an almost-unreadable alternative, its advantage being it can be manually moved

to advance or retard a track. Track time and elapsed playtime are there too, but again difficult to see.

The VU (volume units) meters were similarly nonsensical, ranging from 0 to 20 max on this player. VU meters are meant to run from around +4 down to -20, so Cayin have got it the wrong way around. The meters did not work with DSD files either, another glitch.

Digital systems peak at a hard upper limit of 0dB (when all the bits are used up), so maximum here should be 0dB (i.e. not +4) and minimum -20dB or so below, or perhaps -60. Methinks Cayin's VU meters need fixing – but they look pretty all the same and do give a nice dynamic display of music level (not volume level).

The Music Settings menu reveals the presence of five digital filters, Hi and Lo gain levels (headphones), DSD gain compensation, S/PDIF output types, gapless playback, start and max volume levels, sleep time and others. There's an equaliser, with a custom menu, as well as pre-sets (Rock, Classical etc) and the usual Album, Artist, Genre list taken from meta-data. Stored tracks are automatically identified as SQ (yellow text), HD (green) and DSD (purple), according to sample rate. Note that CD and

lower are Standard Quality, the rest High Definition or DSD – a nice touch.

The Line output can be connected to a hi-fi just like you'd connect a CD player, using a 3.5mm jack to phono plug adaptor lead (Maplins or a hi-fi dealer). Output is half that of a CD player though, measuring 1V, so volume must be turned up. This is a fixed level output and measurement showed it offers slightly better quality than the headphone output. Cayin's block diagram shows it bypasses a lot of internal circuitry to offer high-resolution digital playback via your system. Since the player can be run from a 5V phone charger whilst playing it can be used as a digital player in effect with no need for re-charging.

Updating software to Version 2 from 1.5 was frustrated by desktop Mac files but worked from a PC, albeit with difficulty



The bottom face carries one USB 3 Type C digital socket and supplied is a lead terminated in a USB 3 Type A plug, compatible with USB 2 Type A.

because of sketchy instructions. Updating via wi-fi avoids this but is slow. Latest software turned the UV meters to VU meters and enabled USB functionality. The Mac replayed at up to 352.8kHz sample rate, 24bit resolution, via the i5 in DAC mode but there's little need to do this as it sounds no different to 24/96, so I stayed at 24/96 to keep data rate down, even though USB 3 is very fast. Sound quality was superb from Oppo PM1 and Philips Fidelio X1 headphones; as a DAC the i5 was effective

SOUND QUALITY

The i5 sounded open and expansive through headphones, especially playing DSD files like The Eagles on Hotel California's 'Try and Love Again' where the soundstage stretched wide and had depth; there was a good sense of bulk and heft to

the laconic bass line. DSD is more fulsome and open than PCM and the i5 made the most of its qualities. It doesn't have the harder-etched sound of Astell&Kern players, instead sounding smooth and silky – sophisticated.

There was little difference in sound quality between the filters, but I preferred Super Slow Roll Off for its slightly less hard and edgy quality; slow filters give better time domain behaviour – and it was evident here.

I rarely use the analogue Line output of DAPs, simply because they lack dynamics, preferring instead to use a digital S/PDIF output like that of my Astell&Kern AK120 optical link, straight into a mains powered DAC such as an Audiolab M-DAC+. This turns the portable into a digital library in effect, sound quality being that of the external DAC. All of which is to put my observations about the i5 in this area into context.

Connecting the analogue Line output into a Music First Audio magnetic preamp and thence to Quad QMP monoblock power amplifiers driving Tannoy GRF90 loudspeakers, faces fell in the office. Where had the Tannoy's prodigious dynamics gone? Going back to our Oppo BDP-105D Universal player spinning CD restored life to this system.

This is more an observation on what to expect generally than a specific criticism of the i5 – and why I use the digital output of a DAP, rarely the analogue output. The low Line output level meant volume had to be turned right up with low level tracks like Amber Rubarth's 'Storms Are On The Ocean'.

Digital connection on this player is complicated by the use of a USB 3.1 C type output socket that Cayin suggest on their website delivers SPDIF. That's fine if you can find a USB 3.1 C to SPDIF cable! It doesn't come supplied and a net search turned up nothing; Maplins do not have one either.

Connecting the cable supplied (USB 3 C to USB 2 Type A) into both a Mac and PC, the i5 failed to appear as a source (software Version 2, USB mode), and it also wasn't seen by our Audiolab M-DAC+, through its USB 2 Type A input. Surprisingly, using a small USB C 3.1 to USB A line socket adaptor lead from Maplins and a USB 2 printer cable plugged into the M-DAC+ USB B input instantly brought up digital lock: the two were finally communicating.

So there is a usable digital output from the i5 but I doubt it is S/PDIF (a continuous digital stream), so much as USB (a packetised digital stream). USB 2 works with USB 3 by the way; they were designed to be backward and forward compatible by the use of multiple data lines in USB 3.

So the i5 has a digital output, just not one that is readily usable.

You can use Bluetooth instead, bearing in mind compression is used, but it impacts sound quality little for normal CD files and benefits from sending digital to a mains powered hi-fi DAC. The player did not work with a Cambridge Stream Magic (an Astell&Kern AK120 did), but did work with an Audiolab M One amplifier with Bluetooth. Oh, the wonders of digital!

CONCLUSION

The Cayin i5 was, like many technologically hot Digital Audio Players, a bit edgy in places. It crashed on me, was inconsistent and at times difficult to use, unlike simple FiiOs.

Its price is low and its range of facilities high, especially considering what you get in terms of build quality and screen estate, as well as



The VU meters have an arbitrary scale that doesn't accord with normal practice of peak level being 0dB.

Note fine circle of orange dots around Pause, showing track progress.

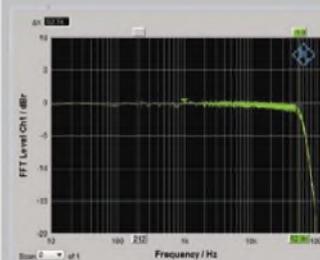
breadth of ability. The user interface was good, if a tad weird in places (duplicated track menus, blank screens, VU meter hang ups, track progress indicator dots). I spent much time wrestling the player into doing what was advertised; it isn't an easy proposition unless you thrive on this sort of complexity. So here's a fundamentally good player at a low price, if one with difficulties of operation.

MEASURED PERFORMANCE

The i5 measured flat to 53kHz with a 192kHz sample rate PCM file. Selecting Super Slow Roll Off filter reduced this to 45kHz – a small change. The other filters made almost no difference, at least in frequency domain.

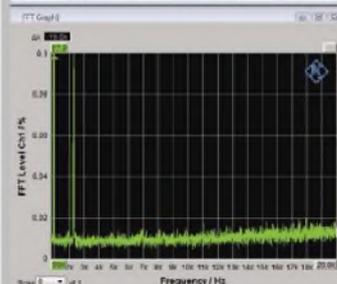
Distortion measured 0.1% at -

FREQUENCY RESPONSE



DISTORTION

THD all	Level (dB)	Frequency
0%	0.0782 %	3.3454 mV
0%	OFF	996.99 Hz
0%	OFF	OFF



60dB through both headphone and line outputs, with 24bit code - respectably low as portable players go. With CD (16bit) this was the usual 0.25% expected, due to quantisation noise products within 16bit. With hi-res the i5 does offer genuine advantage over CD.

Output from the headphone socket measured a high 3.5V, more than enough for very high volume with headphones, most of which need 1V at most.

Line output was low at 1.2V so the player will give apparently less "volume" than a CD player's 2V when connected to a hi-fi.

Dynamic range was good but unexceptional at 108dB (headphones) and 109dB (line). Portables can reach 115dB easily enough.

The Cayin i5 measured well in all areas; it has no weaknesses, NK

Frequency response (-1dB)
10Hz-53kHz

Distortion (24bit)	
0dB	0.001%
-60dB	0.1%
Separation (1kHz)	98dB
Noise (IEC A)	-107dB
Dynamic range	108dB
Output (line/h' phone)	1.2V / 3.5V

CAYIN i5 £399



EXCELLENT - extremely capable.

VERDICT

A well built player with good sound quality through headphones. Not the easiest to understand or use however.

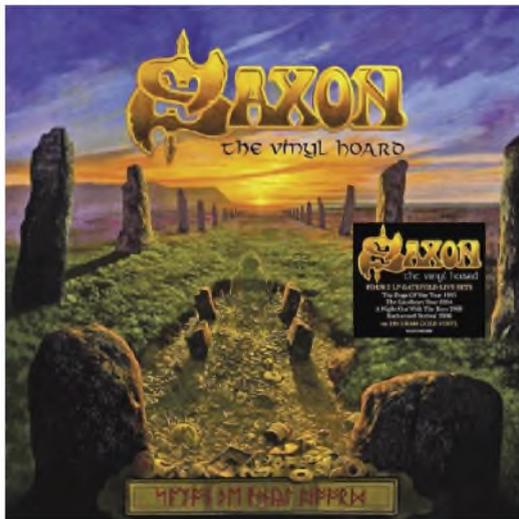
FOR

- smooth, weighty sound
- On-line and LAN connection
- colour touch screen

AGAINST

- erratic behaviour
- poor instructions
- no SPDIF output

Advanced MP3 Players
+44 (0) 343 289 6880
www.advancedmp3players.co.uk



SAXON

The Vinyl Hoard Demon

A substantial box set, this is a live recording collection, pressed on vinyl for the first time. The albums arrive as four double LP sets on 180g, gold-coloured vinyl, each in a specially designed gatefold sleeve and presented in a slipcase box featuring a specially-commissioned, cover painting by Saxon's artist-in-residence Paul Gregory.

The eight-vinyl album boxset contains 'The Dogs Of War Tour, 1995' recorded on the road in Germany, 'The Lionheart Tour 2004', recorded on tour in France, England and Germany, 'A Night Out With The Boys, 2005: The 25th Anniversary of the NVOBHM', recorded on tour in Germany and Sweden and 'Rocksound Festival, 2006', recorded in Switzerland.

Dedicated fans might want to keep an eye open for the Amazon Exclusive Edition box set. This edition is slightly different from the normal release because it features a

frameable print of the front cover painting, signed by the band's lead singer Biff Byford. This edition is limited to 500 copies.

The music has, thankfully, not been hit by loudness issues. That is, upper mids have not been accentuated to breaking point, triggering ear-piercing frequencies during crescendos. Instead, the entire soundstage is rather even-handed and disciplined.

Some fans might comment that the mastering discipline has been taken too far, as the midrange and treble could be accused of being rather safe. So safe, in fact, that it has slightly veiled some of that essential detail.

This is a live album, though, a genre that is notoriously chaotic in terms of sound quality. Unlike the studio, the live arena has little or no sonic control and can be the source of rather unruly results.

This box set provides a steady, neutral and balanced output over the entire suite of vinyl.

AUDIOPHILE VINYL



LITTLE RICHARD

Mono Box: The Complete Speciality And Vee-Jay Albums Speciality/VJ

Featuring 'Here's Little Richard' (1957), 'Little Richard' (1958), 'The Fabulous Little Richard' (1959), 'Little Richard is Back' (1964) and 'His Greatest Hits' (1965), this slip-cased box set also includes a booklet including rare photos.

In mastering terms? This music has received some careful and sympathetic attention. I'm sure that this was a tough job because the original was famously compressed. After all, this was music that was supposed to jump from the poor quality speakers of early record players and radios. Thus a compressive wash was placed on the sound to add edge and emphasis. The label should be congratulated because Little Richard's energy, intensity, his rasping vocal presentation, his dynamic approach to a song and that sheer joy that he infused into his work is evident here.

The mastering engineers have also enhanced the space and air around the soundstage to give the songs a sense of depth and width, adding an unfamiliar dimension to those used to hearing this stuff from a crackly mono speaker. And don't forget, this is a mono box set so, to play it properly you will need a mono cartridge and, despite the age of these masters, don't forget that this is a modern pressing, so only a 0.7mil tip will do. Fully equipped, these discs spring to life and exude new and enhanced detail that you just don't hear via a stereo cartridge. For example, the saxophones on 'Good Golly Miss Molly' are largely missing through a stereo cartridge but, via a mono tip, they add a grunt that gives this track guts, force and a raw power that shocks and amazes in equal measure. A superb set: you never knew that so much passion and raw intensity could be contained by shrink-wrap.

Presented in a box set, the four included LPs contain forty-five tracks.

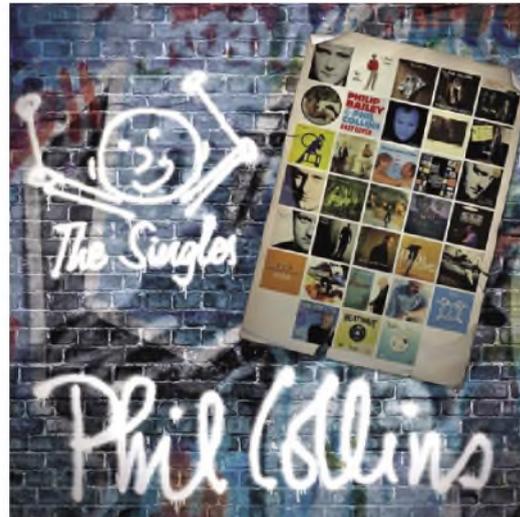
The production values on this collection are quite lovely. With one exception, the singles have been limited to four tracks per side to prevent any groove packing issues while the quiet pressings give the beautifully mastered music time to stretch and exude detail.

Actually, this point quickly became an issue and I grew to suspect that there was more going on here than met the eye. The accompanying press release revealed nothing, neither did the sticker on the front of the box, the rear was quiet as was the included glossy booklet.

Right until, that is, I reached the very end of the same booklet and spied that the remastering for this singles collection had been done at Abbey Road by none other than Miles Showell, the King of the Half Speed Master. The same guy who

handled the half speed mastering on the wonderfully produced Queen discography box set reviewed in Hi-Fi World.

That was what I was hearing or rather, that half speed process allowed me to hear more detail, more nuance, more delicacy with a greater dynamic reach. Regarding the latter, I played 'In The Air Tonight' and immediately noticed that the record was quietly pressed which encouraged me to increase the gain on my pre-amp (with no commensurate increase in hiss, I might add). At this stage I could hear a delicately infused synth/ electric piano - a detail that I had missed on the standard pressing - that weaved its way throughout the track. The sheer power of the drum interjection said everything about this box set. The fact that the music could offer such authority and yet, simultaneously, such delicacy and fragility let the music truly breath. An amazing feat by Mr Collins and Mr Showell.



PHIL COLLINS

The Singles
Atlantic

AUDIOPHILE VINYL

To celebrate the 40th anniversary of punk this new four LP box set contains four concerts from the period.

They include: 4 June, Lesser Free Trade Hall, Manchester; 29th August, Screen on the Green, Islington; 17th September, HM Prison, Chelmsford and 25th September, 76 Club, Burton-on-Trent. This set arrives with related photographs and an original facsimile press kit including articles from Melody Maker, Sounds, Rock Star and Rock New.

There is a real dichotomy in terms of the presentation and content of the music within this box set. It is, on one hand, a good one because it relays the experience of the concerts to the user. The DIY aspect of the punk era is conveyed here in the sleeve art with its casual tea stains and the A4 'photocopied' booklet detailing press cuttings while the

large format book including black and white and colour photo rarities amongst other details provides a larger than life view on the chaotic times.

The problem is, though, that the sound quality is totally wasted on the vinyl format. That this music exists at all is a blessing, that the concerts are available in any kind of listenable format is a wonder to behold while the mastering that has attempted to bring the sound up to a level of discernibility is a minor miracle. That said, these are 'merely' bootlegs. Nothing more, nothing less and quite, quite wasted on vinyl. If you listened to this set on MP3, I don't think that you would be missing much. We're talking dodgy AM radio quality here. Go into this box set with your eyes open, wallow in the memories, the music and the nostalgia and be prepared to have a great time: just don't expect that time to be of audiophile quality.



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Christmas wishes

NAME: Paul Rigby

STATUS: Hi-Fi World's own Mr Vinyl

Looking to wrap tinsel around top technology, Paul Rigby lists his top five wants for the festive period.

Cyrus One Integrated Amplifier £699

For my favourite festival amplifier, I'm looking for a Cyrus ONE integrated amplifier which dumps the old tired chassis styling and introduces a new funky design outlook but also, most importantly, adds some great sonic qualities without the need to clutter the chassis with unneeded extra technologies such as a DAC. If I want a DAC, I'll buy a DAC but I won't risk lowering the sound quality of my small footprint amplifier by stuffing it into an integrated amp, thank you very much. Keep it pure, lower the noise is my motto (and I ain't talking Christmas crackers).



Optoma Nuforce Dac80 £500

And if I really do want to grab a DAC for myself then this is a low cost DAC that I would plump for: it offers a neat sense of styling and all of the essential features for the price. It's an unprepossessing little box but the NuForce DAC80 offers a surprisingly good sonic response. It does this without fuss and without fireworks but, at this price point, that can be a blessed relief. Again, no DSD and no headphone socket. That's how I like it, though, pure and simple.

Wasanbon Record Cleaning Brush Set £100

It's roots might lie in a combination of make-up and artist brushes but this odd little set has quickly become my main want in terms of regular, day to day, vinyl cleaning. I have a gamut of very expensive record cleaning machines decorating various small occasional tables in my listening room but I don't always want to go through the rigmarole of cleaning a record in that way. If my records are basically clean, I just want to remove recently accumulated light dust and static. This is a perfect system. It's top quality.



Icon Audio HP8 Mk.II Amplifier Standard Edition £699

The best headphone amplifier for its price, bar none with a simple yet efficient design, rugged, infinitely repairable and with the sonic benefits brought to bear with those lovely valves. What more do you need? This is an updated version from the, umm, original Mk.II. Icon should have called this the Mk.III. There is also a Signature Edition version of this amplifier available from Icon Audio which enhances the basic design with upgraded output capacitors and valves for just £155 so that will sneak into my wish list too (if the Editor isn't looking).

Blue Horizon Sanctum £195

It looks like a piece of MDF with a hole in it suspended on four low-vis feet. It resembles a square mint but there's no 'suck it and see' here. At least not for me because this support system lowers all kinds of noise from your components. Place your CD player on it or your pre-amp... whatever you like and it will lower the noise floor. The shelf itself is made from high density fibreboard (HDF) and is smooth on the top but a whacking great hole in the middle is to remove 'standing waves', apparently.



Christmas wishes

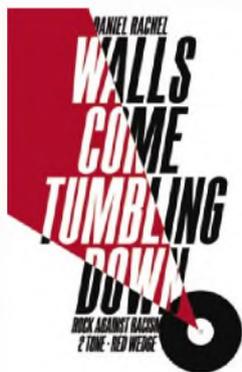
NAME: Jon Myles

STATUS: Hi-resolution Digital Expert

Looking for a hi-fi present for Christmas? Hi-Fi World reviewer Jon Myles gives a few tips on what to buy including DACs, earphones, books, turntable mats and portable digital players.

Audiolab M-DAC+ £799

Standalone DACs are becoming a must have for anyone whose digital music collection encompasses downloads, ripped CDs and streaming options. The trouble is some of them can cost a fortune. Not the M-Dac+ though. Boasting all the digital inputs you could want, various filter options, an easy-to-use interface plus a smooth, detailed and thoroughly musical sound thanks to the use of class-leading ESS Sabre DAC chips this is one component any hi-fi lover would be delighted to find under the tree come Christmas Day.



Walls Come Tumbling Down £17

For anyone whose musical tastes encompass some of the most inspirational sounds of the late 1970s and early 1980s this is an essential read. Author Daniel Rachel paints a vivid picture of how punk, reggae, ska and politics combined to fight against racism and bigotry while at the same time proving just how positive a force for good music can be. Put this tome in anyone's stocking and they'll love you for it!

Wooden Bull Leather and Cork Turntable Mat £50

Turntable mats can divide opinion - but this is one that works consistently well with a variety of turntables. A soft leather upper is glued to a gel-infused cork base to hold LPs firmly and improve overall soundstage and dynamics. With a depth of just 3mm it is easy to fit and, more importantly, does provide a significant upgrade at a realistic cost. Would I like one in my Christmas stocking? I certainly would.



FiiO X1 Mk II £99

FiiO are the undisputed kings of well-priced, high-resolution portable digital music players - but the recent X1 Mk II breaks new ground even for them. There's now a full colour screen, new scroll wheel and built-in Bluetooth capability. It also sounds superb and is handsomely built. For anyone who likes music on-the-go this has to be the best-value player to go for and at £99 it will not break the bank. Pair it with a decent set of headphones and the quality of replay is rather special.

Noble Audio Trident £275

Sturdy in-ear headphones that also sound good can be hard to find. Luckily Noble have hit the sweet-spot with these. A redesigned casing constructed from aluminium mean they withstand the daily grind of being pulled in and out of pockets, while three drivers per side give a nice, clean and extended frequency response. There's a slight emphasis to the low end and treble regions that works well with iPhones and Android devices where absolute resolution can be a bit limited. The best thing about them? They are robust, do not cost a fortune and will work with a variety of players.



Christmas wishes

NAME: Martin Pipe

STATUS: Expert on all things hi-fi

Martin Pipe gives his tips on how to fill Santa's sack for the hi-fi person in your life.

The Rolling Stones In Mono £350

Yes, we know and love the records. But for this groundbreaking mono Rolling Stones vinyl collection spanning 1963 to 1969, Grammy award-winning audio engineer Teri Landi returned to ABKCO's original master tapes. And to master these LPs, the services of the legendary Bob Ludwig were secured. The result? According to Billboard, "they lift a sonic veil from songs you thought you already knew completely". Mono? How so many fans remembered them at the time; although stereo was around in the sixties, it was a rich man's plaything. Neither should it be forgotten that until 1966's 'Aftermath' all of the band's output was recorded in mono anyway. Fifteen discs in all - including rarities and US versions.



Pro-Ject Turntable Record Puck £60

A vinyl shortcoming is its tendency to warp. Even if you pay meticulous attention to the storage of your records, there's always a chance that a warped disc (possibly second-hand) will find its way into your collection. My old Ariston RD80SL 'table had a clamp that screwed onto its spindle, thereby pushing the record flush against the mat. It's a pity such attention to detail isn't so common nowadays. Next best thing is this goody from Pro-Ject, an accurately-machined brass puck that straddles your spindle. Packed in a Christmas-friendly presentation box, the 850-gram puck will also prevent 'slip' - and the resultant slurring, which may be redolent of attacking the mulled wine a little too enthusiastically...

SVS SB-2000 subwoofer £650

What I'd like for Christmas is some...BASS! In recent times, subwoofers have only been of passing interest to music lovers - they're better-associated with putting the '0.1' into 5.1 home-cinema audio. But their potential is wider; subs can add low-end depth to - amongst other genres - rock, dance tracks, electronica and music composed for pipe organ, especially if you have bookshelf speakers with a modest bass response. A number of stereo receivers (including recent Yamaha and Onkyo models) will interface to an active subwoofer like this SVS SB-2000, which features a 12in. driver in a sealed box driven by a potent 500 watts of amplification. The SB-2000 has been praised for its articulation, speed and weight.



Ortofon Carbon brush £11

Good old Ortofon - they don't just make fine cartridges. Also listed in their range are accessories that will help you get the best from their better-known products and the records you play with them. This inexpensive little brush, with its fine filaments, should be gently-swept down the cantilever towards the stylus every so often - no fluids to worry about. After all, dust and deposits on the stylus prevent it from following the groove properly; the resulting problems range from impaired retrieval of musical information to gross distortion. An ideal stocking filler...

Atacama Eris Eco 5.0 Hi Fi £500

Equipment racks must provide a solid and stable surface for your hi-fi. Ergonomics are important; controls, disc trays and so on must be accessible. As furniture for your listening room, it must look good too! The Eris Eco 5.0 Hi Fi provides four levels of support - turntable, amp, digital player and maybe something else that Santa might care to slip into my sack. Its platforms, constructed from a high-density bamboo material, are supported by modular steel frames. An ingenious system of gel pads and steel spikes, meanwhile, decouples where necessary. Well thought-out - and it will be a visual centrepiece long after the Christmas tree has gone.



Christmas wishes

NAME: Rafael Todes

STATUS: Hi-Fi World's own classical expert

Violinist and classical musical expert Rafael Todes knows what Santa needs to bring to keep a hi-fi expert happy.

SR20 Quantum Fuse £45.00

Synergistic Research Quantum Fuses employ a custom alloy for burn wire and end caps, treated with 2,000,000 volts of electricity, altering the conductor at molecular level!

The body of the fuse is made from anti-resonant ceramic. SR Quantum Fuses provide a noticeable increase in soundstaging, resolution and air thanks to a lower noise floor and blacker backgrounds. Just the thing for providing a system upgrade at a realistic price.



Digital Concert Hall Subscription 149 Euro

This is a fabulous way to watch the renowned Berlin Philharmonic's concerts, either streamed live or recorded in HD picture and audio quality.

There is an archive of several hundred concerts, beautifully played and recorded, and 40 live concerts a year. Gripping stuff! Try free for a week and then it is 149 Euros for a year's subscription. Go to digitalconcerthall.com for all the details.

1MORE E1001 Triple Driver In-Ear Headphones with In-line Microphone and Remote £93.99

These are well-built in-ear headphones which sound bright and clear. They come complete with 6 sized sets of silicone eartips and 3 sets of foam tips for a perfect fit. They also have elegant packaging which includes case, airline adapter. So, comfortable and practical with a luxurious feel to them! An ideal present for anyone who likes listening from mobile devices.



Tidal Hi-Fi subscription £19.99 per month

This premium streaming service streams at CD quality and has a highly user-friendly interface. It is available for iOS and Android devices as well as now being built into many hi-fi streamers. Tidal has a catalogue of over 25 million tracks – and rising – which means for a relatively small monthly subscription you have access to more music than you could listen to in a lifetime. An ideal present for any music-lover.

Chord Mojo DAC and headphone amplifier £399

A great-sounding and great-value fun product, this is an amazing way to transport an iPhone into the realms of good audio. Using a Lightning-to-USB chord and streaming Tidal from your phone you can really enjoy the benefits of CD-quality streaming on the move.



W8 *loudspeaker*

- :Sensitivity: 87 dB
- :Nom. impedance: 4 ohms
- :6.5" long throw bass driver, tuned to 28 Hz, running without crossover.
- :4" custom-made paper cone bass-midrange driver, 1st order low pass filter, no high pass filter, apple tree phase plug, maple wood cone mounted to magnet.
- :3" widebander, 1st order high pass filter, unique electromechanical parallel resonator installed.
- :Internal wiring orientation optimised silk-wrapped high frequency stranded litz.
- :WBT NextGen binding posts.
- :Rear ambient tweeter.

Standard Edition £5526
SE Edition £8047
SE+ Edition £13122



"Given the construction of the speaker it might not be too surprising to discover that it handles stringed instruments in a way that makes most rivals sound like a bedside radio, but its performance with voices is such that it gets you wondering if Boenicke has also found a way to equip the W8 with lungs..." Ed Selley, HIFI Choice

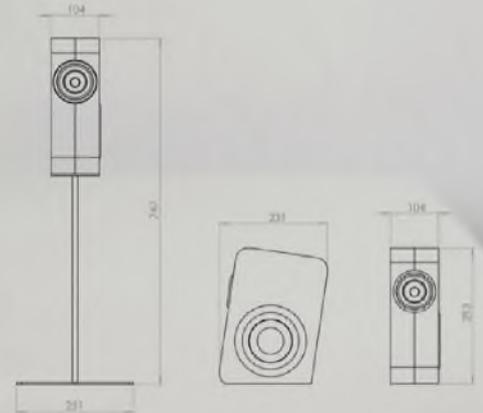


Left to right: Walnut, Ash, Oak, Cherry.

W5 loudspeaker

- Sensitivity: 87 dB
- Nom. impedance: 4 ohms
- 5.25" long throw bass driver, tuned to 65 Hz, 1st order crossover
- 3" widebander, 1st order high pass filter, unique electromechanical parallel resonator installed.
- Internal wiring orientation-optimised silk-wrapped high-frequency stranded litz
- WBT NextGen binding posts.
- Rear ambient tweeter.

Standard Edition £3598
SE Edition £4591
SE+ Edition £6815



W11 loudspeaker



- Sensitivity: 89 dB
- Nom. impedance: 6 ohms
- 10" long throw flat carbon fiber honeycomb bass driver, tuned to 27 Hz, first order crossover.
- 6" custom-made woodcone bass-midrange driver, 1st order low pass filter, no high pass filter, ash tree phase plug, magnet structure force fit mounted to the whole wooden mass of enclosure.
- 3" widebander, 1st order high pass filter, unique electromechanical parallel resonator installed.
- Bass level adjustable in 2.5 db increments using a custom-made super high quality autoformer.
- WBT NextGen binding posts.
- Rear ambient tweeter.

Standard Edition £7987
SE Edition £10456
SE+ Edition £15670



Linear D(elight)

A capable DAC is added to Lehmann's Linear headphone amplifier, with worthwhile results. Here's Martin Pipe's verdict.

The Linear D headphone amplifier combines Lehmann's proven amplifier technology and a linear power supply with a digital audio board. Boasting an ESS Sabre K2M DAC, it supports everything from CD-quality to 192kHz/24-bit hi-res. No USB connectivity is provided though, the Linear D instead relying on traditional digital S/PDIF terminals (optical and electrical) to accept PCM, but not DSD even though the Sabre K2M DAC provides it.

You can't force a switch between the digital and the analogue line-level input. Basically, the optical and coaxial digital inputs take respective priority over the analogue ones. If you want to listen to an analogue source, turn off or disconnect the relevant digital one and it will automatically-select the desired signal. Simple and effective!

The only controls, other than a rear-panel mains switch and a couple of DIP switches to set headphone sensitivity (independently for each channel) is the ganged volume control.

And what a volume control it is! The comfortably-large and impeccably-finished knob is coupled

to a smooth-acting ALPS pot. This is reflective of the standard of construction within – German engineering at its impeccable finest (even the three enormous feet underneath have received attention!). There are two circuit boards, of which the larger is the headphone/power supply amp. Capacitors here are of excellent quality, expensive mica types being used in the signal stages. Resistors are metal film, while the well laid-out fibreglass board's only chip is a Burr-Brown OPA2134 dual op-amp (the aforementioned DIP switches put different resistances into its feedback path, to set gain).

Lehmann's headphone output stage, which will drive up to two pairs of standard (i.e. 'unbalanced') headphones via standard 6.3mm sockets, is itself discrete. At its heart are heatsinked BD139/140 complementary transistor pairs, in a push-pull configuration that looks like it's potent enough to drive speakers! The latter observation could also apply the hefty toroidal-core transformer, which lives next door to the DAC section. This board is so small because of its extensive use of surface-mounted components;

mica capacitors of the conventional 'through-hole' variety are however specified for its output filter.

But there's more to the Linear D than headphones. Your decoded digital or analogue source is also available, post volume-control, on a pair of phono sockets that are active when no headphones are plugged in. As a result, you can also use it with a power amp (like Lehmann's Stamp) or active speakers.

Undoubtedly worthwhile, but it would have been made more useful still had the volume control been motorised, and Lehmann also provided remote control of it (and, while we're at it, source selection). But that would have added to the complexity, possibly impairing its cost and sonic potential. Simplicity is one of the Linear D's core virtues...

SOUND QUALITY

For most of my listening, I relied on the Fostex TH-610 headphones I reviewed last month. That said, I also fed Linear D's line output into an Arcam A49 integrated amplifier driving Quadral Aurum Wotan VIII floorstanders. Primary sources were a Cambridge CXN streamer



(connected optically and playing mostly CD rips stored on a NAS) and a high-speed ASC/Revox PR99 playing 15in/2 master-tape material. As the Linear D doesn't cater for balanced inputs (for that, you'll need the DAC-less Linear Pro) it was connected to the PR99's DIN 'monitor' output.

As Lehmann made its name with analogue, let's start with the tapes – which included a mid-70s KC and the Sunshine Band compilation and the 1981 album Unforgettable from Lennie Peters (who made up half of the Peters and Lee easy-listening duo). The funk of the former was tight and flowed rhythmically. Horns bristled with life, and the prominent bass guitar was tuneful and solid. I then played Peters' cover of New York, New York. Vocally-speaking the result is not quite up there with Sinatra, it has to be said – but the big-band backing him is given the scale and depth it needs.

And so to digital. Given the unit's origins, how about Deutsch Amerikanische Freundschaft – specifically, their late-1980s Virgin compilation? The energy of furious drum-pounding in tracks like Verschwende Deine Jugend came across well, as did the rich tonality of the sequenced analogue synthesisers that are integral to so many of the tracks. Their varying vintage showed in the recording quality, something that's not lost on the Linear D – it can be very revealing!

I then switched to reggae, specifically Steel Pulse's Handsworth Revolution. Plenty of detail was evident, but certainly in terms of the instrumentation it's the rhythm and bass that are of key importance here. They were taut and evenly-paced, and at high listening levels there was surprisingly little confusion; you can't fault the Linear D's drive. This was also true of the line output. When I tried the unit with the line input of a Yamaha R-N602, advancing the volume control too high resulted in audible distortion! This is because of the gain the unit provides; the setting of the DIP switches may have to be a compromise.

Stereo imaging also impressed, as a play of Britten's brooding War Requiem (LSO Live/Nosedá, a 24-bit recording) demonstrated; I was drawn into the music! Attack and precision were bestowed upon the



Internal construction is impeccable. Note the hefty power supply, and the heatsinked power transistors that form part of the headphone output stage. The amplifier/power supply board dwarfs the DAC, which can be seen under the toroidal mains transformer; despite their proximity, no untoward effect on sound quality was evident.

orchestra as and when needed, but they never challenged the authority of the choral forces.

The Linear D is best described as transparent and very revealing – although not quite as revealing as, say, the Prism Callia (which admittedly sells for £50 more, and lacks the Lehmann's analogue input).

CONCLUSION

Sonically, this was a fine headphone stage. The Linear D had scale and presence in its sound – and it was both transparent and revealing. Unfortunately, without USB connectivity or the ability to process DSD it is a bit short of the abilities of rivals.

MEASURED PERFORMANCE

Dynamic range of the Linear D measured 110dB – a good result in that it offers satisfactory improvement over CD (103dB) but still not up with mid-range units that offer 115dB or so, or higher-end designs like Audiolab's M-DAC+ at 125dB, to put the Linear D into market context.

At 192kHz sample rate, frequency response measured flat to 27kHz (-1dB) our analysis shows. Since a slow roll-off up to 96kHz starts at 10kHz the Lehmann will not sound either hard or sharp, rather smooth and easy.

Our distortion analysis at -60dB with 24bit resolution PCM shows the unusual presence of second and fourth harmonic distortions, most likely from analogue circuitry in the headphone amp. and it is this that compromised dynamic range measurement and also resulted in a distortion value of 0.1%, where 0.05% or less is common. Distortion of this nature will not be aurally unpleasant.

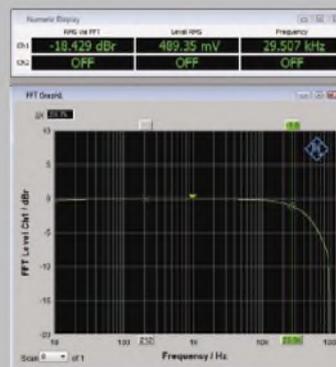
The Linear D measures well all round, although its figures are compromised a little by distortion. **NK**

Frequency response (-1dB) 4Hz–27kHz

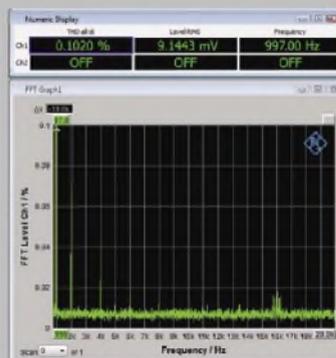
**Distortion 0dB 0.001%
- 60dB 0.1%**

Separation (1kHz)	95dB
Noise (IEC A)	-109dB
Dynamic range	110dB
Output	9V

FREQUENCY RESPONSE



DISTORTION



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Compact and solidly-built, the Linear D provides musical insight into analogue and digital sources alike.

FOR

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- line output can 'overdrive' some amplifiers (dependent on gain setting).

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“These are the loudspeakers you always wanted to own, able to shake a building to its foundations”



Noel Keywood

I have been Tannoying again. OK, it isn't meant to be a verb but as reviewing big Tannoys demands massive effort I think I can safely and justifiably turn it into one. Doing so is a whole art in itself, one I am proud to say this magazine is uniquely equipped to carry out, where most are not. Because big Tannoys are so big they are almost impossible to handle, and hence review.

As a result the few reviews big Tannoys receive are sketchy – heard at a dealer, show etc – and you'll find no measurement data.

Which I always felt was a pity because big Tannoys rock like nothing else. These are the loudspeakers you always wanted to own, able to shake a building to its foundations without breaking a sweat. Loudspeakers that produce enough bass power and punch to fell a horse, and subsonics like a train under the settee.

Just looking at the monstrous GRF90s sitting in our office reminds me of past times – the 1970s – when I used first Leak 2075s, then Leak 3090s at home. Once upon a time manufacturers made speakers this size as a matter of course, part of their everyday line up. And boy did I love using them, even if the neighbours might have felt otherwise. But it was the 1970s and I was young and – er – Led Zeppelin and Deep Purple were all the rage. Lesser speakers tended to fall apart I found, so these monsters were more than welcome in Keywood towers.

Loudspeaker manufacturers could make speakers like this today – and they should do the big GRFs tell me. Size confers enormous advantage that I'll quickly explain later.

These speakers then are more than just another product in for review; they represent an interesting critique of loudspeaker engineering,

an interesting review challenge and – currently – even an interesting look at UK plc's hi-fi sector, ever since Tannoy Group were bought out by pro equipment manufacturer Behringer of Germany. Yep, Tannoy has gone the way of Bentley. Will it be as successful?

There's so much to talk about when big Tannoys arrive, I hardly know where to start. So I'll start at the beginning. In this case it was a rocky one.

In the past Tannoy have sent out their big Prestige speakers for review and they have come back damaged, with no boxes (£200 each) and what have you. Behringer weren't happy so we had to go through hoops with them to get the GRF90s in, but at the same time Tannoy know us well, and that we have a suitable room for listening, as well as professional loudspeaker measuring equipment (Clio, Audiomatrica, Italy). A lorry duly arrived.

Under review, products have to be manipulated heavily for running-in, photography and measurement; they do not sit in one position all day. Two or three people must be involved – a health and safety requirement. Damage is likely.

With Prestige Tannoys nothing must accidentally fall against the veneer, be put on it, brush against it, etc. Oh the nightmares! Their price is £17,600 by the way.

What you have in a big loudspeaker like this is massive box volume, 7.4 cu ft being quoted against 2-3cu ft for a typical floorstander. This is one important difference, the bit that allows Prestige Tannoys to reach down low enough to shake building foundations.

Then there's that massive 12in drive unit, that I know from measurement produces negligible bass distortion. From my time with Yorkminsters I also know that the

room can be shaking whilst the cone hardly moves: awesome!

And finally, contrary to what we might imagine, the bigger a loudspeaker gets, the less power it needs. That, as they say, is counter-intuitive – but it's true and it means a giant loudspeaker like this can be driven by a Chord Mojo DAC or a portable player, even an iPhone; yes, I've done it – and it works!

I've mentioned in a previous column that it is possible to design a large volume cabinet to stand against a wall, so it doesn't dominate valuable domestic floor space. This is another potential advantage of a big cabinet, but it has to be knowingly exploited and at present big cabinets are (globally) out of fashion, except at Tannoy.

Why? Well, they are horribly expensive to produce, expensive to transport because of their weight and even expensive to box, cardboard boxes of sufficient size and strength costing hundreds of pounds.

Hi-fi like this is an anachronism? It might appear so, but from what I have said so far I think you can see that, technically, it is not. Big boxes and big drive units give a sound smaller speakers cannot. More sound power, deeper bass, less distortion – all from a few Watts of electrical power. I'm ever impressed that Tannoy continue to produce such loudspeakers, when everyone else gave up long ago. Moreover, they continue to advance them technically.

Tannoying is a great activity if you are fit and love the sound – the sonic drama – of big box loudspeakers. I'm not sure about meeting the first criterion, but I do meet the second. So look out next month for our little celebration of Tannoy's 90th Anniversary. I just hope nothing gets damaged at the party, 'cos it's a big bill to pay! ●

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"Without his manager Elvis Presley may have remained a truck driver"



Paul Rigby

Being first or just early on a scene doesn't guarantee success. Often, it can guarantee failure. Because, if you appear with something completely new – 'it' – you are likely unsure of boundaries, potential, inherent problems that will arise with 'it' and who might be interested in 'it'.

This is true of everything from vacuum cleaners to cars, to food recipes and to music. Look at the tablet device.

Microsoft were churning them out years before Apple got their hands on the idea but Apple stood back and examined the device from afar and decided to produce a product that would make money.

And that's the other issue here. It's normally the second generation of implementers that make the money. The first generation has all of the ideas and makes the mistakes.

Sometimes, though, people get lucky because they get help and I was reminded about these artistic ingredients from a new batch of CDs from the Hoodoo label (www.discovery-records.com).

Remember the doo-wop group The Platters ('The Great Pretender', 'Only You' and their rendition of 'Smoke Gets in Your Eyes' can be found on 'The Platters Plus The Flying Platters')?

This was a nice little vocal group. Nothing special. They were early on the scene and they were going nowhere fast.

Then their equivalent of Apple entered their lives. Buck Ram was his name and he became the group's manager and producer. He also wrote songs and even did a stint as vocal coach.

This guy was the central focus in the group's life. Without him, they were nothing. With him, the group

made a fistful of money and enjoyed enduring fame which still lasts to this day.

Elvis Presley was (and maybe still is) the iconic image of rock'n'roll and the single most important person in music during the 20th century who popularised rock.

But without his controlling manager Colonel Tom Parker, Elvis Presley may have remained a singing truck driver who had a few sparkling hits on Sun Records (as did many other singers of the time, who flew briefly in the bright lights of contemporary fame to disappear a few years later).

With Parker, though, Presley made millions and found an almost mythic fame (and appeared in several dodgy films (including 'Girls! Girls! Girls!' (1962) and 'Loving You' (1957), the dual soundtrack).

Then there was Etta James (appearing here on 'Tears of Joy: Modern and Kent sides 1955-1961'). James was born to a fourteen year old mother and absent father (thought to be the famous Pool hustler Minnesota Fats).

Raised by friends, her foster mother died when James was twelve, then James lived with her real mother, then fell into trouble with the law, was hooked on heroin, associated with a stream of abusive men, was ordered into rehab by a court...and yet, she had a growing career with a building reputation.

Her saviour wasn't an Apple-like corporation, a manager or mentor, a windfall of cash or a good luck event. Her 'reason' was that ol' clichéd cheesy emotion 'love' and, specifically, the love of friends.

The people around James pointed out her problems, corrected the faults, encouraged the good things, gave her opportunities and stopped her failing. Sometimes life

is so hard on a person that that the person just wants to curl up in corner and die.

Friends of Etta James just refused to allow her to do that. Why? Because James had too much to give. It sounds biblical and maybe even slightly heretical but James suffered so that others were healed. Vice-President of Atlantic records and producer Jerry Wexler described James as being, "...the greatest of all modern blues singers." To get to that point, she needed a lot of help.

Finally, how about Johnnie Ray? If you were a talent scout looking for a future singing star would you focus on a gay farm boy who was deaf in one ear and became quickly deaf in both to be the next music sensation and an unheralded pioneer of rock'n'roll?

No, probably not. The notion is a crazy one but that's what happened (as seen in 'The Big Beat & Johnny Ray'). For Ray 'it', the thing that set him apart, the thing that made other people sit up and listen, was a part of the man himself and so could not be readily copied or exploited, except by Ray of course. And that 'it' was Ray's wild, on stage, behaviour.

The 'it' was his over-the-top antics that would have him tearing his hair out on stage and collapsing on the very same stage in floods of tears as he delivered a most dramatic and emotional song.

Timing is everything in music and this type of performance struck a timely chord with budding female fans who reacted in kind. At one time he was causing riots while he performed, such was the frenzy that his act would inspire amongst audiences.

Which all goes to show that being first can also mean being very, very successful...with the right kind of help. ●



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“Some of the best musicians have always had a distinctly rebellious or political edge”



Jon Myles

Look back at the history of music, two distinct features stand out; an ability to provoke a deep emotional response in the listener and the capacity to influence and at times change society for the better.

Go back to 1913 and the debut performance of Igor Stravinsky's 'The Rite Of Spring' at the Théâtre des Champs-Élysées in Paris famously caused a near-riot in the audience due to its (for the time) avant-garde nature and pushing of musical conventions.

Twenty-nine years later during World War II Shostakovich's 'Symphony No 7' was broadcast via loudspeakers throughout the Russian city of Leningrad in a move aimed at raising the morale of its citizens as they lay besieged by Adolf Hitler's invading Nazi armies.

Move further forward to 1984 and The Special AKA's 'Free Nelson Mandela' brought the plight of the imprisoned anti-apartheid campaigner into the consciousness of a young generation of music fans and arguably did more than any number of political speeches had previously managed to forward the global campaign for his eventual liberation.

Just three examples of music's intrinsic power but a potent trio nevertheless. Strange as it may seem in this age of sanitised X Factor and The Voice contestants belting out anodyne power ballads but some of the best music and best musicians have always had a distinctly rebellious or political edge - the desire to speak up for a cause or provoke discussion about an issue through their art.

I was reminded of this while reading the new and excellent book entitled Walls Come Tumbling Down by the author Daniel Rachel. It is an oral history of a politically-charged group of musicians and activists from the 1970s and 1980s who came

together under the banners of Rock Against Racism, the Anti-Nazi League, 2 Tone and Red Wedge to fight against a perceived surge of racism and bigotry engendered by what was viewed by them as an austerity government.

This wide-ranging assembly of people encompassed artists such as The Clash, Sham 69, Gang Of Four, Misty In Roots, The Smiths, Elvis Costello, Billy Bragg and The Specials. None of them were afraid of airing their views for fear of losing record sales nor shy in denouncing obvious injustices when they came across them.

The catalyst for all of this was a concert by Eric Clapton at the Birmingham Odeon in 1976 when the guitarist declared his support for the then MP Enoch Powell's anti-immigration policies and quoted the National Front's slogan 'Keep Britain White' (Clapton, to his credit, has later admitted he was a little drunk at the time of these on-stage comments).

Opprobrium immediately followed through the letters columns of the music press - with many readers not unnaturally pointing out that at the time Eric Clapton had recently enjoyed hit single success with a cover of reggae legend Bob Marley's 'I Shot The Sheriff'.

But a rock photographer named Red Saunders decided to take things further and began promoting concerts under the banner of Rock Against Racism - one of whose chief attributes was the presence of both black and white musicians on their bills.

The idea caught on - so much so that in 1978 100,000 people marched from Trafalgar Square to Victoria Park in the East End of London to attend a music concert featuring The Clash, Steel Pulse, The Tom Robinson Band and Generation X in a demonstration

of how music could and should cross cultural boundaries. Coaches and trains carried people from Manchester, Glasgow and Sheffield to attend.

Other events followed across the country including a concert in Manchester's Victoria Park which attracted an estimated 40,000 people and again featured Steel Pulse as well as The Buzzcocks, Exodus and China Street. The Anti-Nazi League followed while in later years the 2 Tone movement initiated by Coventry-based Jerry Dammers brought the issue of apartheid into mainstream debate in both Britain and America while Billy Bragg (a member of the audience at that Victoria Park Rock Against Racism concert) founded Red Wedge with the avowed aim of engaging young people with politics through the influence of musicians such as himself, Paul Weller, Bananarama, Madness and others.

It may all seem a long time ago now but Walls Come Tumbling Down eloquently tells the tale of how all these movements ignited both musicians and fans into supporting a cause they felt passionately about via the anecdotes and memories of those involved at the time.

Could the same happen nowadays? It's hard to imagine, somehow as popular music and musicians have become less political and few tackle social issues in their songs. Yes, the likes of Beyonce, Lady Gaga, Jon Bon Jovi and Bruce Springsteen did endorse Hillary Clinton in the recent US election (not that it did her much good). However, with sole exception of Springsteen, none of those is renowned for talking about social issues in their music.

That said, Rock Against Racism Jerry Dammers' anti-apartheid message demonstrated what musicians can achieve if they embrace a cause and rally their fans to it. ●

“Miyabi Reborn”

Shortly after Haruo Takeda (Miyabi designer) retired, Osamu Nagao, a good friend of Takeda and Miyabi distributor in Japan, and Tetsuya Sukehiro, a young cartridge designer with over 10 years of OEM carrier for several well-known brands, started a project to create a cartridge to revive the Miyabi sound. After 3 years of painstaking R&D, they finally came to a breakthrough shortly before the summer of 2014 and Fuuga was born.



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"TV sound is now capable of beating that of an audio-only broadcast medium"



Martin Pipe

Television sound has long been seen as radio's poor cousin. Much of this is down to the mediocrity of TV sound systems, rather than what's broadcast. In the 1970s the average family colour TV was encased in wood, a small elliptical speaker providing sonic accompaniment to pictures from a 22in cathode-ray tube (CRT). Some manufacturers, among them Bang and Olufsen, Tandberg and Philips, did pay attention to TV sound. I had a 1982-vintage Philips 'super-sound' set that featured a 4in. woofer in its own bass-reflex sub-enclosure plus a separate tweeter. The results were surprisingly-good, even with music. In comparison, most TVs sounded dull.

No wonder a few firms produced separate UHF TV-sound add-ons that connected to your hi-fi system. The Celestion 'Telefi' was an innovative gadget. It derived its signals from a 'probe' that had to be inserted inside your TV and, for the benefit of those running short of input connectivity, featured stereo 'passthrough' audio inputs for a conventional radio tuner.

In contrast, the self-contained Motion was fed directly from a TV aerial (one version combined UHF TV sound and stereo FM radio).

VCRs then became popular, making things easier for those wanting to hear TV better; the machine's audio output could be fed to external equipment, using its integral tuner to transform the TV audio experience. At that time, UHF TV sound was FM mono. Thus the 'simulcast', in which stereo sound was carried by BBC radio (Sight and Sound In Concert, Last Night of the Proms and eventually Top of the Pops). Place speakers on either side of the screen (but not too close, lest their magnets distort the tube's shadowmask and mess up the colour!) and turn down the TV's

volume. Simulcasts were alas few and far between. No wonder some firms sold gadgets that would 'fake' stereo from mono TV and videotapes...

In the late 1980s genuine TV stereo arrived, courtesy of a BBC-developed digital system known as NICAM. At the time, it was the world's most advanced TV audio; other countries (notably West Germany, Japan and the USA) employed inferior analogue technology.

Ironically, NICAM was introduced when TV manufacturers were switching from traditional wood cabinets to plastic 'monitor-style' affairs. The potential for better TV sound was being thrown away; plastic cabinets used to 'thrum' and rattle horribly.

And with speakers flanking a screen that's small by today's standards, the stereo spread was limited. But you could take audio from the SCART socket to your hi-fi system if you didn't want to acquire a NICAM VCR or invest in a NICAM tuner from the likes of Arcam.

TV 'went digital', its audio progressing from NICAM's '14-to-12' bit, 32kHz-sampled system to 16 bit/48kHz with lossy compression (MPEG-1, Layer-2). CRTs eventually gave way to flat-panel displays. Earlier plasma and LCD TVs could sound good, as speakers were separate enclosures that attached to either side of the screen.

And thanks to spring-clip terminals, your own transducers could be substituted. Their successors deliver superior pictures (alongside features like HD tuners, 'smart' functionality and 3D) but their tiny downwards-firing drivers are of generally-abysmal performance.

They lack external-speaker terminals, but analogue and optical digital outputs can pipe sound to your audio system.

TV is now undergoing another transformation – the shift from broadcast to 'on-demand' delivery. Thus the rise of services like BBC iPlayer, the original purpose of which was a simple 'catch-up' service.

Today, though, the Beeb is offering exclusive content via iPlayer. One thinks of BBC Three's move online, as well as specially-commissioned comedy and drama.

And there are expansive documentaries from Adam Curtis. This film-maker combines an eclectic selection of music, extensive archive and intricate narrative – the result is always thought-provoking. They sound pretty good too, presumably because they don't have to go through lengthy chains of broadcast infrastructure; a film could, in theory, be uploaded directly from the edit-suite to the iPlayer server.

Take for example the 2015 documentary *Bitter Lake* (still available: <http://bbc.in/1zbQoGX>). Curtis uses large chunks of Burial's atmospheric electronica 'Come Down To Us'. This track was played on a recent edition of Jarvis Cocker's 6Music show, in which Curtis guested to promote his new film *Hypernormalisation* (<http://bbc.in/2eBKg1p>).

Although I was listening to the 6Music 320kbps AAC stream, the Burial track sounded much better on the same playback system via *Bitter Lake* – despite the lower bitrate (128kbps) of iPlayer audio.

This is because less audio compression (not to be confused with data compression!) had been applied. Tests with a common 2-minute section of the music revealed that the iPlayer stream offered an additional 5dB dynamic range.

And so we've turned full circle, TV sound now being capable of heating that of an audio-only broadcast medium... ●

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Here's your chance to win the superb Tellurium Q cables we have reviewed in this issue. Read the review excerpt below and answer the questions.

"Since then their portfolio has expanded rapidly and the Black has been joined by the Blue and Silver ranges as well as their Ultra variants while power leads and interconnects have also been added.

I've yet to hear a Tellurium Q cable I've not been impressed by - and use their Silver Diamond 'speaker leads in my home system.

So it seemed natural to try a full loom by bringing the Somerset-based company's Silver Diamond XLR interconnects and Ultra Silver power cables.

Tellurium Q founder and designer Geoff Merrigan is famously tight-lipped about the construction of his cables - mainly because he doesn't want others copying them, which

is fair enough. However, judging by the names you probably wouldn't be too wide of the mark in assuming there's some silver involved in their production.

Apart from that the only thing to say is that both the Silver Diamond XLRs and the Ultra Silver power lead are handsomely constructed with a thick, black braid covering and sturdy, high-quality connections (Furutech on the mains cable)".

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 2017 to:

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QUESTIONS

[1] What joined the Black range?

- [a] beige range
- [b] Blue range
- [c] barny range
- [d] boffin range

[2] I use in my home system -

- [a] bell wire
- [b] wet string
- [c] Silver Diamond
- [d] gold cable

[3] Tellurium Q's designer is -

- [a] Ambrose Fleming
- [b] Geoff Merrigan
- [c] Sydney Strange
- [d] Michael Mouse

[4] Involved in their production is -

- [a] mercury
- [b] artinium
- [c] iridium
- [d] silver

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The discs that just won't die

In the conclusion of his three-part series on the rise and fall of laserdisc Martin Pipe charts how the format paved the way for the likes of CD and DVD and explains why it is still loved by many enthusiasts.

By the mid-1990s, laserdisc had been established as a staple enthusiast AV source in the UK and elsewhere. Its picture quality trounced that of the VHS machines that outsold it, while the accompanying stereo sound was the best digital audio then available in the home (CD quality).

Pioneer LDCE was doing a splendid job distributing movies and concert extravaganzas in the format (usually as affordable single-disc CLV editions). Others providing material of widespread appeal on laserdisc included Walt Disney Home Video, 20th Century Fox, and the BBC.

Then there were the efforts of specialist distributors, the best-known of which is Criterion. It spoilt film buffs with expensive but lovingly-prepared editions of important releases. Transfers were the best that technology allowed and were, where applicable, presented in widescreen.

Other attractions were the extras; commentaries, interviews, documentaries, deleted scenes, photos, theatrical trailers and lavish booklets. It took the art of

collectability to heights traditionally associated with vinyl records.

Great though stereo was, laserdisc's audio was about to go a multichannel for cinema use. You got a centre channel, routed to a speaker located behind the screen, that reproduced dialogue and central effects. In addition a surround channel, piped to speakers towards the rear of the auditorium, provided ambience. A subwoofer output was also offered for low-end 'oomph'.

And all of these goodies were at your disposal if the stereo disc or tape was sourced from a print intended for theatrical distribution. As soon as this practice was verified in the mid-1980s, home cinema began to take off.

Early equipment used a standard known as Dolby Surround, a somewhat watered-down version of the cinema specification that specified consumer Dolby B decoding rather than Dolby A to keep the surround-channel free of noise.

Dolby Surround decoders required the user to 'null out' channel leakage with manual controls. It was in time eclipsed by the more



The 1981 US laserdisc version of the 1970 Beatles documentary film *Let It Be*. Original laserdiscs change hand for large sums of money but DVD conversions circulate freely on file-sharing sites.

advanced Dolby Pro-Logic which spared the user from tweaking hassles and gave better subjective channel separation thanks to steering-logic techniques.

But although Pro-Logic offered a degree of sonic immersion within the home it couldn't compete with the fully-discrete multichannel digital surround systems – AC3 (better known as Dolby Digital), Sony's SDDS and DTS – that started thrilling cinema-goers in the early 1990s.

These gave complete separation between channels, full 20Hz-20kHz bandwidth, a dedicated subwoofer channel and twice the number of rear ambience channels.

The situation changed in the mid-1990s when laserdiscs were modified to support Dolby AC3. To explore



Pioneer introduced machines capable of playing DVDs as well as CDs and laserdiscs. This one is the third generation' DVL-919 circa 1999.

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this brave new sonic world you needed an AC3 decoder, a laserdisc player able to output the information and a device that interfaced the two.

The difference it made was tremendous – 5.1 knocked matrix surround into a cocked hat. Many home cinemas now offered better sound than local ‘flea-pits’, although pictures tended to be another story.

Unfortunately, this new technology could only be applied to American 525-line NTSC discs; they had enough room for both PCM and FM soundtracks. With European FAL titles, it was a choice between one or the other. There was a strong import market for American and Japanese laserdiscs at this time - not least because users could get to see movies ahead of their UK release.

AC3 was a huge success, but another digital multichannel format was waiting in the wings. Less information was discarded by DTS processing and it was claimed to sound better. Its debut release was the 1993 blockbuster Jurassic Park. In cinemas, DTS was a 5.0 format (no dedicated subwoofer channel then) built around a special CD-ROM player that was synchronised to a timecode on the film.

The first DTS laserdisc was, appropriately enough, Jurassic Park. But although DTS laserdiscs could sound awesome the format’s days were numbered. In 1998 DVD was officially-launched. The all-digital format offered support for one or more stereo or multichannel audio soundtracks as standard, and stored video in digital-component form.

DVDs were CD-sized and thus much easier to store than laserdiscs. Better still, there was talk of formats like DVD-Audio and SACD – with their promise of hi-res audio and

surround-sound. Pioneer kept the flag flying with clever players (like 1998’s DVL-909) that could spin DVDs as well as laserdiscs and CDs. Unfortunately, integration was not all it could be; the component or RGB Scart output was exclusively for DVD while the lack of AC3 demodulators meant that you could pipe Dolby Digital soundtracks from DVD but not laserdisc to your AV gear.

Despite such limitations, the expensive machines sold well as enthusiasts now had something that could play not only their existing collection but those fancy new DVDs too. Laserdisc’s last movie came surprisingly quickly – a September 2001 release of the previous year’s Hong Kong action flick Tokyo Raiders (complete with AC3 soundtrack). Interestingly, Pioneer only discontinued the manufacture of laserdisc players in 2009 – long after other manufacturers like Sony, Philips, Aiwa and Matsushita. By the end of that decade most people had forgotten about the format.

But some are loath to rid themselves of their ‘big discs’. A considerable amount of material once sold to home users on videotape or laserdisc has yet to make it onto DVD, Blu-ray or download. A used laserdisc may thus be the best option. Consider for example the Beatles’ revealing 1970 documentary Let It Be – shot at a time when the band was close to collapse. This was released on home video (VHS and laserdisc) back in the early 1980s but has yet to see a digital release.

And sometimes a laserdisc is judged superior, in one or more respects, to the DVD or Blu-ray release. The laserdisc versions may contain scenes or extras that were cut from subsequent releases, have their basis in a better transfer or boast superior audio quality. The PCM stereo soundtrack of Criterion’s The Fisher King laserdisc is judged to wipe the floor with the US Columbia DVD’s Dolby Digital effort.

Laserdisc hardware and software is still abundant today and prices vary widely. Rarer titles can



One machine prized by collectors is 1993’s NTSC-territory CLD-A100 Pioneer ‘LaserActive’. It was supported by a total of 17 titles, which could take advantage of laserdisc’s speedy random-access.

change hands for significant sums of money but most discs can be had for a fiver or less.

Domestic players are another story. Not so long ago, they sold second-hand for next to nothing; I recall buying them at boot sales for a tenner a time! Now working specimens typically go for £50 upwards on eBay. The hardware itself is remarkably reliable. The CLD-2950 player featured in our photos is over twenty years old and still works perfectly. Lasers and motors seem to be resilient, although loading belts stretch over time and will need renewing.

Discs, however, aren’t so reliable – especially older ones. Remember the ‘disc rot’ that affected some batches of CDs a good few years back? Some laserdiscs, especially titles from the early- to mid-1980s, are plagued too. Owing to manufacturing deficiencies the reflective aluminium layer slowly oxidises causing readability issues.

Note also that the analogue video connections needed for laserdisc players are disappearing from TVs.

Sound is also influenced primarily by the available software. Some reckon that the FM audio tracks offered the best sound potential. However, the FM audio discs I have sound rather thin (compilations of pop videos) or congested (a double-disc souvenir of a performance The Who gave in Canada).

Laserdisc may have been eclipsed by newer technology, but for many old-timers the ‘whoosh’ of that LP-sized disc being brought up to speed will evoke fond memories. It should not be forgotten that laserdisc helped to pave the way for the all-conquering CD – which subsequently gave something back, in the form of its 16-bit/44.1kHz uncompressed-PCM audio format.



The lasers, motors and electronics of Pioneer players are resilient but belts can stretch causing the pulleys to slip. Replacements are readily-available.

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MUSICAL FIDELITY A3CR POWER AMP 1 OWNER	MINT/BOXED	£495
AUDIO INNOVATIONS 1000 SILVER PRE-AMP	EXC	£599
ELECTROCOMPANIE EC-1 INTEGRATED	EXCELLENT	£695
JOHN SHEARNE 2.5 INTEGRATED AMP	1 OWNER	£375
JOHN SHEARNE 3.5 POWER AMP	1 OWNER	£375
OPERA CONSONANCE A-100 R AMP 1 OWNER	MINT/BOXED	£495
PRIMARE I-21 INTEGRATED 1 OWNER	MINT/BOXED	£595
MERIDIAN 501 PRE AMP	MINT/BOXED	£325
ALCHEMIST KRACKEN II & LARGE OPTIONAL PSU	EXCLT	£395
TRIO L-05 MONOBLOCKS (RARE)	EXCLT	£795
TRIO L-01 PREAMP C/W PHONO STAGE	EXCLT	£495
TRESHAM PRE AMP BALANCED OUT ETC	GC	£325

VINYL

CLEARAUDIO DOUBLE MATRIX PROF.RECORD CLEANER & DUST COVER	DEM/BOXED	£2250
MICHELL FULL GYRODECK QC PSU/LID/CLAMP (RARE BLACK)	DUE IN	TBA
GARRARD 501 MISSING LINK PHONO STAGE MM/MC	DUE IN	TBA
GRAHAM ENGINEERING ROBIN TONEARM	MINT/BOXED	£450
PROJECT 12 INCH CARBON ARM 2 WEIGHTS DIS/DEM	MINT/BOXED	TBA
PROJECT 9 INCH CARBON ARM 2 WEIGHTS DIS/DEM	MINT/BOXED	TBA
HADCOCK GH-242SE UNIPIVOT TONEARM	EXCLT/BOXED	£475
ORIGIN LIVE GOLD PLATED TONEARM	DEM	TBA
VERTEX AQ SILVER SOLFONN TONEARM LEAD	DIS/DEM	TBA
REGA RB-300 INCOGNITO WIRED	DEM	TBA
REGA RB-300 DISCOVERY PLUS FOUR WIRED	DEM	TBA
DISCOVERY PLUS 4 TONEARM LEAD	DIS/DEM	TBA
INCOGNITO ARM TONEARM LEAD	DIS/DEM	TBA
VAN DEN HUL MCD 501 SIL.HYBRID TONEARM CABLE	EXCLT	£225
ODDESSY RP1-XG ARM 1 OWNER UTTERLY COMPLETE		
WITH ACCESSORIES AND ALL PAPERWORK COLLECTORS DREAM!	MINT	£1495
STAX UA-7 TONEARM 1 OWNER CONDITION AS ABOVE	MINT	£495
LUXMAN PD-444 TURNTABLE/STAX UA-7 ARM 1 OWNER	MINT	£2250
GARRARD 401 WITH ACCOUSTAND SKELETAL PLINTH	EXCLT	£950
ROKSAN XERXES & PSU 1 OWNER LOVELY CONDITION	EXCLT	£595
ORIGIN LIVE SILVER TONEARM	EXCLT	£395
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DENON DP-1200 SPECIAL EDITION (INC ARM/CART.)	RARE	£495
TRIO KD-500 HEAVY CORIAN TURNTABLE	EXCLT	£495
PINK TRIANGLE /RB-300/CARTRIDGE/PSU REF.BEARING	EXCLT	£595
GRAHAM SLEE ERA GOLD MKV MM PHONO STAGE & PSU-1	EXCLT	£345
GRAHAM SLEE ELEVATOR & PSU1	EXCLT	£375
TOM EVANS MICRO GROOVE & PSU	EXCLT	£375
MICHELL ISO PHONO STAGE & HERA PSU	EXCLT	£349
AUDIO INNOVATIONS 1000 MC STEP UP	MINT/BOXED	£495
THORENS TD-160S EXCELLENT CONDITION	EXCLT	£349
CARTRIDGE MAN DIGITAL STYLUS GAUGE	DEM	£165
CLEARAUDIO MASTER REFERENCE	DUE IN	RING
ORTOFON ROHMANN NEW UNUSED	NEW/BOXED	RING
NOTTS ANALOGUE MENTOR ARM	DIS/DEM	£495

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TANNOY EDINBURGH TW	EXCELLENT	£2750
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SONICS AMERIGO HI END LOUDSPEAKERS	1 OWNER/BOXED	DUE
MARTIN LOGAN DECENT SUBWOOFER	GC	£1250
ACJUSTIC AUDIO FUNDAMENTAL K2 1 OWNER (£25K NEW)	MINT/BOXED	£6995
B&W 801 MATRIX SERIES 2 WALNUT 1 OWNER	EXCLT	£1995
AURUM CANTUS GRAND SUPREME £10 000 +	DEM/CRATED	£5750

ART ALNICO-8 6 (£10 000) DEM USE	MINI/BOXED	£5650
MARTEN MILES CHERRY (8K+ ONE OWNER)	EXCLT	£2995
BOLZANO VILLETTRI BV3003 & BV SUB FANTASTIC!	SALE!	£2595
PODIUM 1s PANELS VERY LOW USE (£6000? NEW)	1 OWNER	£1995
ART AUDIO PRECISION MONITOR (PIANO BLACK 6K+)	DEM-1	£1795
AUDIO ARTISTRY DVORAK 2 PANELS 2 SUBS & X- OVER	EXCLT	£1995
HALES TRANSCENDENCE 5 (SUPERB £6K?)	EXCLT/BOXED	£1750
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WILMSLOW AUDIO PRESTIGE	RING	RING

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MICROMEGA STAGE-2	MINT	£199
INCA TECH KATANA	VGC	£395
TRICHORD DIGITAL TURNTABLE	EXCLT	£395
THETA CARMEN CD/DVD TRANSPORT 1 OWNER	EXCLT/BOXED	£695
THETA DS-PRO GEN III COAX AES/EBU/AT&T RCA/BAL.OUT 1 OWNER	EXCLT/BOXED	£695
PINK TRIANGLE ORDINAL (GETTING RARE)	GC	£375
PIONEER CLD-D925 LASER DISC/CD 1 OWNER LOW USE	MINT/BOXED	£349
LARGE NO. OF MINT LASER DISCS	PLEASE	RING

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BEN DUNCAN PURE POWER 1KW P-100 POWER TRANSFORMER 1 OWNER	EXCLT	£395
MUSICAL FIDELITY A5 FM/DAB TUNER 1 OWNER	EXCLT	£575
QUAD FM-4 TUNER GREY 1 OWNER FROM NEW	EXCLT/BOXED	£275
TECHNICS ST-GT650 TUNER	VGC	£125
TECHNICS ST-GT550 TUNER	VGC	£99
ROTEL R8-9508X AM/FM TUNER	EXCLT	£125
ROTEL RT-87DL LW/MW/FM STEREO	EXCLT	£99
MUSICAL FIDELITY X-CANS V3	MINT/BOXED	£195
BLACK RHODIUM 1.2 METRE POWER CORDS	NOS	£99
LARGE NO. OF POWER CORDS FROM RUSS ANDREWS/TCI/COINCIDENT/ VAN DEN HUL/CHORD /RINGMAT/PS AUDIO/BLACK RHODIUM ETC	PLEASE	RING

INTERCONNECT

TOWNSEND DCT RCA 1 METRE PAIR	DIS/DEM	£275
GUTWIRE CHIME 1 METRE RCA MINT/BOXED (2 PAIRS AVAILABLE)	DIS/DEM	TBA
GUTWIRE BASIC INTERCONNECT 2 METRE RCA PAIR	DIS/DEM	TBA
HOVLAND G3 2 METRE RCA PAIR	DIS/DEM	£249
HOVLAND G3 1.2 METRE PAIR XLR	DIS/DEM	£200
HOVLAND PINCUS G3 2 METRE PAIR XLR	DIS/DEM	£275
ABBAY ROAD REFERENCE 1.5 METRE PAIR EICHMAN PLUGS	DIS DEM	£375
ABBAY ROAD REFERENCE 1.5 METRE PAIR EICHMAN PLUGS	DIS DEM	£375
ABBAY ROAD REFERENCE 1 METRE PAIR EICHMAN PLUGS	DIS/DEM	£345
ABBAY ROAD INTERCONNECT 1 METRE RCA PAIR	DIS/DEM	£199
GOERTZ PURL SILVER 1 METRE RCA PAIR BOXED	DIS/DEM	TBA
GOERTZ PURL SILVER 1 METRE RCA PAIR BOXED	DIS/DEM	TBA
GOERTZ PURL COPPER 1 METRE RCA PAIR BOXED	DIS/DEM	TBA
MADRIGAL CZ GEL 1 METRE XLR PAIR	DIS/DEM	£275
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VAN DEN HUL CC THE SECOND 0.8 METRE PAIR	DIS/DEM	£120
AVID SCT STANDARD BLUE 1 METRE RCA	NEW/BOXED	£295
KIMBER SELECT 1020 0.5 METRE RCA	MINT/BOXED	£295
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TRANSPARENT MUSIC LINK SIG 1 METRE XLR PAIR	DUE	RING
DISCOVERY ESSENCE 1 METRE RCA (2 PAIRS PRICED EACH)	DIS/DEM	£295
CHORD INDIGO 1 METRE XLR PAIR MINT	DIS/DEM	£450
CHORD INDIGO 1 METRE 3 PIN DIN MINT	DIS/DEM	£395
CHORD INDIGO 1 METRE DIN TO RCA PAIR	DIS/DEM	£395
CHORD INDIGO 1 METRE DIN TO RCA PAIR	DIS/DEM	£395
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ABBAY ROAD REFERENCE 5 METRE PAIR	DIS/DEM	£599
HOVLAND NINE LINE 4 METRE BI-WIRE PAIR	DIS DEM	£450
HOVLAND NINE LINE 2.5 METRE BI WIRE PAIR	DIS/DEM	£350
GOERTZ M12 VERACITY SILVER SPADES BOXED	DIS DEM	£450
VAN DEN HUL ORIGINAL INTEGRATION 5 METRE PAIR	DIS/DEM	£395
TRANSPARENT MUSIC WAVE BI WIRE 7.5 PAIR	GC	£575
MIT MH-750 8 METRE PAIR	EXCLT	£1195
BLACK RHOD POLAR NINJA DCT ++2 9M, PAIR	DEM	£650
XLO 5.2 SIGNATURE-1 4FT PAIR	DEM	£495
XLO REF.2.5 METRE PAIR (SPADES)	EXCLT	£375
CHORD CO SIGNATURE 0.8 METRE JUMPERS	MINT	£275
CHORD CO EPIC TWIN 3M BIWIRE	EXCLT	£275

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Silver Service

Jon Myles upgrades his system with a dedicated cable loom from Tellurium Q.

Tellurium Q has garnered much critical praise for its range of products since it launched the original Black loudspeaker cable some five years ago.

Since then their portfolio has expanded rapidly and the Black has been joined by the Blue and Silver ranges as well as their Ultra variants while power leads and interconnects have also been added.

I've yet to hear a Tellurium Q cable I've not been impressed by - and use their Silver Diamond 'speaker leads in my home system.

So it seemed natural to try a full loom by bringing the Somerset-based company's Silver Diamond XLR interconnects and Ultra Silver power cables.

Tellurium Q founder and designer Geoff Merrigan is famously tight-lipped about the construction of his cables - mainly because he doesn't want others copying them, which is fair enough. However, judging by the names you probably wouldn't be too wide of the mark in assuming there's some silver involved in their production.

Apart from that the only thing to say is that both the Silver Diamond XLRs and the Ultra Silver power lead are handsomely constructed with a thick, black braid



covering and sturdy, high-quality connections (Furutech on the mains cable).

SOUND QUALITY

The Silver Diamond 'speaker leads (£895 per metre) are amongst the most transparent, open and detailed I've ever heard - capable of outperforming other high-end rivals costing twice as much.

Swapping out my existing power lead and interconnects, however, brings an extra degree of clarity to the system. These products have obviously been designed to work together - sharing the qualities of pinpoint timing allied to an absolutely crystal clear presentation.

It's as though the frequency range has been subtly extended so on 'A Verlaine Songbook' there's extra elevation to
Carolyn

Sampson's soprano while the plunging bass of Massive Attack's 'Angel' goes that much lower.

The effect applies across the entire sonic spectrum. Listening

to the Oslo Philharmonic Orchestra's latest recording of Prokofiev's 'Romeo And Juliet' the vibrancy of the tenor saxophone stood out whereas with other interconnects it could sound rather muted.

Replacing the Ultra Silver power cable for a standard lead proved it was helping in the overall equation. Without it the sound was still good - but with it in place music had more solidity which gave everything a concert hall-like realism.

Taken individually both the Silver Diamond XLRs and Ultra Silver lead are excellent performers but there's a synergy between them that means, if you can, you'll get even more benefit if they're paired together. Use them with the Silver Diamond 'speaker cables and you'll have a coherent wiring loom that could happily stay in place no matter how far up the scale you upgrade your system

CONCLUSION

At £2292 for the XLR interconnects and £1680 for the power cable these leads are not cheap. But they bring class-leading resolution which opens up the soundstage and lets you hear instruments with tonal and timbral accuracy. The interconnects, especially, seem to reveal transients and micro-dynamic information that others seem to muddy. If you are interested in finding out exactly what your components are doing then these cables will let you hear it.

TELLURIUM Q SILVER DIAMOND XLR INTERCONNECTS
£2292 (1 METRE LENGTH)



OUTSTANDING - amongst the best.

VERDICT

Open, natural and transparent, this interconnect brings greater detail, coherence and clarity to your system.

FOR

- frequency extension
- coherence
- timing
- clarity

AGAINST

- not cheap

TELLURIUM Q ULTRA SILVER MAINS CABLE
£1680 (1.5 METRE LENGTH)



OUTSTANDING - amongst the best

VERDICT

Top-class cable that adds weight and authority to the sound which helps enhance detail.

FOR

- improves bass
- brings extra solidity to the sound
- adds extension

AGAINST

- nothing at the price

Tellurium Q
+ 44 (0)1458 251997
admin@telluriumq.com



vinyl section

contents

JANUARY 2017

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RELOOP TURN 3 TURNTABLE 117

Noel Keywood checks out a low-cost digital turntable that offers excellent analogue replay.

news

MPS MUSIC

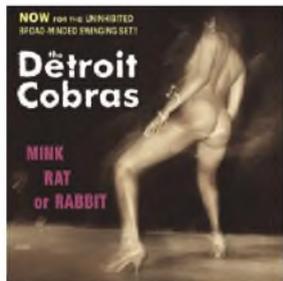
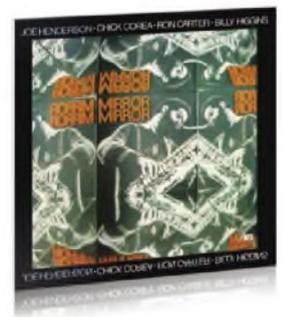
New to me is Audiophile Analogue Remastering (www.mps-music.com) which is beginning to reissue jazz LPs originally created in the Black Forest in Germany. It was formed in 1968 by co-owner of the electronics manufacturer SABA, industrialist Hans Georg Brunner-Schwer who built a recording studio above the living room in his villa.

From this early start stemmed audiophile recordings by luminaries such as Oscar Peterson, Joe Henderson, Baden Powell and more. Remastered directly from the master tapes, the first two little known releases I have here are sax man Joe Henderson's superb 'Mirror Mirror' (1980) with Chick Corea, Ron Carter and Billy Higgins plus Freddie Hubbard's 'The Hub of Hubbard' (1970) including Richard Davies and Louis Hayes. A real treasure trove for jazz fans.



BEFORE SUZI QUATRO

We know Suzi Quatro, right? The glam-inspired hard rocker who had a string of hits in the seventies? Before that, though, she played bass with her sisters Patti, Atlene and Nancy plus friends. Initially a novelty girl band they quickly became much too good for that monicker. The Pleasure Seekers' 'What A Way To Die' (*Sundazed*; www.sundazed.com) was a garage band that had chops and teeth! This collection, pressed onto pink vinyl, features songs that were recorded in 1965-1968, evolving into a harder edged sound with time.

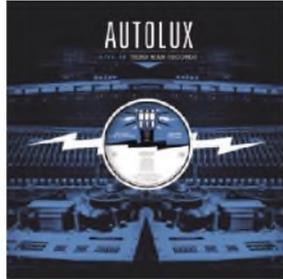


NEW FROM THIRD MAN

First up from the Jack White-owned label Third Man (www.thirdmanrecords.com) are two LPs from the garage outfit The Detroit Cobras, one of the earliest of the new generation of garage bands. Taking lost classic R&B/Motown tunes and tweaking them to their own style, 1998's 'Mink Rat or Rabbit' and 2001's 'Life, Love and Leaving' offers the dirtiest of garage rock from a tight band who are in total control of their chaos.

Also out is Blitzen Trapper with a 'Live At Third Man' gig offering folk-rock with a Tom Petty-esque delivery style and also 'Live' is Autolux offering experimental rock, a bit of post rock here, some shoegaze there. One for the adventurous.

Last, but certainly not least, is Jack White's own 'Acoustic Recordings' over two LPs, including alternative versions and previously unreleased recordings from The White Stripes and The Raconteurs.





MUSIC ON VINYL

...are back (www.musiconvinyl.com) with a heap of vinyl including 'The Live Adventures of Mike Bloomfield and Al Kooper', a seminal live album from 1968 (watch out for appearances from Steve Miller and a young Carlos Santana).

The Back Door Men's 'The Shadow's of Knight' (1966) is a stone-cold classic of punk/blues/garage noise from Chicago while Atomic Roooster's (with an extra 'o') self-titled debut from 1970 mixed heavy rock, blues, jazz and dark imagery. A top notch release.

Meanwhile The Drifters' 'Save the Last Dance for Me' was the first LP appearance by the Ben E. King-era group although King had left by the time of the release and most of the tracks feature his replacement Rudy Lewis. A consistent and 'together' album.

A big surprise here is the appearance of Vanessa Paradis' self-titled album produced by Lenny Kravitz. It's a complete success with highlights including 'Be My Baby' and 'Sunday Mondays'. Sunshine soul-pop at its best.

Also look out for 'The Ray Charles Story' (1962) that offers 15 hits by the man; Foreigner's follow-up to '4', the rather patchy 'Agent Provocateur' (1984); Cypress Hill's 'Stoned Raiders' that was heavy on the rock content but light on hooks, good on the beats, bad on the rhyming and Miles Davis' 'Big Fun' (1974) a cut and paste compilation of outtakes, more for the fans.

LAISH GOES BINAURAL

From Laish is 'Pendulum Swing' ([Talitres; www.talitres.com/en](http://Talitres.com/en)) and his super friendly, soft and cuddly, folkish singer-songwriting; he discusses personal issues with a twinkle in his eye. Audiophile fans may like to visit www.youtube.com/watch?v=vUqxhmvs8HI to experience a binaural-infused 3D headphone experience of the track 'The Last Time'.



...AND FINALLY

The Neil Cowley Trio's 'Spacebound Apes' (*Hide Inside; www.neilcowleytrio.com/music*) combines driving melodic jazz ('The City and The Stars' is a highlight) with sparse, classically-infused balladic musings. Light, shade and beauty combined.

The Multicoloured Shades' 'The Lost Tapes' (Sireena; www.sireena.de) features heavy organ-based neo psychedelia. A must hear for all Fuzztones and Cramps fans.

Also from Sireena is The Convent '1986-2016', a German/Dutch band that UK wave fans really need to get to know. This is a 500 copy limited edition release.

'Wounds' is the latest album by Fvnerals yes, with a 'v' ([Golden Antenna; www.goldenantenna.com](http://Golden Antenna.com)), mixing disturbing ambience and shoegaze to form a dark wash of mood with goth overtones.

Finally, Smoove & Turrell's 'Crown Posada' ([Jalapeno; www.jalapenorecords.com](http://Jalapeno.com)) a UK duo who offer mature, sophisticated, uptempo soul/funk which is of the 'get up off your chair and boogie' type. Not to be listened to when eating cornflakes. It's liable to cause a mess.

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Tight budget, tight design standards. The Reloop Turn 3 meets both criteria. Here's a modern turntable with fine sound and a low price.

Tight Loop

A digital turntable? Pass the smelling salts. But it turned out I didn't need them with Pro-Ject's Essential II Digital turntable (Hi-Fi World October 15 issue) that wowed me with its quality, ana-

logue as well as digital.

Now here's another digital LP spinner, the three-speed Reloop Turn 3 that offers USB connection to a computer and a whole host of other facilities including auto-start and stop – all for a measly £350 as a complete

package, including cartridge and hinged dust cover.

Wow! Competition is heating up in the turntable market as the world rediscovers vinyl. But is the Turn 3 any good?

I'll jump ahead and partly answer

that question straight away. Like Audio Technica's AT-LP5 (Hi-Fi World October 16 issue) the Reloop Turn 3 is made by Hanpin of Taiwan (www.hanpin.com.tw). As a major OEM, Hanpin know their stuff and produce a very good product: the Reloop Turn 3 reflected this by having some unusual strengths that I'll explain later. What Reloop do is specify the



A conventional bayonet fixing removable headshell that is rigid, fitted with Ortofon 2M Red budget MM cartridge.

product in Germany to come up with a unique and – I thought – interesting LP playing package.

The Turn 3 is a three-speed design no less: it features 78rpm in addition to 33 and 45rpm. If you are wondering, 78rpm is for playing old shellacs that were first spun on wind-up gramophones. The 78rpm market is for record collectors.

You don't find 78rpm on turntables with manual belt change (Pro-Ject Essential Digital II) because the pulley steps differ so much they overly stretch a belt.

The solution to this is to use a speed controlled d.c. motor – and that is what the Turn 3 hides inside. Benefit: speed change is simply a matter of turning a selector knob



Three speeds, selected by a rotary knob.

sitting at front left on the plinth; no need to manually move a belt on the motor pulley as is still common with budget turntables

Another benefit is that d.c. motors commonly have servo-feedback and better speed stability as

a result.

Reloop specify much more to make the Turn 3 a fine all-round package. I was amused to encounter both auto-start and optional auto-stop too (it can be switched out), reminding me of Garrards of yore. You don't as a result have to suffer the interminable end-of-side "click..click...click" as the cartridge tracks the locked inner groove – a call to leave the settee and do something – or go mad.

As I swung the arm over the manual lift/lower platform (damped) the platter spun up immediately. Why auto-stop is optional I do not know but the user manual refers to fully manual operation, including not using the lift/lower platform, so Reloop see fully manual as desirable I presume.

The Turn 3 comes with an Ortofon 2M Red budget moving magnet (MM) cartridge, a unit that tracks well at the 1.8gms downforce recommended (but I use 2gms), has plenty of output and also a flat frequency response giving a clear, forthright modern sound lacking the warmth of 1970s MM cartridges (get a Shure M97XE or Nagaoka MP110 if you want this).

Unlike UK turntables, the Turn 3 follows tried and trusted design paths perfected by Japan long ago that make set up easy. The arm has a calibrated counterweight, the headshell is removable to facilitate cartridge changing and bias is applied by a dial (not a weight and thread). The light alloy platter has to be placed onto the main bearing and the belt slipped over the motor's drive pulley but this is a simple procedure. It took me minutes to get the whole affair up and running – and you even get a nice, hinged acrylic dust cover as protection against the cat.

With dimensions of 450mm wide, 352mm deep and 42mm high the plinth is not large but you do always need a 14in deep minimum shelf for a turntable and extra allowance must be made for the dust cover when open. At 7kgs the Reloop isn't heavy but as always a firm, stable and level surface is needed, because the feet are fixed: height adjustment isn't possible

What Reloop don't specify or change in the Turn 3 from Hanpin's OEM package is its on-board phono stage. It is identically equipped to the Audio Technica AT-LP5 here, our measurements revealed. If this stage is switched in (optional) it provides an equalised output that can conveniently be fed to any amplifier; an external

phono stage is unnecessary.

This sounds like a good idea but the stage fitted isn't very good, having low gain and therefore low output plus a low overload margin of 10mV via USB (which has been set as digital peak level 0dB).

The reason? Inside is a cheap 16bit analogue-to-digital convertor (ADC) running at 44.1/48kHz sample rates. Setting the 0dB point low keeps 16bit ADC digital noise down. The Pro-Ject Essential II may not have three speeds, but it has a better hi-res (24/96) digital convertor.

So you have to weigh up the trade-offs here: the Turn 3 uses Hanpin's internal electronic twiddly bits, like the AT-LP5, and runs into exactly the same problems of occasional overload on loud music peaks as well as lacklustre digital quality.

Also, it hasn't got enough output to drive an insensitive amplifier loud – our McIntosh MC152 power amplifier not being usable except via a preamp with gain.

You can of course get around this by using the Direct Audio output, feeding it to an external phono stage,



A calibrated counterweight sets tracking force, and a dial bias force. The lever operated manual lift/lower platform is damped.

but a Furutech ADL Stratos, with 24/96 hi-res digital convertor offering better digital sound quality costs £1000.

What do you do with the digital output? Plug it into a computer – PC or Mac – and record LPs to digital files using a free music editor like Audacity (www.audacityteam.org), Reloop say.

I use Audacity a lot and making recordings with it isn't quite like pressing the red record button on a cassette deck but Audacity user

instructions are very good – if read, digested and followed.

Recording LPs from the Turn 3 using this programme, sound quality wasn't wonderful: think hard and barren sounding digital. Best to see this part of the Reeloc as a budget 'get you by', rather than anything serious in digital terms.

Build quality and finish were good. I could not find anything to complain about at the price – and Turn 3 was super-easy to use because of those automatic start and stop functions. I prefer to hand cue than use a shaky lift/lower platform but the damped action of the Turn 3's platform worked better than many and was acceptable. At run out the platter spins on for a minute or so before silently coming to a halt.

Ortofon's 2M Red cartridge is a solid budget slogger with diamond stylus mounted on a rondel to ride through the fluff that finds its way onto LPs. It gives a modern sound balance lacking in analogue warmth. That helped make the Turn 3 sound less laid back and more forthright than turntables of old.

SOUND QUALITY

There are three ways to use the Turn 3: from its Line output, its direct phono output, and its digital output. Initially, I hooked up the Line output to a Music First Audio passive magnetic preamp feeding Quad QMP monoblock power amplifiers and Martin Logan Electromotion ESL-X loudspeakers. Whilst this isn't the sort of system you would likely use with a budget turntable, it is analytical for review purposes, allowing me to accurately assess the Turn 3.

Spinning a new copy of Led Zeppelin I I soon started to hear this turntable's strengths. Jon Bonham's prodigious drumming was firmly timed – there wasn't the slight temporal vagueness common to budget belt drives. And his kick drum had good impact yet was spry – and this was almost certainly down to the subsonic filter that cuts off hard below 30Hz to prevent loudspeaker cone flap. It also eliminates deep bass waffle from LP and 'speeds' bass. It helped give this package fast, punchy bass from the outset with the 2M Red cartridge.

Because the analogue phono stage moves progressively into overload above 15mV, pegging out at 30mV (1% distortion), I did not detect distortion on music peaks from the Ortofon 2M Red cartridge, even though it is there. What I did hear was a nice, clear open



The rear panel with analogue phono output, preamp switch, USB B connector and 12V d.c. input from an external supply.

sound, not warm but not sharp either.

I know the Red quite well and it does a great job, whilst being not overly detailed or insightful. I soon fitted a Goldring 1012GX though (1.8gms VTF), that brought more focus and insight, and even more impactful bass. With this the whole set-up absolutely shone and was a tribute to the qualities of LP; it was thoroughly enjoyable.

Connecting the analogue output direct into an external phono stage by switching the internal preamp off predictably brought a greater sense of clarity and stage depth to the sound.

From USB most LPs hovered under serious overload and distortion, but with high volume 45rpm 12in singles like Billy Ocean's 'Get Outta My Dreams, Get Into My Car', overload distortion started to hurt at times and the sound became hard and coarse. The 0dB level needs to be moved 6dB higher (20mV) to avoid this. The record level meters in Audacity stayed in the red with 12in 45rpm singles and hovered close to it

from many other LPs. The USB digital output isn't as good either as analogue playback or the 24/96 digital available from the Pro-Ject Essential II Digital turntable.

CONCLUSION

The Reeloc 3 was easy to set up and a delight to use. The German company have specified it well in this respect, auto-start and stop being worthwhile conveniences, even to me – a die hard all-manual Garrard 40I with SME arm man.

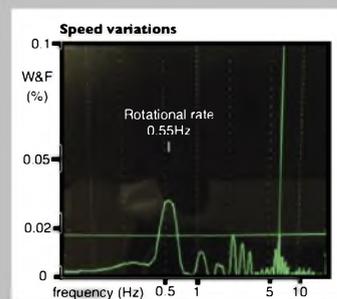
Whilst the on-board phonostage overloads early it still sounds good, as overload occurs only on occasional music peaks and is difficult to detect as a result. With accurate RIAA equalisation and a warp filter, a good arm and great speed stability the Turn 3 came over as clear, firmly timed and punchy. It can be used as-is or upgraded over time, since the arm is good enough to accept a top Audio Technica or Ortofon MM cartridge. A fine product then, worthy of five Globes at the price.

MEASURED PERFORMANCE

As belt drives go, the Reeloc Turn 3 was speed stable; where most belt drives are erratic, producing 0.2% wow or more due to large random variations, the Turn 3 measured a steady 0.1%.

Our analysis shows the main speed variation component at 0.55Hz (33rpm) was low, meaning the platter varies little about mean speed – and mean speed was set accurately to exactly 33rpm.

The built-in phono stage moved into overload at a low value of 10mV, where 40mV is common, distortion reaching 1% at 30mV. The Ortofon Red MM cartridge **WOW & FLUTTER**



fitted delivered an easy 10mV on Band 4 of CBS STR-112 test disc, although this is quite a high level cut

Gain was a modest x55, 10mV in giving 550mV out. Frequency response measured flat and a warp filter has been included.

The digital section overloaded hard at 10mV (0dB) so the USB digital output will generate distortion on occasional loud music peaks. Noise measured a low -70dB IEC A weighted, a respectable figure. The ADC is 16bit resolution offering sampling rates of 44.1kHz and 48kHz.

The turntable and Ortofon 2M Red cartridge measured well, but the internal phono stage and digital convertor did not, being in effect 'starter items' best upgraded with external units. **NK**

Speed error	0%
Wow	0.1%
Flutter	0.04%
Total W&F weighted	0.07%

RELOOP TURN 3 £350



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A great turntable package at a low price, complete with digital and dust cover.

FOR

- three speeds
- auto-start and stop
- hinged dust cover

AGAINST

- mediocre digital quality
- low output phono stage
- external power supply

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Indulgence Show 2016

West London was the venue for the first Indulgence Show - featuring a host of classic hi-fi brands plus some important new launches. Jon Myles picks out the highlights.



New from KEF was the active version of its award-winning LS50 standmounts. Featuring 230 Watts of amplification per speaker plus a 24bit/192kHz DAC, they also feature wireless operation as well as Bluetooth and digital inputs. Impressive.

Indulgence – the name of the latest hi-fi show to tempt UK enthusiasts. Held at the Novotel hotel in Hammersmith, London, it featured three sections – headphones, traditional hi-fi components and luxury goods (hence Tesla electric cars in the display space!).

KEF, Naim, Chord, PMC, Cyrus, Leema, Noble Audio and a host of other big-name manufacturers lent their support and plans are already under way for next year's event. With a good layout and easy-to-reach location Indulgence was a fine show with the potential to grow.



Leema was showing its new Sirius music streamer – featuring UPnP playback, a CD ripper and up to 8 Terabytes of storage. Featuring an ESS Sabre DAC, the unit supports 16, 24 and 32bit files up to 384kHz as well as DSD 64, 128 and 256. Available now the Sirius is priced from £3955.



Chord Electronics had a strong presence at Indulgence with first the TToby - a £2750 amplifier designed to pair with its acclaimed Hugo TT DAC to form a full compact system...



...and then the new SPM 1050 MkII power amplifier. The MkII replaces the original and introduces the latest Chord technology, including reduced output distortion plus improvements to capacitance for cleaner power delivery.



Far East based oBravo was displaying its innovative HAMT-1 over-ear headphones. A truly luxurious model they feature an Air Motion Transformer tweeter allied to dynamic neodymium midrange/bass drivers. They didn't just sound good - they looked good too with a handsome wood finish.



It wasn't just hi-fi equipment that was on show. There was also a good selection of vinyl on offer with a number of stalls offering LPs at a variety of prices. One stall holder told me he did a roaring trade throughout the three days of the show.



Loudspeaker manufacturer PMC celebrated its 25th anniversary by showing its new twenty5 series. The models include a new Laminar vent design and the company's most advanced Transmission Line technology.



Also breaking cover was the Cyrus One - a new integrated amplifier featuring the company's latest 3rd generation Class D circuit and producing 2 x 100W of power, Bluetooth connection, a dedicated class A/B headphone amplifier and an MM phono-stage.

The One should be available at Cyrus dealers now, price £699.

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Christmas Crossword



ACROSS

- 3 Manager of the Sex Pistols (7,7)
- 4 Punk icon John Mellor was better known as this (3,8)
- 7 German opera house dedicated to Wagner (8)
- 8 Joey, Johnny, Dee Dee, Tommy...all members of which band (3,7)
- 11 Jimi Hendrix's middle name...or a famous guitar amplifier manufacturer (8)
- 12 French loudspeaker manufacturer (5)
- 14 Skiffle legend Lonnie... (7)
- 15 Composer of Peter Grimes (8,7)
- 16 Birthplace of Beethoven (4)
- 18 Simon and... (9)
- 19 Rolling Stones guitarist (5,8)
- 20 Justin Bieber, Neil Young and Leonard Cohen were born in which country (6)
- 21 Folk singer who wrote 'The Land Is Your Land' (5,7)
- 22 They made the Telecaster guitar (6)
- 23 Founder of Quad (5,6)

DOWN

- 1 Naim's all-in-one wireless loudspeaker system (4)
- 2 Musician dubbed the Boss (5,11)
- 5 Drummer with the Police (7,8)
- 6 Measurement of amplifier power (5)
- 8 Liverpool nightclub associated with The Beatles (3,6)
- 9 Ritchie Blackmore formed this band after leaving Deep Purple (7)
- 10 New Order keyboard player (7)
- 13 Founder of Island Records (5,9)
- 17 Home city of Massive Attack and Portishead (7)
- 18 The...401 turntable (7)



Answers

- Across
 3) Malcolm McLaren, 4) Joe Strummer, 7) Bayreuth, 8) The Ramones, 11) Marshall, 12) Focal, 14) Donegan, 15) Benjamin Britten, 16) Bonn, 18) Canfunktel, 19) Keith Richards, 20) Canada, 21) Woody Guthrie, 22) Fender, 23) Peter Walker

Down:

- MuSo Bruce Springsteen, 5) Stewart Copeland, 6) Watts, 8) The Cavern, 9) Rainbow, 10) Gillian Gilbert, 13) Chris Blackwell, 17) Bristol, 18) Garrard

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Danish Delight



Denmark's Dali has produced a special portable loudspeaker with its new Katch. Jon Myles explains why.

Portable Bluetooth loudspeakers are all the rage nowadays – which means prospective purchasers can face a bewildering choice choosing the right one.

Price obviously plays an important part but sound quality is ultimately the most important factor. So when a respected hi-fi loudspeaker manufacturer unveils a model then it's worth paying attention.

Hence the Dali Katch – a £330 model from the well-known Danish brand. Reflecting its price this is a solidly-built device with a rounded design which is 27cm wide and almost 14cm high. There's a retractable built-in handle along with a carrying case, as well as a mains lead and various adapter plugs.

Inside the chassis are two 21mm soft dome tweeters plus a pair of aluminium woofers – a set of each firing from both front and rear. These are powered by a Class D amplifier that Dali say can output 25 Watts per channel.

Across the top there are buttons for power on/off, volume and pairing to your Bluetooth device (NFC

support included). A further button allows you to adjust the EQ between two profiles – one called Clear and another Dali names Warm which actually adds just a little more bass. AptX compatibility is also included. Battery life means you will get 24 hours replay from a two-hour charge and a 3.5mm input jack is also included next to the USB charging port.

SOUND QUALITY

Not all portable Bluetooth loudspeakers are built the same – but the Katch is built better than most which is reflected in its sound.

While it won't rival a full-size 'speaker it has enough clout to fill a medium sized room and doesn't lack frequency extension.

Streaming The Long Ryders 'Looking For Lewis And Clark' via a MacBook Air the detail in the midband was realistic and rather catching. Treble isn't searing but balanced and there was some welcome clout to the bass.

Moving between Clear and Warm settings there's no doubt the former has more clarity – but the latter had a warm, effusive quality which seemed

to better suit the Dali.

Pushing up the volume I was gratified by the fact that the Katch could go rather loud without any rattle or hum from the cabinet. On James Blake's 'Limit To Your Love' his keening voice had an edge and reality not all portable Bluetooth loudspeakers can capture. No, I didn't hear the thunderous bass this track possesses but that's just not possible from a 'speaker this size.

What the Dali does do very well, though, is let you forget about this lack of ultimate power and instead relay the essence of the music so you are pulled into the replay without noticing what it lacks.

It means that as Bluetooth loudspeakers go this has to be considered amongst the best – combining great build quality with a strong musical presence.

CONCLUSION

Dali's Katch is one of the most impressive portable Bluetooth loudspeakers I've heard in a while. It is solidly constructed and the sound quality reflects this with an assured, nuanced performance that is difficult to fault.

DALI KATCH £330



OUTSTANDING - amongst the best

VERDICT

A class-leading portable Bluetooth loudspeaker that majors on musical communication.

FOR

- soundstage
- even sound
- construction

AGAINST:

- tough competition

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IFROGZ IMPULSE WIRELESS HEADPHONES £34.99

Bluetooth headphones are becoming ever more popular – likely to become more so after Apple's decision to abandon the traditional headphone socket on the iPhone 7.

There's something undeniably convenient in doing away with the wire connection between your player (be it a mobile 'phone or digital audio player), and the Bluetooth protocol has become increasingly robust over

the years so the occasional drop-outs that plagued its early days at times are very much a thing of the past. Sound quality is much improved and while not quite up there with CD, is eminently listenable.

Prices vary but at the more affordable end of the market is the iFrogz Impulse Wireless model available for £34.99. It's a well-built in-ear headphone featuring aluminium chambers housing 11mm neodymium drivers that are wired into the

Bluetooth receiver. The latter features a clip for attaching to clothing as well as a microphone and remote for easy operation, and three pairs of earbuds are enclosed in the box.

In use the 'phones paired quickly with both iOS and Android devices and the connection remained robust throughout the review period.

Sound-wise the Impulses belie their relatively modest price with a rich, balanced sound that is neither bloated or too edgy. Bass on the likes of Leftfield's 'Leftism' was tight and punchy, while the high-end is well-extended.

Classical music was always well portrayed with plenty of detail, and large crescendoes never sound congested.

Yes, you can pay more and get a little more texture and all-round definition but at their price the iFrogz Impulse Wireless are a fine pair of Bluetooth headphones. **JM**

[www.zagg.com]

SOUNDBITES

MCRU NUMBER 5 MAINS CABLE £165

MCRU (Mains Cables R Us) make a range of power leads at various prices – but their new Number 5 model is aimed at proving you don't have to spend a fortune on this sort of upgrade.

Priced at £165 for a 1 metre length (other lengths are available) it's a chunky, well-built lead featuring Furutech terminations and 4mm sq conductors made of oxygen-free copper.

MCRU have also fitted an AMR audiophile fuse and fitted filters to both the mains plug and IEC connector to suppress radio frequency interference – an increasing problem these days with the prevalence of Wi-Fi networks, mobile devices and switch-mode power supplies.

Replacing the standard lead to a Naim NAP200 DR power amplifier with the Number 5 there was an immediate improvement in clarity and definition.

Bass on Nick Cave's 'The Curse Of Millhaven' was fuller, while guitar lines have more bite to them. The MCRU lead opens up the music so individual instruments are much easier to track.

It was a similar result with an Oppo BDP-105D universal disc player where there was a noticeable lowering of the noise floor - particularly noticeable on quieter tracks.

Compared to a standard mains lead the MCRU Number 5 is a cost-



effective upgrade which can help bring that something extra out of your existing equipment. **JM**

[www.mains-cables-r-us.co.uk]

NEXT MONTH

FEBRUARY 2017 ISSUE



TANNOY GRF90 PRESTIGE GOLD REFERENCE LOUDSPEAKERS

Once upon a time loudspeakers came big and could shake buildings; not anymore. Except from Tannoy. Here's their latest in the Prestige range, the GRF 90, named after founder Guy R Fountain. Why 90? The company was started 90 years ago no less. And as we struggled to get them into our goods lift, we noticed the boxes warned they weigh 95kgs apiece. So 90 says it all. A loudspeaker this big gives a sound like no other. But we found there's more to the new GRF90 than just size. Don't miss our exclusive review in the next great issue.

Also, we hope to bring you –

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FEBRUARY 2017 - 5TH DECEMBER

MARCH 2017 - 9TH JANUARY

GILLAN

MR UNIVERSE DEMON



"Gillan's vocal emerges - or, rather, explodes - from within the band framework"

He was one of the voices of seventies' British hard rock and will always be associated with his two stints with the legendary Deep Purple, whom he joined, in the company of Roger Glover, in 1969.

He left in 1973, rejoined in 1983 and left again in 1989 to tales of acrimony and bad feeling.

In between the comings and goings, Gillan fronted a number of bands named after himself. In 1979, the band called simply Gillan, released one of the best hard rock albums of that time in 'Mr Universe'. A tough thing to do because hard rock was under cultural attack from hordes of punk bands.

More than that, though, as this album was released, the band were not in the best of shape. Gillan himself had just left The Ian Gillan Band – that's right, he left his own band – mainly because half of the band wanted to explore jazz fusion rather than rock and ridiculed any movement towards the hard rocking style.

So Gillan started again with Colin Towns as the core alongside himself, while Bernie Tormé entered the guitar slot and John McCoy (who was with Gillan during the Pre-Deep Purple band, Episode 6) appeared on bass.

The band released the LP 'Gillan', in the Far East in late 1978 and an updated version of that album was released in the UK in 1979. As Tormé said "I suppose my best memory is of being in a hotel guesthouse in a grim place in the north of England called Carlisle, up by the Scottish border. We had played a gig the night before, gone to this little hotel, got up in the morning to get some breakfast, except there was none: all there was a little instant coffee machine that didn't work, in a hall that was about the size of two telephone booths put together. We were all cold, hungry, depressed and fed up. Then we had a call from our office in London to say that 'Mr. Universe', our first album, had just gone in the charts at number 11. What a feeling".

Despite that success, the band found it hard to find a record deal. After being consistently rejected the little label Acrobat accepted them... and then they went bust. Fortunately, Virgin rode into the rescue.

"I suppose it was the transition period before I started drifting into middle age" said Gillan. "It was the direction I had wanted Purple to go in. Purple had been getting a little too formatted. We had stopped being wild".

So that is what happened with his own band. Wild times were the order of the day. As for the album itself? Well, it sounds very Deep Purple in its tone and style. On the LP, Gillan is strong and aggressive with a deep rock passion that comes over very effectively to the listener via songs such as 'Vengeance', 'Roller' and 'Message in a Bottle'.

This album can now be found within a larger box set supplied by Demon Records. Called 'The Vinyl Collection 1979-1982', it features five chart albums – seven LPs in total – including 'Mr Universe' itself, plus 'Glory Road' (1980, 2 LPs, with bonus disc 'For Gillan Fans Only'), 'Future Shock' (1981), 'Double Trouble' (2 LPs, 1981) and 'Magic' (1982).

The 180g heavyweight vinyl records are exact replicas of their first pressings; 'Future Shock'. Gillan's highest scoring album reaching No 2 in the UK chart, includes the same 16-page booklet as featured in its original release, for example. An exclusive edition available via Amazon is also available and contains a bonus 7" single 'Spanish Guitar'.

In terms of mastering I was initially impressed with the 'loudness' or lack of it, that is. There are no intrusive compression issues here that will spark attacking upper midrange spikes or tizzy cymbal splashes. Although the sound could not be described as being overly incisive in terms of midrange detail and subtleties such as fragile treble elements are rather functional, what Demon has done here is to provide a balanced and ultimately even-handed master for this album that keeps any potentially chaotic frequencies firmly under control. Gillan's vocal emerges – or, rather, explodes – from within the band framework while the soundstage is well behaved, considering there is so much energy emerging from it. Raucous guitars and powerful drumming provide an effective drive and an explosive presentation.

A top-quality album that all fans of hard rock need to investigate. **PR**



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"the Audio Research Reference Phono 3 is one of those rare devices that gets closer to 'best' than most. Highly recommended."

Alan Sircom / HiFi+ / Reference Phono 3

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Ken Kessler / HiFi News / Reference 6

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