



## Mini Minx

Cambridge Audio's one-box streamer is a little marvel

## Ear candy

Listen in luxury with B&W's glorious P7 headphones



# Hi-Fi Choice

PASSION FOR SOUND

Issue No. 379

January 2014

# Vinyl revolution

Avid's Ingenium turntable brings new life to your record collection

**DOCTOR WHO IS 50!**  
Radiophonic Workshop's sci-fi sounds

## Minitest

Four in-earphones given a workout

# 30

PRODUCTS ON TEST:

B&O Play, Dali, Exposure, NAD, PMC, Q Acoustics, Tivoli and TL Audio...

## Neat SX1 exclusive

New flagship Motives put through their paces



## BEAUTIFUL SYSTEM

Roksan's Oxygene: a breath of fresh air



GROUP TEST

## Bit perfection

Six USB digital-to-analogue convertors for hi-res music



JANUARY 2014

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# QED Ruby Anniversary Evolution

## Cables Matter No.7

### LOW DENSITY POLYETHYLENE DIELECTRIC

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In 1973 Bob Abraham and Ian Vine founded QED Audio Products and changed the way people think about hi-fi cables. By the time QED 79 strand speaker cable was launched in 1978, it wasn't looked upon as 'just another speaker cable' but was instead regarded as a serious hi-fi component.



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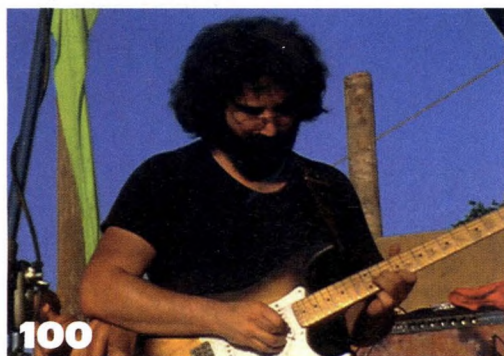


**50**  
NAD D 3020 integrated amp/DAC



**56**  
TL Audio V3 custom-fit, in-ear headphones

**Music reviews**



**100**  
Grateful Dead Sunshine Daydream

**BADGES EXPLAINED**

**OUR AWARDS**

 <b>EDITOR'S CHOICE:</b> Awarded to those products that are judged to deliver outstanding performance	 <b>RECOMMENDED:</b> Products that we feel meet a high standard of performance	 <b>GROUP TEST WINNER:</b> Comparative tests can only have one winner, and this badge says it all!
--	---	---



It may seem a little early to be welcoming in a new year with the first *Hi-Fi Choice* issue of 2014 when we still have another month left to enjoy of 2013, but here it is – our January 2014 issue somewhat ahead of schedule. In the words of the Rolling Stones *Time Waits for No One*, and so we're bursting into a new year a little early full of vigor and enthusiasm after the UK's biggest high-end audio event of 2013, hosted by our sister magazine *Hi-Fi News & Record Review* and AVTech Media.

The Hi-Fi Show was held in Windsor at the end of October and showcased a spectacular line up of high-end audio products that are well and truly out of reach for the huge majority of *Hi-Fi Choice* readers, including myself. But we can all dream, and the two-day event of great-sounding demonstrations certainly fuelled the passion and indulged our ears. For a hint at some of the show highlights see our *Show Report*, starting on page 12. Now, where did I put that lottery ticket...

This month's *Group Test* puts six digital-to-analogue converters to the test. The DAC's resurgence is another booming hi-fi trend, and will appeal to anyone wanting to upgrade the sound quality output from their computer's USB port. Six models from major hi-fi brands fight it out for the best sound quality and flexibility as more music fans look to download hi-res audio files, store their music collections in lossless formats or just want to improve on sound from iTunes or Spotify. See page 24.

**Lee Dunkley** Editor

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# Hi-Fi Choice Contents

hifichoice.co.uk Issue No. **379** January 2014

## NEWS & OPINION

### 6 **Audiofile**

The latest news on the hottest products from the world of hi-fi coming your way

### 69 **Letters**

Put your points of view and queries on audio matters to our team of experts

### 77 **Opinion**

The *Hi-Fi Choice* team say it as they see it and discuss the issues of the day

### 99 **Music Reviews**

The month's essential new CD, vinyl and hi-res download releases given a workout

### 130 **Back Chat**

A look back in time, news snippets and an industry insider picks their top albums

## READER SERVICES

### 102 **Reader Classifieds**

Have you got a piece of hi-fi that you no longer want? Sell it for FREE here

### 124 **Next Issue**

Some of the sonic treats and hot kit you can expect to see in next month's mag



62

## FEATURES

### 62 **Linn Exakt**

The new platform set to revolutionise active digital loudspeakers

### 66 **Writing Competition**

A look at some of the reader reviews from our extra special competition

### 90 **Beautiful System**

Roksan's Oxygenes might be minimalist, but there's substance behind the style

### 94 **Sound Affects**

How the BBC Radiophonic Workshop invented the sound of the future

### 121 **Webwatch**

Essential websites to direct your browser towards for all your hi-fi requirements

## GROUP TEST

24 **Six superb DACs under £450 battle it out in this month's blind listening test**



12



**Show Report:** Highlights from Windsor



**Music reviews:** The Who *Tommy Delu*





**Bowers & Wilkins P7 headphones 105**

"They seem to dissolve into space faster than a shooting star."

**David Price: Dali Fazon Mikro speakers p107**

**TESTED THIS MONTH**



**42**  
**Avid Ingenium turntable**



**46**  
**Cambridge Audio Minx Xi digital system**



**52**  
**PMC Twent.y.21 standmount loudspeaker**



**90**  
**Beautiful System Roksan Oxygene**



**16**  
**In-depth Test**  
Neat Acoustics  
Motive SX1 loudspeaker

**REVIEWS**

- Kit testing
- 16 Neat Acoustics**  
Motive SX1 floorstanding loudspeaker
- 42 Avid**  
Ingenium turntable (Exotica)
- 46 Cambridge Audio**  
Minx Xi digital music system
- 50 NAD**  
D 3020 amplifier/DAC
- 52 PMC**  
Twenty.21 loudspeaker
- 56 TL Audio**  
V3 custom-fit, in-ear headphones
- 58 Exposure**  
1010 Series CD player and amp combo
- 88 Dual**  
CS505 turntable (retro)

**GROUP TEST**

Blind listening – DACs  
£200-£450

- 27 Arcam** irDAC
- 29 Audiolab** Q-DAC
- 31 Meridian** Director
- 33 Musical Fidelity** V90-DAC
- 35 NAD** D 1050
- 37 Pro-Ject** DAC Box DS

**MINI TEST**

In-ear headphones  
£120-£150

- 84 Sennheiser** IE 60
- 84 B&O Play** Earset 3i
- 85 Bowers & Wilkins** C5
- 85 Audiofly** AF78

**CHOICE EXTRAS**

- 105 Bowers & Wilkins**  
P7 headphones
- 107 Dali**  
Fazon Mikro speakers
- 109 Russ Andrews**  
PowerKord 100, 300 & 500 mains cables
- 111 Musical Fidelity**  
M1 LPS phono stage
- 113 ISOKinetik**  
Silver Melody Two tonearm cable
- 113 Epiphany Acoustics**  
Atratus RCA digital interconnect
- 115 Q Acoustics**  
Q-BT3 Bluetooth speakers
- 117 Tivoli Audio Alberg+**  
DAB radio
- 119 Chord**  
Crimson VEE3, Cobra VEE3 and  
Chameleon VEE3 interconnects

**Never miss an issue – turn to p20 for our latest subs offer**



## Hey big Spendor

The A6R floorstander heralds a reworking over its predecessor and looks to be bang on trend

**PRICE:** £2,495 **AVAILABLE:** NOW  
**CONTACT:** 01323 843474 **WEB:** SPENDORAUDIO.COM

**AS FASHION TURNS** from curved lines towards functional shape and natural materials, Spendor looks set to find itself on trend with its revised A6 loudspeaker design. The new A6R version (the 'R' denoting 'Revised') looks to have the same straightforward, small-to-medium size cabinet design as its predecessor. It measures just 192 x 875 x 280mm (WxHxD) and the fuss-free A6R comes in four natural wood veneer finishes at no extra cost. The base of

### Externally the Revision looks as though little has changed...

the cabinets sit on four machined steel stabiliser inserts, secured directly into the main structure to give it a firm foundation.

Externally the Revision looks as though little has changed from the original A6 form factor, but internally Spendor's own 'Dynamic Damping' is deployed that places small low-mass constrained polymer dampers at key energy interface points to instantly convert any spurious energy in the cabinet into inaudible heat, the manufacturer claims. Wiring is silver-plated pure copper cables with halogen-free dielectrics and audio grade capacitors making some of the further internal revamps, it continues. External speaker cable connections

are made via four-way binding posts – there's no inclusion of bi-wiring speaker connections.

The new A6R retains the company's fourth-generation linear-flow port, which gives the A6R unrivalled ability to deliver deep articulate bass in almost any listening room and allows great flexibility when positioning the loudspeakers, we're told.

For the new A6R, Spendor claims: "A dramatic uplift in dynamics, resolution and low frequency extension". It sports a new 18cm mid/bass driver that uses the company's latest EP77 'engineering polymer' cone, new surround and suspension materials originally developed for Spendor's recently introduced D7 loudspeaker – reviewed in issue 370, April 2013. These are said to improve low-level linearity and mechanical stability. To go with this is a re-engineered crossover, devoid of series-attenuating resistors to minimise thermal modulation distortion, Spendor says. It also gets precision-wound high-linearity tapped inductors. At 4kHz, the new crossover begins feeding the same 29mm wide surround tweeter with a bi-elliptical acoustic lens, which is said to give smooth extended high frequency response.

The new A6R floorstanding loudspeakers are available finished in four wood veneer finishes including cherry, light oak, dark walnut or black ash, and the plinth has a contrasting black satin lacquer finish.







## COMMENT

### VINYL GETS LUCKY

Regular readers will have seen last month's feature on secondhand record shops and how they're bucking the trend and making money. So it doesn't really come as that big a surprise that sales of vinyl are buoyant – the real shock is the fact that they are better than they've been for over a decade.

Figures from the British Phonographic Industry show that almost 550,000 albums had been sold at the start of October – sales have doubled in 2013 in the UK and could yet reach over 700,000 by the end of the year if the trend continues.

Admittedly, these figures are still a drop in the ocean when compared with the number of CDs and downloads (just 0.7% of all album sales), but even so, it's not to be sniffed at. So what's the reason for the resurgence? Could it be the usual factors that vinyl fans cite for their love of the black shiny discs? Big artwork that you can look at, a music format that forces you to take time to sit down and listen, something tangible that you can hold in your hand, or Daft Punk? Yep that's right Daft Punk.

Take a look at the top-ten selling albums of the year so far and the French techno/disco robots are at the number one spot (both for vinyl CD and downloads). Of course, messrs Homem-Christo and Bangalter (the fellas with robot masks on) can't claim the peak in sales is all their doing, but the presence of them, David Bowie, Boards of Canada, Arctic Monkeys and Black Sabbath in the top ten highlights what a good year it's been for new music.

Of course, it's difficult to say precisely why vinyl sales are up, but Record Store Day (2013 marking its seventh year) had it's part to play. Artists released limited-run records, while a number performed special gigs in record stores across the county. The result was that on a single day in April £2 million worth of sales were generated.

But perhaps the most important factor Record Store Day played in is piquing the interest of young people. Research by ICM has revealed that 18-24 year-olds are buying more vinyl than any other age group under 50. Could it be that records are suddenly as exciting to youths today as they used to be for us way back when we were young? Let's hope so...





# Cabasse ups streaming

French speaker manufacturer launches wireless Stream 1 and Stream Source models

**PRICE:** £299-£499 **AVAILABLE:** NOW  
**CONTACT:** +33 298 058870 **WEB:** CABASSE.COM/



**AS MUSIC STREAMING** products grow in popularity, French manufacturer Cabasse announces that it is set to increase its streaming product range with the introduction of two new models. The Stream 1 (left) and the Stream Source join the Stream 3 subwoofer and satellite 2.1 speaker system reviewed in issue 376.

The Stream 1 is a compact, standalone, streaming music playback system with built-in speakers. The glossy white or black pebble-shaped unit can be placed horizontally, vertically or wall mounted. It can access music stored on a tablet or smartphone connected via wi-fi, Ethernet or Bluetooth, and NFC technology provides touch connectivity with compatible devices.

The Stream Source is a smaller pebble-shaped device said to give an existing hi-fi system streaming capabilities and connect it to other Cabasse Stream products around the home. Both models are compatible with vTuner for access to internet radio and can handle MP3, WAV, WMA, AAC, AIFF, ALAC and FLAC file formats. They cost £499 and £299 respectively.

## IN BRIEF

### DAMSON JET SPEAKER PACK



Bluetooth-connected speakers are nothing new, but rather than selling its new Jet model as a single speaker, which is the norm, Damson is selling the speakers as a stereo pair enabling speaker owners to experience what it claims is "a true, wide and expansive stereo sound". Each cylindrical speaker unit contains a traditional driver and measures just 75mm tall with a diameter of 58mm. The portable speakers have a USB rechargeable battery pack that claims to give wireless playback duration of around four hours – wired connections made via the 3.5mm jack input are a little better and claim around nine hour's usage.

**DAMSONAUDIO.COM**

## Audio Pro T10 Addon

**PRICE:** £299-£349 **AVAILABLE:** NOW  
**CONTACT:** 01908 512212 **WEB:** AUDIOPRO.COM

Swedish loudspeaker brand Audio Pro has announced the latest addition to join its Addon range of wireless speaker models. The T10 is a compact single stereo speaker unit measuring 32cm wide equipped with Bluetooth 4.0 and apt-X codec technology, offering high-quality wireless connectivity for music transmission from compatible smartphone and tablet devices, the maker says.

The distinctive speaker cabinet configuration houses a single, centrally located 13cm mid/bass drive unit powered by its own 40W (claimed) built-in amplifier. Two tweeter drive units – measuring just 2cm – are located either side of the mid/bass speaker driver and are individually powered by their own 20W (claimed) built-in amplifiers.

As well as offering wireless Bluetooth connectivity, the Audio

Pro T10 lists two inputs for wired connection via a 3.5mm stereo jack or stereo RCAs found at the rear of the unit. There is also a USB socket on the back panel to enable charging of a smartphone and a subwoofer output that enables the flexibility to add a powered sub for bass reinforcement, like Audio Pro's own Addon Sub, turning the T10 into a 2.1 speaker system, the manufacturer tells us.

A remote control is supplied, which has been milled from a solid billet of aluminium for a more luxurious feel, and will provide easy access and control of all the speaker's functionality, it continues.

The T10 is available finished in black or white matt lacquer standard finishes, priced at £299. A special edition model finished in a vibrant orange gloss lacquer with leather carrying handle (on show here) is priced at £349. All three finishes are available now from specialist retailers or direct from audioprodirect.co.uk.





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*Jeff Dorgay, Tone Audio Magazine, January 2013*



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*Paul Rigby, Hi Fi World, March 2013*



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**O'Brien Hi-fi**, 60 Durham Road, West Wimbledon,  
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# Hi-fi for desktops

Australian brand Burson Audio introduces mini range to poms

**PRICE:** £969-£1,950 **AVAILABLE:** NOW **CONTACT:** 01423 358846 **WEB:** KARMA-AV.CO.UK

**DOWN UNDER BRAND** Burson Audio brings a range of mini-sized music system components to UK shores aimed towards desktop audio fans. First up is the Conductor SL 1793, a Class A headphone amp with a built-in Burr Brown 24/192 DAC. The silver-coloured 2mm anodised aluminium casing, which acts as a heatsink to ensure optimum operational performance, offers support for 24-bit/192kHz asynchronous USB, coaxial and Toslink digital inputs, plus a single analogue RCA stereo line-level input. The SL 1793 costs £969.

Moving up the range, the Conductor SL 9018 is also a headphone amplifier, but with a higher specified built-in Sabre 32/192 DAC. Housed inside the same compact 210 x 80 x 220mm

(WxHxD) casing as its more affordable SL 1793 sibling, the SL 9018 features 32-bit 192kHz asynchronous USB, coaxial and Toslink digital inputs as well as a single analogue RCA stereo line-level input. It costs £1,199.

Lastly, the Timekeeper is a compact power amplifier with a claimed output of 2x 80W per channel. Housed inside a slightly larger casing measuring 265 x 80 x 255mm (WxHxD) the fully discrete Class AB design features a proprietary 300VA transformer for seven individual power supplies feeding a symmetrical FET bridge inputs stage, the maker says. Through RCA or single XLR inputs the Timekeeper can be bridged for 240W mono operation, it continues. It's set to cost £1,950.

# Fidelio M1s go wire-free

**PRICE:** £250 **AVAILABLE:** NOW **CONTACT:** 0844 3380489 **WEB:** PHILIPS.CO.UK

Philips has confirmed the introduction of a Bluetooth version of its popular M1 headphones. The new M1BTs are designed to fulfil the same key sound quality criteria as the wired version of the M1s without any degradation, the maker claims. The M1BT is among one of the first headphone models to adopt the latest Bluetooth 4.0 standard along with apt-X and AAC codecs for superior music streaming quality, continues the Dutch electronics manufacturer.

The M1BTs have undergone some additional development to squeeze in the Bluetooth receiver and battery, and the drivers are replaced with an improved 46mm

magnetic, neodymium driver for better high-frequency extension with a wide dynamic range, Philips tells us. The revised bass port configuration has been modified too, and now has two ports replacing the single pipe.

The closed-back design claims excellent noise isolation properties and their lightweight styling and use of breathable materials should ensure that the M1BTs are comfortable to wear, too. Additional functionality allows users to control a Bluetooth source from the headphones themselves and switch tracks using the controls on the earpieces without pulling out a music player.



## IN BRIEF



### DOCTOR WHO ADVENTURE

● The 50th anniversary audio adventure *Light at the End* written and directed by Nicholas Briggs and starring Tom Baker, Peter Davison, Colin Baker, Sylvester McCoy and Paul McGann is released in a limited vinyl edition on 23rd November, costing £100. The four-disc special release is on 180g heavy vinyl inside a four-way gatefold sleeve and limited to 500 copies. Disc four contains a 40 minute *Making of...* documentary exclusive to this release. A limited edition five-disc CD version is also available, costing £40.

**BIGFINISH.COM**



### COOL IGBLOO

● The latest device to join the Bluetooth audio revolution is the appropriately named Igbloo – a Bluetooth receiver that connects to the analogue or optical digital input of a hi-fi system, allowing streaming from a smartphone, iPod, iPad or computer. Released early next year the Igbloo claims to be equipped with NFC (Near Field Communication) for single-touch pairing of Bluetooth devices and uses the apt-X codec and Apple-friendly AAC to offer the best quality from compatible devices along with a Wolfson DAC. Available in high-gloss black or white, prices are yet to be confirmed.

**IGBLOO.COM**



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# Hi-Fi Show 2013

Last month the high-end audio cognoscenti gathered for the inaugural Hi-Fi Show held in Windsor, here are the highlights

**THE HI-FI SHOW** 2013 took place in the sumptuous grounds of the Beaumont Estate, Old Windsor on 25th and 26th October. The inaugural two-day speciality high-end audio event showcased the international hi-fi world's finest audio equipment in 22 Suites in a series of presentations and listening demonstrations, plus a Chill Cut Zone.

With over 60 exhibitor brands on display – many showcasing UK exclusives – the Hi-Fi Show 2013 was the ultimate A to Z of high-end audio – although it was actually A to W, running as it did from ADL all the way through to Wisdom Audio. With every kind of music source to see and hear from sophisticated turntables, hefty CD players and more than a smattering of hi-res digital music sources output by elaborate streamers as well as laptops, there was plenty to appeal to everyone.

The demonstration rooms sounded great and of the highest standard of any hi-fi show we've heard. The conducive surroundings gave enthusiasts a unique opportunity to relax and experience first hand the finest high-end audio brands in the world, with demonstrations conducted by the most appropriate people of all – the designers and makers themselves.

Whether your pockets go deep enough for high-end audio or not, there was something for everyone to enjoy at The Hi-Fi Show, and the first event organised by our sister magazine *Hi-Fi News & Record Review* and AVTech Media was a resounding success. The Hi-Fi Show is already set to return on the weekend of 25th-26th October 2014. You can bet it will be the ultimate UK hi-fi show of the year. For a selection of the numerous 2013 show highlights see right.

**1** Musical Fidelity joined forces with Bowers & Wilkins to demo its range of electronics partnered with appropriate speakers. Its M8/M8 700 with a pair of B&W 800s raised the roof.

**2** Sound Foundations showed its Clearaudio range alongside IsoTek, ADL/Furutech, Canor and Blue Horizon. The star was Clearaudio's Master Innovation turntable.





**3** Chord Electronics demoed the new DSX1000 Reference-level streamer, and John Franks – proprietor and designer – was on hand to answer any questions.

**4** Flamingo Audio demonstrated its full range of van den Hul electronics as well as two top-of-the-range MC phono cartridges and numerous cables, including an HFC Group Test winner.

**5** Townshend Audio joined the accessory maestros in the Sandringham Suites showing its new range of Seismic isolation pods alongside the famous Rock 7 turntable.



**6** Signature Systems presented an entire PS Audio ensemble with live A/B demonstrations illustrating the positive impact of mains regeneration on a system, hosted by Kevin Akam.

**7** Eleanor McEvoy performed intimate gigs both show days, presented by PMC. The room was packed with audiences keen to hear her music and ask questions.

**8** Hi-Fi Network showcased digital audio using a computer as the source playing a contemporary choice of tracks in standard and hi-res formats through Norma electronics and Elac speakers.



**9** Absolute Sounds' Ricardo Franassovici hosted three rooms showing a plethora of prestigious brands including the EAT Forte S and E Flat turntable in the busy Windsor Suites.

**10** Demonstrating the benefits of Hush audio equipment isolation in a corner of a hi-fi show is a tricky business, but the look and feel of the plinths, platforms and racks drew visitors to RJC Audio.

**11** Focal and Naim joined forces for the first time at a UK show and demoed the jaw-dropping Focal Utopia Stella speakers and 500 Series electronics from Naim. This was the must-hear demo of the show.



**12** Edwards Audio showcased its versatile range of products from the Apprentice range, including its TT1 turntable, SP1 floorstanders and HFC Recommended MM phono stage.

**13** Wilson Audio's Alexia floorstanding speaker demonstration delivered such powerful bass levels during the Absolute Sounds demo we attended that it very nearly rattled the ceiling down.

**14** Stylish headphones are all the rage and there were plenty of wired and wireless models to be enjoyed from AKG, JBL and Harman/Kardon as well as some generous sale discounts for purchasers.



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# ROCK STEADY...



**K**rell, creator of so many firsts, can be credited with the concept of the true high-end integrated amp. Its KAV-300i revolutionised the way audiophiles treated a single-chassis solution to their amplification needs. The secret? Incorporating all of Krell's expertise in a no-compromise, yet compact enclosure.

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**IN-DEPTH** NEAT ACOUSTICS MOTIVE SX1  
FLOORSTANDING LOUDSPEAKER £1,885





# Viva la evolution

Neat has given its Motive range a thorough going over, so **Ed Selley** discovers if the flagship Motive SX1 delivers the goods

**B**ritish audio companies often adopt a more relaxed pace of evolution to their product ranges compared with some other countries and with speakers in particular, models and ranges can go many years without replacement. Neat Acoustics' loudspeakers are a classic example of the 'if it ain't broke don't fix it' approach – models like the Petite and Elite have been members of the range almost since the company's founding, albeit with continued upgrades.

So, when the company decides to carry out a refresh, the result is always going to be interesting. This time it is the affordable Motive range that has been given a good going over after eight years (with some more subtle updates during that time).

The Motive SX1 is the largest model in the range and incorporates all of the adjustments made to the range as a whole. The most visible change is the tweeter. The titanium unit of old has been replaced with an aluminium design. Although it's heavier than titanium, the resonances are easier to control with aluminium and the process of anodising the tweeter means that any notional loss of stiffness is kept to a minimum. This is mounted in the trademark foam surround that Neat uses on most of its designs.

Helping this tweeter achieve improved performance is a revised crossover. The frequency points that the crossover operates at and the general design have only been fractionally altered, but the components used have been significantly upgraded with Mundorf capacitors. The other significant change is that as standard the SX1 models are only fitted with a single set of terminals in contrast to the older models that were fitted for bi-wiring. You can order any of the SX models with two sets of terminals if

you wish, but the Motive SX1 joins the increasingly large number of speakers reviewed recently that only allow for single wiring. It will be interesting to see what the take up for the twin terminal models is – the review pair is fitted with a single pair of terminals only.

The final significant change is internal. Neat has revised the cabinet bracing to make the SX series stiffer and better damped than before. This is combined with revised arrangements for the chambering. The tweeter is now placed in a separate enclosure in order to reduce crosstalk.

Otherwise, much of the original Motive 1 remains the same. The tweeter is partnered with the same 135mm mid bass drivers as before and the cabinet has the same distinctive rearward lean to aid the time alignment. One distinctive facet that has also been retained is the cabinet porting, which exits through the bass of the speaker. For this

## DETAILS

**PRODUCT**  
Neat Acoustics  
Motive SX1

**ORIGIN**  
UK

**TYPE**  
Floorstanding  
loudspeaker

**WEIGHT**  
14kg

**DIMENSIONS**  
(WxHxD)  
160 x 925 x 200mm

**FEATURES**  
• HF drive unit:  
25mm inverted  
anodised aluminium  
dome

• Bass/mid drive  
units: 135mm  
polypropylene cone  
• Quoted sensitivity:  
87dB  
• Quoted nominal  
impedance: 6 ohms

**DISTRIBUTOR**  
Neat Acoustics

**TELEPHONE**  
01833 631021

**WEBSITE**  
neat.co.uk

reason, the plinth and spikes are fixed and there is no option to remove them. The advantage of this is that the SX1 is not too fussed about placement close to a wall (although best results are gained from being at least 30cms out), but I find that on a suspended floor, the Motive can be a little lively. Neat supplies a set of foam bungs to limit the output, but best results are gained on solid floors or isolating platforms. The sensitivity of the Motive is also listed as the same as before at 87dB/W. This is not exceptionally sensitive, although the 6 ohm impedance helps ensure the Neat is not too tricky to drive.

Finished in American Walnut (which is a relatively light wood finish in comparison to some walnut finishes), the Neat is a well

**There is a clearly discernible sense of fun to the way the Neat makes music**

finished and attractive speaker, if not the most visually spectacular. Some of the competition are larger and more striking, but this is the sort of speaker that should look at home in a variety of environments without attracting unwanted attention. A welcome cosmetic tweak is the fitting of magnetic trim tabs for the grilles, removing the need for those unsightly lugs on the front panel.

Some of the promotional material supplied with the Neat suggests that the tweeter in particular has been





developed with a view to taking advantage of the extra sweetness in the upper registers that well-mastered hi-res material can possess. With this in mind, I use the Motives with a Naim ND5 XS streamer and XP5XS power supply and alternate between a Naim Supernait and Cambridge Audio 851A. After some experimenting, I find that placing them on Aurelex platforms with a reasonable toe-in yields the best results.

### Sound quality

In the same way that the design of the SX1 is visibly related to the original Motive 1, the sonic performance retains the basic characteristics that defined the range. The overall balance of the Motive is one that perhaps trades that last tiny percentile of detail in a performance for an even-handed accessibility with a wide variety of music that makes this an appealing partner across a wide variety of genres.

There is a clearly discernible sense of fun to the way that the Neat goes about making music that adds to the involvement it can create. Seasick Steve's cheerfully punchy *Hubcap Music* has a sense of life and drive to it that makes for an engrossing

performance. Picking this overall perception apart is tricky, but it seems to stem from an exceptionally well balanced presentation from top to bottom that avoids over emphasising any part of the frequency response. The handover between midrange and the new tweeter in particular is impressively seamless and this means that anything that happens within the Neat's frequency response does so in happy balance with everything else.

For what is a relatively compact and slender floorstander, the bass response is genuinely impressive. Although the Motive is happiest on a solid surface, the potent low end is apparent on all surfaces. As well as a genuine amount of impact, that is felt as much as heard, there is detail and agility that aids believability. Push the Neat to antisocial levels and the port can become audible, but at more sane volume points it works seamlessly with the drivers.

At the other end of the frequency extremes, the work that Neat has put in with the SXT tweeter has paid dividends as well. The SX1 has a sweetness to the upper registers that is largely responsible for the forgiving way that it performs, even



The original Motive 1 was in a group test in 2011 with the Rega RS7 and Proac Studio 140 MkII, which remain strong competitors. The Proac is also lower ported and the larger cabinet can go slightly lower, but the new tweeter gives the Neat a top-end smoothness that helps it with less well recorded material. The larger and more complex Rega also has more bass than the Motive, but the SX1's improvements should ensure the midrange and top-end integration where the Rega won out is now more keenly contested. Where the Neat really scores is that bass response isn't significantly reduced in comparison to the bigger designs and it's a smaller, more elegant cabinet that's less fussy about placement.

fed with less than perfect material. There is a sense that the Motive is not the most forensic performer at the top end – if you want to know how much resin a violinist's bow has on it, you might find the slightly broader strokes of the Motive to be a little vaguer than you are hoping for, but it helps the Neat to produce a wonderfully even and unfailingly musical presentation, which is never less than tonally believable. The handling of voices in particular is unambiguously real. Their placement as part of the wider recording is entirely convincing and it once again emphasises the Neat's ability to focus on the wider performance rather than picking it apart. The soundstage is possessed of a good sense of scale and there is plenty of detail between the speakers. Reducing the toe-in seems to widen things, although it's at the expense of the three dimensionality, so on balance I keep the toe-in as I prefer the performance.

Given that Neat speakers have historically worked very happily with Naim equipment, it isn't too surprising to find that they work well with the Supernait I have to hand and the performance is extremely consistent. Removing the Supernait

## The Motives thrive on the power delivery being of a high standard

from the system and substituting a Cambridge Audio 851A does not significantly change the presentation, although the slightly richer-sounding Cambridge Audio does fill out the soundstage a little at the expense of some of the drive and excitement that the Supernait can bring to the performance. Removing the ND5 XS streamer and substituting the Avid Ingenium turntable as a source also doesn't alter the basics of the overall performance too significantly, but the wonderful smoothness of the Avid's performance is reflected in the overall presentation of the Motives.

A characteristic that also remains constant is that although the Motive SX1 is not especially difficult to drive, it does benefit from amplifiers that have good current delivery and that exert a sense of control over them. The amount of power needed to reach a decent volume level is not that high, but they thrive on that power delivery being of a high standard. The Motive is probably not going to be the first choice for any



As the grilles are magnetic there are no unsightly lugs visible



## Q&A

### Bob Surgeoner

Owner and head of acoustics



**ES: How did the discovery about the improvement in performance from anodising the tweeter come about?**

**BS:** We wanted to retain the powerful magnet system and narrow voice coil gap and resulting dynamic capability of the original Motive NMT tweeter, but to give it a more even response than the NMT's titanium dome was capable of. We'd experimented with various dome alternatives such as magnesium alloys, fabric domes and anodised aluminium. The anodised aluminium won out by a substantial margin. It helps the SX models deliver a standard of performance not normally available at this price point.

**Have the crossover points for the drivers changed as part of the revisions or are they the same?**

There has been a slight adjustment to the crossover point to accommodate differences in the new tweeter's response, but the main focus has been on choosing the most appropriate crossover components to optimise its potential.

**Was any thought given to using the ribbon tweeter from the Iota?**

Out of interest we had some prototypes running with the Iota tweeter soon after the Iota was launched. They sounded fine, but there is a limit to how low you can run the Iota tweeter's crossover point and, as we expected, it didn't really match well to the Motive's larger bass/midrange drive unit and our crossover options were, therefore, limited.

**Having shown us a splendid pink Motive 2 at Munich, have you considered the possibility of gloss finishes or some of the Iota colours in the future?**

Those Pink SX2s are starting to haunt me! They're on a world tour at the moment; Amsterdam, Denver, Vienna... The 'Hot Pink' is actually a fluorescent paint with a high-gloss polyester lacquer and are very expensive to produce, but we can do it if requested. In fact, we do offer alternative veneers or high-gloss finishes on any model in our range as a special order, POA.

### IN SIGHT

1

2

3

- 1 New aluminium SXT tweeter
- 2 135mm mid bass drivers
- 3 Downward-firing port
- 4 Revised crossover with single-wired terminal panel
- 5 Integral plinth and spikes

4

5

### ON TEST

Neat claims 87dB sensitivity for the SX1 but our pink noise figure of 82.9dB suggests this is about 4dB optimistic. Minimum impedance modulus of 4.2 ohms almost accords with the 6 ohms nominal figure and, along with the minimum EPDR (equivalent peak dissipation resistance) of 2.3 ohms at 50Hz, confirms that the SX1 presents an easier load than many modern floorstanders. Frequency response errors, 200Hz-20kHz, of  $\pm 3.4$ dB and

$\pm 3.9$ dB respectively for the review pair are about average, with a flat overall trend, but a pair matching error of  $\pm 2.2$ dB is on the high side, principally because of narrow-band disparities above 7kHz. Bass extension of 63Hz for  $-6$ dB ref 200Hz is fair for the cabinet size and a slow initial roll-off suggests good bass transient behaviour. The CSD waterfall shows fast initial energy decay but some resonances at treble frequencies. **KH**

would-be valve amp owner anyway, but the excellent bass response of the speaker seems to really come alive from solid-state power.

### Conclusion

Having spent some time with the Motive SX1, the impression is almost unfailingly positive. Anyone that's looking for night and day differences between the original and this newly revised model might well be disappointed, but what Neat Acoustics has done is very carefully and systematically looked at a very sound design with a fresh viewpoint. None of the changes that have been made on their own have radically altered the speaker, but cumulatively they have improved the performance considerably.

The Neat is a fantastically accomplished all-rounder that will do justice to a wide variety of music and should work well with any

amplification that delivers the required current and drive. Combine this with the rather handsome aesthetics and impressive build quality and you have a speaker that is right in the top performers at the price point, and one that should be added to any shortlist of speakers ●

## Hi-Fi Choice

### OUR VERDICT

**SOUND QUALITY**



**LIKE:** Lively and engaging sound; excellent tonality; solid build

**VALUE FOR MONEY**



**DISLIKE:** Works best on a solid floor and needs capable amplification

**BUILD QUALITY**



**EASE OF DRIVE**



**WE SAY:** A superb revision to an already capable speaker

**OVERALL**





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# How we test

Hi-Fi Choice employs the most rigorous test and measurement regime in the business. Here's how we do it...

## Unique group tests

This month's group test is supported by rigorous listening tests, backed up with objective lab testing

### BLIND-LISTENING TESTS

**THIS CRUCIAL PROCESS**, carefully controlled and yet sufficiently relaxed that our listeners do not feel that they're being tested, forms the heart of our *Group Test* review. Our panel of listeners are not aware of the brand or price of the product they are listening to, but are able to choose their own music and decide the listening level at the beginning of the session.

This level is accurately matched from product to product throughout subsequent sessions so that subjective impressions of 'louder' or 'quieter' sounding separates helps inform us of their inherent character. Regular breaks keep our listeners refreshed while the sessions are

conducted with the minimum of distractions, playing the same programme through each system while they take notes of what pleases or bothers them. Our panel are encouraged to discuss their impressions after each session and the consensus, or otherwise, forms the basis of our reported sound quality section.

In this way, an evaluation free of prejudices can be made, while the different tastes and sensitivities of each listener help round out the analysis and make it more widely applicable. Occasional repeats of kit give a 'sanity check', while years of experience help make the process efficient and reliable.

### RESULTS AT A GLANCE

#### Output level & impedance

+10

#### S/N ratio

+40

#### Distortion vs. level & freq.

0

#### Digital jitter

+50

#### Frequency response

+10

KEY: ■ Group average

■ % below average ■ % above average

#### OUTPUT LEVEL & IMPEDANCE

The typical output level of a DAC is 2V, but its ability to deliver this level at all frequencies is indicated by its output impedance.

#### SIGNAL-TO-NOISE RATIO

A direct representation of the DAC's A-weighted Signal-to-Noise ratio, measured in third-octave bands from 20Hz-20kHz relative to its max output.

#### DISTORTION VS LEVEL AND FREQUENCY

This value represents a measure of the distortion trend across both the entire audio band and over a full 100dB of the DAC's dynamic range.

#### DIGITAL JITTER

Jitter is caused by an uncertainty in the timing of digital audio data as it is recovered and processed by the DAC.

#### FREQUENCY RESPONSE

This is a measure of the 'flatness' of the DAC's frequency response up to 20kHz with 44.1kHz/48kHz digital inputs and to 40kHz with hi-res 96kHz/192kHz sources.



**OUR GROUP TESTS** and In-depth Reviews are subject to exhaustive lab testing by **Paul Miller** using the **QC Suite Functional Testing Station** (left). Paul has tested more hi-fi equipment than any reviewer in the world, so you know you're in safe hands. We don't publish pages of graphs, but we do understand the importance of transparency. So, readers may view full QC Suite test reports for our key reviews by clicking on the red download button on our website. [www.hifichoice.co.uk](http://www.hifichoice.co.uk)

### THIS MONTH'S LISTENING PANEL



**SCOTT BERRY** (LEFT) **COMPUTER AUDIO DESIGN** founder Scott has spent years developing his high-end USB DAC, so knows good sound when he hears it.

**NIGEL FINN** (CENTRE) **WHEN NOT TWANGING** the strings on his Custom Shop jazz bass guitar, Nigel carefully voices cables at the Chord Company!

**JAMES LUCE** (RIGHT) **WHETHER DESIGNING SPEAKERS** for Acoustic Energy or slacking back on the sofa, James really loves listening to music.

#### REFERENCE SYSTEM

**SOURCE**  
Audiolab 8200CD

**AMPLIFICATION**  
Creek Destiny 2

**LOUDSPEAKERS**  
Spendor A6R

**CABLES**  
Black Rhodium

**EQUIPMENT SUPPORTS**  
Quadrasplre

#### TEST MUSIC



**BETH ROWLEY**  
*Little Dreamer*



**BRUCE SPRINGSTEEN**  
*The Wild, The Innocent & The E Street Shuffle*



**KATE BUSH**  
*50 Words For Snow*



**KRAFTWERK**  
*Man Machine*



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POWER INPUT FILTER

DAC Box DS

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COAX OPT 1 OPT 2 INPUT USB LOCK

USB 192

USB OPTICAL1 OPTICAL2 COAX1 COAX2 iPod

Q-DAC

USB 24bit/192kHz Level -20dB

MENU SOURCE VOL POWER

audiolab



# Group test

DACS £200-£450

## Convertible assets

With so much choice on the market, finding a decent affordable digital convertor has never been easier, says **David Price**

**WELCOME TO THE** Year of the DAC. It feels like more of these dinky digital devices have hit the high street in the past 12 months than at any time since the late eighties, when the hi-fi world was similarly crazy for the idea of upgrading its digital sound easily and cheaply.

Back then, of course, it was all about owners of modest Compact Disc players trying to wring better sound out of their systems without going to the trouble of changing their existing silver disc spinners. While the same goes this time round, this century's DAC boom is also being fuelled by folks looking for hi-res functionality via USB, as 'studio master' quality digital finally comes into the ascendant. The promise of higher quality sound is also offered by the modern chipsets built into most of the

latest DACs, which should improve practically anything that's plugged in from PlayStations to Sky Digiboxes.

### Added versatility

Superior sonics aren't the only reason for the digital convertor boom,

### The latest DACs should improve practically anything that's plugged in

though – as ever more digital inputs are needed, modern DACs become input-extenders to give your system more versatility. Arcam's irDAC exemplifies this, boasting a raft of different digital socketry, and even a remote control to switch between

sources. Indeed, manufacturers like Audiolab are beginning to add volume controls, effectively making DACs evolve into fully fledged preamplifiers. There's also real pressure on designers to make their new DACs look and feel the part. Grotty little boxes are beginning to be a thing of the past, as we move to beautiful-looking casework – with Meridian, Arcam and NAD taking styling in welcome new directions.

So, for six products purposed to do pretty much the same thing at a similar price, there's a very wide variety of choice on offer to buyers. Of course, the only way you can decide which is right for you is to try before you buy – so use this *Blind Listening Group Test* as a handy way to shortlist the ones you go out and audition. Enjoy! ▶

### ON TEST



**Arcam  
irDAC  
£400 p27**

The latest version of the Cambridgeshire-based company's super budget baby DAC offers style and build almost unimaginable a few years back, with a wide range of useful inputs and some serious digital processing power inside.



**Audiolab  
Q-DAC  
£400 p29**

This is a cost-cut version of Audiolab's mighty M-DAC, one of the very best digital convertors under £1,000. It is amazing value for money, with almost every feature under the sun and some clever electronics wizardry under the hood.



**Meridian  
Director  
£450 p31**

When this high-end company does something, you can bet it will be special – and the Director doesn't disappoint. Simplistic yet beautiful styling and superlative build await the purchaser of a Director, but what about the sound?



**Musical Fidelity  
V90-DAC  
£200 p33**

The cheapest by a good way, but you'd never know it from the gorgeous alloy casework and the high-powered processor within. A few years ago you'd never have thought such value for money possible from this well-regarded maker.



**NAD  
D 1050  
£399 p35**

Brand new from New Acoustic Dimension, this is the first of a new range of radically styled, feature-laden NAD products designed to give excellent value for money and serious sonics. But how does it fare among such exalted company?



**Pro-Ject  
DAC Box DS  
£330 p37**

No prizes for style, but the dinky Pro-Ject punches way above its weight for facilities and feels as thick as a lead-lined brick. It's among one of the cheaper models in this *Blind Listening Group Test*, but promises to offer buyers lots of sound per pound.



# Aria 900

## Innovation Extraordinaire.

Focal research has led to the creation of a new breed of loudspeaker.



### Flax Technology

Aria's unique speaker diaphragms consist of a layer of Flax encased in an ultra-thin fiberglass skin. This hybrid material is as rigid as Kevlar and twice as light as traditional polyglass, making it an excellent choice for sound quality.



### Performance

Aria drivers feature a new Zamak (zinc/aluminum/magnesium/copper) basket and tweeters are suspended using Poron, a 'memory foam' material developed for the reference Utopia range which reduces distortion three-fold in critical areas of the audio spectrum.



### Choice

Choose the compact bookshelf 906 or the floorstanding 926. Both are available in Walnut or Black High Gloss finishes with real leather front panels. Designed and manufactured in the heart of France.

## Exclusive Offer

We have teamed up with our partners, Naim Audio, and select UK retailers to offer you a special introductory price on the Aria 906, 926 and the award-winning Naim Uniti 2 all-in-one player.

To find out more and for a list of participating retailers visit:  
[www.focal.com/aria-uniti](http://www.focal.com/aria-uniti)







# Arcam irDAC £400



The predecessor to Arcam's latest digital convertor shone in a previous *Group Test* – how will this fare?

## DETAILS

**PRODUCT**  
Arcam irDAC

**ORIGIN**  
UK

**TYPE**  
USB and S/PDIF DAC

**WEIGHT**  
0.7kg

**DIMENSIONS**  
(WxHxD)  
160 x 40 x 100mm

**FEATURES**  
• 32, 44.1, 48, 88.2, 96, 176.4 and 192kHz  
• 16, 24-bit  
• Asynchronous USB, 2x coaxial, 2x optical  
• iPod input

**DISTRIBUTOR**  
Arcam

**TELEPHONE**  
01233 203200

**WEBSITE**  
arcam.co.uk

It was Arcam, lest we forget, that invented the DAC – in the sense of a separate digital-to-analogue convertor unit that sat 'outboard' the CD player. The Black Box appeared in 1988, and in a way every product you see in this roundup owes a debt to it. Arcam now sells a range of DACs, of which this is the middle product. It's effectively a replacement for the rDAC, which wowed the hi-fi world with its superb sound at just £300 a couple of years back. This irDAC is bolstered by the addition of improved circuitry, more inputs and infra-red remote control.

The case is a larger version of the rDAC, retaining the beautiful cast alloy shell and rubberised base, and elegant top-mounted input switching and back of LED source indicators. Round the back there are now two each of optical, coaxial and USB inputs – with a rear panel switch between USB Class I and II; the former is a direct iPhone input that takes the digital signal direct from an Apple device. There's a digital output and a pair of RCA phonos.

Inside, Arcam uses a Burr Brown PCM1796 DAC chip, with improved post filter topology, which is said to give better group delay characteristics. Eight separately regulated power supplies are fitted, and high-quality passive components used, including WIMA capacitors on

the four-layer printed circuitboard. The irDAC is said to be firmware updatable via a PC app, and it can also be powered directly from an Arcam amplifier or AV receiver.

## Sound quality

It doesn't take long to realise that this is one of the very best in the group. With its big-hearted, musically inviting nature, every type of music we play comes across really very well. One panelist remarks how he is able to: "Hear the music rather than the equipment", and that just about sums up this digital-to-analogue convertor. Unlike the Musical Fidelity, for example, it doesn't have a technical, analytical sort of sound – rather the Arcam romps into the swing of things like a puppy running out into the garden. It's full of fun, eagerness and the general joys of life.

For example, tape hiss on the opening of Kraftwerk's *The Robots* is unusually easy to hear, the Arcam appears to scythe through the mix straight to the action. It proves excellent on transients, and gives a dramatically dynamic presentation, propulsive rhythms and a fine sense of the gated sequencers playing in the background. Never less than rhythmically alluring, it is always a fun thing to set ears on.

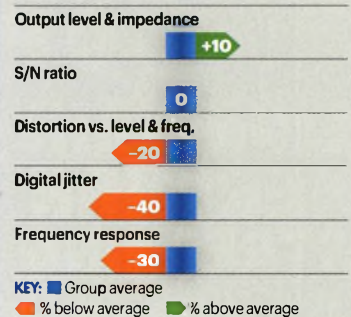
Tonally the Arcam is quite rich. It isn't as thin and cerebral as the Musical Fidelity, for example, or as

## ON TEST

While both S/PDIF and USB 2.0 inputs are all eventually routed through the same PCM1796 DAC chip, the former yields a 'cleaner' performance than the latter. Via S/PDIF the maximum output is 2.2V, distortion is within a very low 0.0005% over the top 30dB of its dynamic range and the A-wtd S/N ratio clocks-in at an impressive 110dB. Via USB the peak output is necessarily unchanged, but distortion is a little higher (though not 'high') at <0.005% over the top 30dB just as the S/N is reduced to 103dB.

All sample rates except 176.4kHz were supported by the irDAC in our USB tests. The responses are identical via S/PDIF and USB at -0.1dB/20kHz (44.1/48kHz), -1.8dB/45kHz (96kHz) and -12dB/90kHz (192kHz files) while digital jitter is a little lower through S/PDIF at -15psec (48kHz and 96kHz files) versus 85psec via USB. Finally, the low-ish 46ohm output impedance is useful. **PM**

## RESULTS AT A GLANCE



over smooth as the Pro-Ject. It gives plenty of weight to the Bruce Springsteen track, and shows off all the shiny, lustrous harmonics on the piano work. Bass is one of the strongest here and has real pitch to it – the result is that you can bop along to the Kraftwerk track, and given fine sounding hi-res material such as Kate Bush's *Snowflake*, it is wonderfully immersive and satisfying. One panel member comments that the Kraftwerk kick drum is best of the group. "It's really good, prick-up-your-ears stuff" he says. Overall, the panel agree the irDAC is a superb device in every respect and one of Arcam's best ever budget offerings. ▶

## Hi-Fi Choice

### OUR VERDICT

**SOUND QUALITY**  
★★★★★ **LIKE:** Dynamic, snappy rhythms; lustrous tonality; fine build; style

**VALUE FOR MONEY**  
★★★★★ **DISLIKE:** No headphone output; that's all

**BUILD QUALITY**  
★★★★★ **WESAY:** Superb sounding, beautifully presented and affordable DAC

**FEATURES**  
★★★★★

### OVERALL





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# Audiolab

## Q-DAC **£400**



Its big brother was our DAC of the year back in 2012, so the little Q has got quite a lot to live up to!

### DETAILS

**PRODUCT**  
Audiolab Q-DAC

**ORIGIN**  
UK/China

**TYPE**  
USB and S/PDIF  
DAC

**WEIGHT**  
3kg

**DIMENSIONS**  
(WxHxD)  
247 x 60 x 236mm

**FEATURES**  
• 32, 44.1, 48, 88.2, 96, 176.4 and 192kHz  
• 16, 24-bit  
• Asynchronous USB, 1x coaxial, 1x optical  
• Headphone output

**DISTRIBUTOR**  
IAG

**TELEPHONE**  
01480 447700

**WEBSITE**  
audiolab.co.uk

**F**ollowing on from the success of the M-DAC a couple of years back, Audiolab recently launched a stripped-down version with a slightly cheaper DAC chip and no rotary volume control or balanced XLR audio output sockets. Effectively a DAC preamp, the Q-DAC is very well specified by the standards of the group, being built around the latest 32-bit ESS Sabre 9016 DAC chip, which runs at up to 24/192 resolution and sports seven adjustable digital filter settings. It has a good range of connections, including one coaxial, one optical and one asynchronous USB input, plus digital coaxial and optical outputs.

The fascia has an excellent and informative OLED display, plus a bank of fiddly buttons that cover input selection and volume control, should you wish to use it as a preamplifier. There's also a front panel-mounted 6.3mm headphone socket, with the accompanying built-in amplifier, naturally. Inside, the manufacturer says, much attention has been paid to reducing jitter, and there are triple cascaded jitter attenuation stages to ensure that it is kept to a minimum, and a high-current Class A analogue output stage. By the standards of the group, the Q has a truly massive separate off-board power supply. Overall, however, this is the most flexible DAC here, with a wide range

of features that are all implemented very well. The aluminium casework is superbly finished and the product feels more upmarket than its £400 asking price.

### Sound quality

The Arcam is a hard act to follow, but the Q-DAC isn't fazed and delivers a sound that in some senses is deeper and more three dimensional, with a fractionally better sense of the spaces between the notes where the Arcam slurs them more into one. However, tonally the Audiolab isn't quite as good – it simply doesn't have the former's richness and textural insight. This means that on the Beth Rowley track, for example, those plucked steel guitar strings sound slightly thinner and more needly. Her voice doesn't quite have the body or the vibrancy of the Arcam, but by the same token the Q-DAC manages to separate out all the strands of the mix with enormous confidence and poise – the irDAC never sounds wobbly, but the Q is definitely more secure.

The Bruce Springsteen track again throws lots of light on things, and shows the Audiolab to be one of the fastest, tightest and controlled DACs in the test, but it doesn't quite have the textural richness on piano that the Arcam or NAD possess; there is less of a sense that the Q enjoys playing the musical notes and more that it is intellectually interested in showing

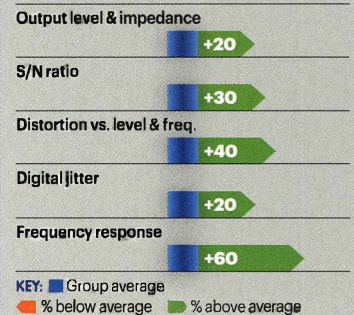


### ON TEST

All seven digital filters offered by Audiolab's costlier M-DAC are duplicated here. The Optimal and Sharp filters are conventional FIR types, the impulses showing pre and post-ringing (the former least subjectively desirable), but with Optimal cutting-off slightly early beyond 19kHz to reach -3.4dB/20kHz and achieve a superior rejection of alias distortions (-92dB vs. -83dB). The other five filters are idealised for transient performance and show little or no pre-ringing at the expense of poorer treble extension and rejection of alias distortions. The Optimal Transient, Transient XD and DD filters are preferred with 96kHz+ media.

THD is low at 0.001% (0dBfs) to 0.0003% (-30dBfs) while jitter remains spectacularly low at ~10ps. The Q-DAC lacks the M-DAC's XLR outs, but its 110dB A-wtd S/N ratio is just fine and the drive-anything 0.5ohm source impedance is exceptional. **PM**

### RESULTS AT A GLANCE



the gaps between them. One listener says: "It does rhythm pretty well, but there's a lack of complexity to the timbre of everything". Another adds: "It's like you're getting the main image but not so much behind it... there's nothing to go and explore".

Maybe this overstates things a touch and lots of praise does go to the bass. Although it's not the richest here, it's well extended and integrates well with the rest of the frequency spectrum. The DAC also images well, and puts up a very wide stereo soundstage. Excellent overall, it doesn't charm our panel as much as two others here, but they all agree it's a lot of product for the money ● ▶

### Hi-Fi Choice

#### OUR VERDICT

**SOUND QUALITY**  
★★★★★ **LIKE:** Great sonics; fine feature set; super build

**VALUE FOR MONEY**  
★★★★★ **DISLIKE:** Fiddly volume control; nothing else at the price

**BUILD QUALITY**  
★★★★★ **WESAY:** Excellent little budget audiophile DAC with built-in preamp

**FEATURES**  
★★★★★

#### OVERALL







## Stream Box DSA


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# Meridian Director £450

Out of the blue comes a stunningly styled, beautifully built new DAC from a digital grand master

## DETAILS

**PRODUCT**  
Meridian Director  
**ORIGIN**  
UK

**TYPE**  
USB and S/PDIF  
DAC

**WEIGHT**  
0.25kg

**DIMENSIONS**  
(WxHxD)  
80 x 34 x 139mm

**FEATURES**  
● 32, 44.1, 48, 88.2,  
96, 176.4 and  
192kHz  
● 16, 24-bit  
● Asynchronous  
USB, 1x coaxial,  
1x optical  
● Aluminium  
casework

**DISTRIBUTOR**  
Meridian

**WEBSITE**  
meridian-audio.com

**M**eridian, lest we forget, was one of the very earliest entrants to the DAC market, way back in the mid nineteen eighties. It has taken digital very seriously, and subsequently built much of its business around it. So when this Huntingdon-based company does a new digital convertor, the world sits up and takes notice. The Director is one of Meridian's more affordable products in real terms, but there's no sign it has scrimped on either the design or the build – ergonomically it's an essay on how to do a small, functional object in a stylish and desirable way.

The elliptical case is a beautiful little thing, made (in Britain) from very finely finished extruded aluminium with gloss plastic end caps and rubber feet. One end has a source selector button and LEDs to show which source is in use, and also sampling rates of 44.1/48, 88.2/96 or 176.4/192kHz. The other sports a USB 2 socket (working up to 24/192) and a single combination S/PDIF and 3.5mm coaxial digital input; adaptors are supplied to permit the use of normal digital cables, but we substituted a bespoke Chord Co. RCA-to-minijack cable, which gives superior results. Finally, there's a stereo pair of RCA analogue outputs. Inside, the silicon includes Meridian Upsampling and Apodising filter;

separate precision oscillators are included for sample rates based on 44.1kHz and on 48kHz, minimising jitter. Audiophile-grade capacitors, resistors and gold-plated phono sockets are specified, Meridian says.

## Sound quality

The Meridian's sonic presentation couldn't be more opposite to its tiny, sleek, organically shaped bodywork. Here we find a really rather vivid, bracing, bold sort of sound. One panelist describes it as very powerful with big boots on – not the usual svelte, almost genteel sound we're used to from Meridian. The Kraftwerk track comes over in a thumping, punchy sort of way, the Director showing us that it knows how to push bass around the place. It's a decently tuneful performer, but still by the standards of the group isn't the most natural sounding here.

On the Beth Rowley track, the Meridian creates a big, commanding sort of sound, with lots going on and the sense that it is in complete control of events. It gives a striking piano with oodles of ringing harmonics, and a super-fast, almost lacerating sound from the fast-plucked steel string guitars. Her vocals sound particularly close miked and very direct, while the backing drum kit is tight and the cymbals sparkle very brightly. Again though, this seems to be a little unsubtle by the standards of some others on test here – the Director seems to be very good at giving an impressive surface to the music, but the more you listen in, the less satisfying it becomes. This contrasts strongly to the Pro-Ject for example, which presents almost the exact opposite type of performance.

The opening bars of the Bruce Springsteen track don't impress; it



## ON TEST

The Director's performance depends absolutely on how it's used. If you feed it via S/PDIF with power via the supplied wall-wart/USB adaptor then its true colours are revealed – a healthy 2.1V output with a 105dB A-wtd S/N ratio and distortion, almost purely 2nd/3rd harmonic, that reaches 0.002-0.004% at full output (20Hz-20kHz), but falls back to a very low 0.0003% at -30dBfs/1kHz. Low-level resolution is good to a fine  $\pm 0.1$ dB over a full 100dB range with 24-bit inputs while jitter is low enough at 140-150psec (44.1-96kHz inputs).

Meridian's apodising filter trades a freedom from pre-event ringing for more post-event ringing and provides a very flat response – good to -0.4dB/45kHz with 96kHz files. USB performance, meanwhile, can be made or broken by the quality of the powered hub where the A-wtd S/N can easily fall closer to a 15-bit 90dB. **PM**

## RESULTS AT A GLANCE

### Output level & impedance

-30

### S/N ratio

-50

### Distortion vs. level & freq.

-30

### Digital jitter

-50

### Frequency response

+20

**KEY:** ■ Group average  
■ % below average ■ % above average

sounds a little opaque, as if the DAC isn't really getting into the essence of the recording in some way. The piano work sounds bold, but again the rhythms plod along in a way that is at odds with an initially very striking presentation. This DAC is certainly interesting to listen to alright, but doesn't quite satisfy deep down the more time you spend with it, which leaves the listener to yearn for the deeper, more subtle and involving attributes of the Arcam, Audiolab or NAD, for example. Overall then, the Director is a beautifully packaged product which is ideal for small spaces, but not quite the class of its field sonically. ▶

## Hi-Fi Choice

### OUR VERDICT

**SOUND QUALITY**  
★★★★★  
**LIKE:** Musical, enjoyable sound; lovely packaging

**VALUE FOR MONEY**  
★★★★★  
**DISLIKE:** Fiddly minijack coaxial/optical inputs

**BUILD QUALITY**  
★★★★★  
**WE SAY:** Funky, modern micro DAC with good sound

**FEATURES**  
★★★★★

### OVERALL

★★★★★



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# Musical Fidelity V90-DAC **£200**

Just 200 notes buys you this baby DAC with very grown up build and functionality

## DETAILS

**PRODUCT**  
Musical Fidelity V90-DAC

**ORIGIN**  
UK

**TYPE**  
USB and S/PDIF DAC

**WEIGHT**  
0.6kg

**DIMENSIONS**  
(WxHxD)  
170 x 47 x 102mm

**FEATURES**  
● 32, 44.1, 48, 88.2, 96, 176.4 and 192kHz  
● 16, 24-bit  
● A synchronous USB, 1x coaxial, 2x optical  
● Aluminium casework

**DISTRIBUTOR**  
Musical Fidelity

**TELEPHONE**  
0208 9002866

**WEBSITE**  
musicalfidelity.co.uk

**T**his company's entry-level DACs have come a long way – not so long ago its V-DAC predecessor came in an unattractive metal box with lurid graphics, which rather undersold the respectable circuitry inside. Now though, the new V90 (V series, turned around by 90 degrees, geddit?) is a very swish-looking affair – it looks like a high-end product that's shrunk in the wash! The quality of finish to the all-aluminium casework is superb, and this makes it a product you want to show off, rather than hide away – the fascia and case are both crystal bead shot blast to a fine textured moonstone finish, giving a lovely look and feel.

The minimalist fascia has tiny toggle switches for power on/off and source selection, while round the back there's quite a crowded rear panel, with two coaxial digital inputs, two for optical and one asynchronous USB, but it must be pointed out that this particular input only runs up to 24/96. Inside, there's a single circuitboard, which sports all the digital processing gubbins; the DAC runs up to 24/192 and all the signals are said to be upsampled to 192kHz. The V90 DAC is a very swish little thing then and the only thing that betrays its humble retail price is the supplied wall-wart power supply, which looks barely adequate for the job in hand.

## Sound quality

Despite being the least expensive DAC here, the V90 DAC puts up a valiant fight – it just isn't going to be beaten comprehensively by all and sundry! As such, it puts its best foot forward and gives a jolly good account of itself, with a surprisingly civilised and even sound that is bristling with detail. In many ways quite similar to the Pro-Ject, the Musical Fidelity isn't a DAC that draws attention to itself in this group. Bass is decently strong – a bit more so than the Pro-Ject, but less so than the Arcam, Meridian and NAD – its midband is very crisp and open and its treble detailed.

The Beth Rowley track shows her voice to be just a tad brighter than some others here, but not by much. The recording is decently spacious, with everything put tidily in its place and the track rolls along in an engaging if not quite inspiring way. Kraftwerk does pretty much the same, with plenty of nice, snappy rhythms and a decently open and extended treble that gives the recording a more spacious feel than some here. You might say it is quite a 'hi-fi DAC', as it ticks all the boxes and gives a detailed, proportioned, rendition of whatever you care to play through it – but it doesn't exactly set your trousers on fire!

One panelist comments that it is a little "restrained" on *The Robots*, and makes Kraftwerk "a bit sleepy



## ON TEST

This is the one DAC in our test that doesn't require proprietary USB 2.0 drivers for PC use – default Windows drivers are used for 24-bit file handling up to 96kHz. Higher rate (192kHz) files are played, but are down-sampled to the V90's maximum –2.0dB/45kHz (96kHz file) bandwidth. Performance with USB lags behind S/PDIF with its 99dB A-wtd S/N ratio (the latter is 10dB better) although distortion is equally low at 0.00015% via both inputs at 1kHz/0dBfs and stays low at 0.0006% all the way to 20kHz.

The maximum 2.15V output and moderate 96ohm source impedance are necessarily the same, regardless of digital source, as are the frequency responses, which are good to –0.25dB/20kHz with 44.1/48kHz media. Low-level resolution is better via S/PDIF at ±0.1dB over a 100dB range (±0.7dB via USB), but jitter is impressively low through both at –5psec and –15psec, respectively. **PM**

## RESULTS AT A GLANCE

### Output level & impedance

–10

### S/N ratio

–30

### Distortion vs. level & freq.

+10

### Digital jitter

+30

### Frequency response

–30

**KEY:** ■ Group average  
■ % below average ■ % above average

sounding"; another comments that it is obviously engineer rather than musician-designed. It certainly has a slight sense of disconnectedness in the bass, but the mid and treble is generally pretty solid with nice soundstaging and separation very good indeed. A thoroughly decent and competent performer at the price then, every panelist agrees it survives the blind listening ordeal in a dignified way considering its lowly retail price – over 50 percent less than the Meridian, for example. If you have a very strict budget, you certainly won't feel cheated by buying the Musical Fidelity, even if you can do better by spending more money ● ▶

## Hi-FiChoice

### OUR VERDICT

#### SOUND QUALITY

★★★★☆

**LIKE:** Refined, smooth, civilised sound; great build; price

#### VALUE FOR MONEY

★★★★★

**DISLIKE:** 24/96 only via USB

#### BUILD QUALITY

★★★★★

**WESAY:** Fantastic value for money; a lovely little DAC

#### FEATURES

★★★★☆

#### OVERALL

★★★★☆



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# NAD

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### DETAILS

**PRODUCT**  
NAD D1050

**ORIGIN**  
US/China

**TYPE**  
USB and S/PDIF  
DAC

**WEIGHT**  
1kg

**DIMENSIONS**  
(WxHxD)  
58 x 186 x 208mm

**FEATURES**  
• 32, 44.1, 48, 88.2,  
96, 176.4 and  
192kHz  
• 16, 24-bit  
• Asynchronous  
USB, 2x coaxial,  
2x optical amplifier  
• Balanced XLR  
outputs

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**WEBSITE**  
nadelectronics.com

**N**ew Acoustic Dimension, the company used to call itself, has made quite a splash recently with the introduction of a range of affordable electronics set into a new form factor by industrial designer David Farrage, who has also done NAD's VISO I speaker dock, among other things. Like its partnering D 3020 amplifier (reviewed on page 50), the D 1050 DAC sports the radical new casework that can be used either horizontally or vertically. It has a very swish front display that backlights the input selected and the sampling frequency – the large knob selects the digital source and there's a 3.5mm headphone socket.

This new NAD box feels nice to use – although the action of the source selector switch isn't the slickest – and you can't help liking the rubberised case with its bright metal grille set behind it. This gives a welcome element of visual flair to an otherwise quite utilitarian device. The back panel is very busy indeed – it's the only product here to offer balanced XLR outputs, as well as standard RCAs. One pair of optical and one pair of coaxial digital inputs, plus a single asynchronous USB. Inside, there's a Cirrus Logic CS4398 Delta Sigma DAC with active oversampling filters. Signal paths are said to be 'ultra short' on multi-layer circuit boards and surface mount

components. Power is supplied by a very modest-looking wall-wart type switched mode unit.

### Sound quality

This proves something of an enigma as in many ways, on some music, the panel rates it the best of the group by a good margin, yet on other music it seems to fall off the scale and sound nowhere near as convincing. It also divides opinion, as one of the three consistently marks it down a bit, while the other two rave about it.

The D 1050 has a characteristically NAD sound, which is to say it has an apparently quite dark and velvety sort of tonality with a little bit of upper mid edge for good measure. One listener notes a lack of top-end sparkle to the high treble, making Beth Rowley's vocals sound a bit unatmospheric, while the piano is slightly processed and synthetic sounding compared to the rich sonorous Arcam. But still one panelist declares: "This is one of the best, I can hear her singing with the musicians, it is good with leading edges and extremely expressive". Another agrees that it is great for attack transients, sounding very fast and expressive, adding that it makes a compelling case for itself musically.

The third panelist isn't so impressed, saying that it just doesn't have the definition of the Arcam or Audiolab, and lacks either's tonal balance. He

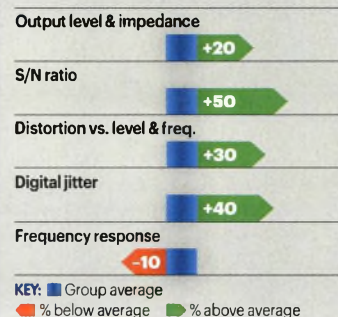


### ON TEST

This new DAC from NAD is, by a large margin, the most impressive unit here and the only one to offer a comparably high performance via both S/PDIF and USB inputs. It's also the only one fitted with balanced XLR outputs offering a full 4.6V and wide 115dB S/N ratio from a moderate 90ohm source impedance. Distortion is a low 0.0001-0.0006% over the top 30dB of its dynamic range at all frequencies (20Hz-20kHz) while low-level resolution is good to  $\pm 0.1$ dB over a 100dB range and  $\pm 1.0$ dB over a 110dB range.

Jitter is actually lower via USB at just 12psec and slightly higher ('untidier') at 295psec via S/PDIF, but the latter is in no way debilitating. The D 1050 is also equipped with a fancy digital filter that minimises pre-ringing and acausal distortions while yielding extended responses of  $\pm 0.1$ dB/20Hz-20kHz (44.1/48kHz),  $-0.9$ dB/45kHz (96kHz) and  $-6.6$ dB/90kHz (192kHz files). **PM**

### RESULTS AT A GLANCE



admits it times well on guitar tracks, but suggests that this could be down to it being a touch mid-forward. He comments that it does really rather badly on the Kraftwerk track, which is not what you'd expect from a DAC you'd previously thought "times well". Even the biggest fan of the DAC on the panel agrees that: "It makes a complete horlicks of Kraftwerk"! So, this gives us a problem in rating it – it's a very 'Marmite' product and two people love it while one is left out in the cold. So – more than any other DAC in this group test – this is something you will need to try before you buy; make sure you hear it against the Arcam, just to be sure ● ▶

### Hi-Fi Choice

#### OUR VERDICT

<b>SOUND QUALITY</b> ★★★★★	<b>LIKE:</b> Highly musically expressive, rhythmic sonics; styling
<b>VALUE FOR MONEY</b> ★★★★★	<b>DISLIKE:</b> A little too music-dependent means that's it not to everyone's tastes
<b>BUILD QUALITY</b> ★★★★★	<b>WESAY:</b> Excellent sounding DAC, but style and sound aren't unanimously liked
<b>FEATURES</b> ★★★★★	

#### OVERALL





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 **Pro-Ject**  
AUDIO SYSTEMS





# Pro-Ject DAC Box DS £330

A small box it may be, but it promises big features alongside a very appealing price tag

## DETAILS

**PRODUCT**  
Pro-Ject DAC Box DS

**ORIGIN**  
UK/Czech Republic

**TYPE**  
USB and S/PDIF DAC

**WEIGHT**  
1kg

**DIMENSIONS**  
(WxHxD)  
103 x 72 x 144mm

**FEATURES**  
● 32, 44.1, 48, 88.2, 96, 176.4 and 192kHz  
● 16, 24-bit  
● Asynchronous USB, 1x coaxial, 2x optical  
● Alphanumeric display

**DISTRIBUTOR**  
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**WEBSITE**  
henleydesigns.co.uk

**T**his Austrian brand is mostly famous for its turntables and it still makes a wide range of competitive designs. As far back as the mid nineties, the company made integrated amplifiers, but it's only recently that the electronics range has really taken off in the UK. The 'Box' series is now vast and confusing – there seems to be one for every possible pocket and intended use, and more! This DAC sits in the middle of Pro-Ject's range and is designed and built in the EU.

The DAC Box DS is the least good looking here by some way – compared to the Meridian, for example, it looks like it has come from a previous century with its fussy display and blocky appearance. Still, although hardly an object of beauty, it's extremely sturdily put together, having a brick-like feel when you pick it up. The crackle black case might remind you of a fifties car dashboard, but is more resistant to scratches than most here. Reasonably well specified, the Pro-Ject offers full 24/192 playback via one optical, coaxial or asynchronous USB input and standard RCA line outs, while a socket for the small external power transformer completes the rear panel picture. Inside, a Burr Brown PCM 1792 DAC chip is fitted with

switchable filter settings – steep and optimal phase; we prefer the latter. Ergonomically it's a bit messy, the bright blue fluorescent screen is nevertheless very informative, with input, incoming bit depth, filter settings and sampling frequency all shown on the display.

## Sound quality

This is one of the most self-effacing DACs here, in sonic terms at least. It has a far less showy presentation than the Meridian, isn't quite as prim and proper as the Musical Fidelity, lacks the richness and life of the Arcam and the pace of the Audiolab and the NAD. Still, this doesn't make it a bad DAC – it's just a very subtle one that's definitely to be recommended for those into easy listening; headbangers should look elsewhere!

Tonally the Pro-Ject is very smooth, creamy even. It is as though all the rough edges have been expertly rounded off – indeed one panelist suggests it's: 'A touch veiled', as it doesn't quite get down and dirty with the music, so to speak. Rhythmically it is pretty good, if not spectacular; the Kraftwerk track bounces along well and proves an enjoyable listen. Still that said, it does initially sound very underwhelming and rather over-smooth – this DAC has an unspectacular sound that doesn't exactly draw attention to itself, but further listening certainly rewards.

Listening to the Bruce Springsteen track one listener describes the Pro-Ject as: "More balanced tonally" than the Meridian, as it isn't in your face. It gives a nice, pleasant rendition of a great sound and proves fairly fluid and satisfying to listen to, but not exactly riveting. Another panelist comments that it is: "Softer and smoother and more organic" than



## ON TEST

Despite being equipped with TI's PCM1792 DAC, it's Pro-Ject's own analogue stage that determines much of the DAC Box DS' character, particularly over the top 20dB or so of its dynamic range. At its 1.98V maximum output, it's this stage that lifts distortion to 0.005% through the midrange and 0.05% at 20kHz, these figures dropping back to 0.0006% and 0.005%, respectively, at lower (-30dBfs) levels.

Interestingly, while the distortion figures are comparable between S/PDIF and USE inputs, there are more spurious digitally related tones present across the S/PDIF input's noise floor than via USB, the latter looking 'cleaner' despite its 104dB S/N ratio being 4dB shy of that achievable via S/PDIF. This is directly evident from the jitter spectra – adding up to 400psec via S/PDIF and 45psec via USB. Here's one example where USB may sound better than S/PDIF. **PM**

## RESULTS AT A GLANCE

### Output level & impedance

-10

### S/N ratio

0

### Distortion vs. level & freq.

-30

### Digital jitter

0

### Frequency response

-10

KEY: ■ Group average

■ % below average ■ % above average

most, but still it isn't exactly the belle of the ball. Dynamics seem a little flat, and this gives the DAC an inoffensive, but uninspiring sound compared with many here. Bass is good, but it isn't as well articulated as the Arcam, Audiolab or NAD. It is probably closest to the Musical Fidelity in overall character, but smoother and slightly more opaque sounding. Overall then, the DAC Box DS is a decent digital-to-analogue convertor and not one you'll want to overlook, especially if you have a bright-sounding system that you're trying to tame. But many will crave more power and passion, which is more abundantly on tap elsewhere ●

## Hi-Fi Choice

### OUR VERDICT

#### SOUND QUALITY

★★★★★

**LIKE:** Refined, smooth, civilised sound; great build; price

#### VALUE FOR MONEY

★★★★★

**DISLIKE:** Cluttered display

#### BUILD QUALITY

★★★★★

**WE SAY:** Strong sounding, well made, value for money DAC

#### FEATURES

★★★★★

### OVERALL

★★★★★



# Group test verdict

He's gathered the thoughts of our team of expert listeners so it's over to **David Price** to find out the scores on the doors

**THE MUSICAL FIDELITY** comes last, but that's not the whole story. It is the cheapest by a distance, and given its price this shouldn't be seen as a defeat – it holds its own and sounds splendid considering the far more expensive competition. In no sense could you be disappointed with this DAC, such is its smooth, sound and super build and finish.

Next is the Meridian; it's a fine little bit of kit, but it's up against some superstars at this price, and the Director is the most expensive here. We love its styling, build and general concept, it's just that sonically it


doesn't surpass the Musical Fidelity significantly – and fails to equal the star performers here.

The Pro-Ject is a quiet, unassuming sort of thing with a good, balanced and slightly polite sound that most people will feel they can live with and enjoy. It's decent value too, with plenty of features. Trouble is, you only have to spend a little more to get any one of the following...

The Audiolab is superb. We love its even, insightful sound and sense of solidity and order. It's a bit tonally 'dry', but you can't have everything. It's also plastered with features, and if

these are important you'll score it right at the top of your list.

Our panel, however, focuses on the listening, and the NAD comes very close both to the Audiolab and the winner; the top three here are all fiercely good value and preference counts here as much as anything. This DAC has excellent sonics, just a little more animated than the Audiolab, with a greater sense of a musical event. If you also factor in its cool case design that sits either horizontally or vertically, then it just about pulls ahead of the more conventionally styled Q-DAC.



**WINNER**

The Arcam's consistency across different types of music makes it the winner. It is rich, fruity and detailed, giving a great sense of timbre and it plays tunes effortlessly. Factor in its build and finish and it is a worthy winner in a group that has no bad offerings.



Make/model	Arcam irDAC	Audiolab Q-DAC	Meridian Director	Musical Fidelity V90-DAC	NAD D 1050	Pro-Ject DAC Box DS
<b>Price</b>	£400	£400	£450	£200	£399	£350
<b>Sound</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<b>Value</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<b>Build</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<b>Features</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
<b>Overall</b>	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
	This is a brilliant all-round package, put quite simply it's got the lot	The Audiolab is amazing value and very versatile with a super sound	The Director is cute, cool and highly charismatic, but rather expensive	At £200 the V90-DAC is awesome value for money and a very pretty baby!	The D 1050 possesses a very strong sound, but is a touch too music-dependent	The DAC Box DS has a smooth, endearing sound in a good value package

### Key features

<b>Coaxial in</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>Optical in</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b>24/192 USB</b>	Yes	Yes	Yes	No	Yes	Yes
<b>iPod</b>	Yes	No	No	No	No	No
<b>XLR out</b>	No	No	No	No	Yes	No

### TRY WITH THESE

#### CD PLAYER: Cyrus CDT £649

A lovely disc spinner, the Cyrus sports the latest version of the company's Servo Evolution mechanism which has a clean, detailed and musical sound. Partnered with any of the DACs here you'll get a very potent CD sound.



#### LOUDSPEAKERS: Q Acoustics 2050i £500

They have a big, powerful sound, and are nicely tuneful, but can seem a little too warm for some tastes – which is why a clean and open speaker cable would suit well, such as one from van den Hul, Ecosse or Black Rhodium.



#### INTEGRATED AMPLIFIER: Arcam FMJ-A19 £650

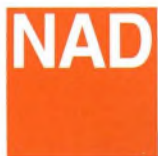
The recently released mid-price integrated wowed us with its rich and engrossing sound – it really makes listening a great pleasure, whatever type of music you're into, even if it's not the most transparent around.





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### MAGIC FROM A DAC, the **NAD D 1050**

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Takes the original NAD concept straight to the 21st century using the latest high speed digital technology. The D 3020 DAC/Amplifier includes coaxial and optical digital inputs along with an analogue input. It's asynchronous USB input ensures the lowest possible jitter from notoriously unstable computer audio outputs along with support for 24/96 HD studio master music files.

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#### CYRUS • STREAM XP2 Qx • MUSIC STREAMER

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#### NAD • C 446 • MUSIC STREAMER

Powerful digital media player featuring Internet radio and a FM/AM/DAB+ tuner. The C 446 allows you to stream your music collection from multiple networked storage devices using DLNA and Universal Plug and Play (UPnP) standards.



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#### NAD • M50 • DIGITAL MUSIC PLAYER

If you love digital music, the M50 will become the heart of your collection, managing and controlling all your music and eliminating the need for a computer. Decodes all the popular formats including Linear PCM up to 24-bit/192kHz and FLAC.



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#### NAIM • UNITILITE ALL-IN-ONE STREAMING SYSTEM

Comprises a CD player, MP3/iPod and USB memory stick playback, digital to analogue converter, high resolution 32bit/192kHz capable network stream player and integrated 50W amplifier in one sleek enclosure.



£1150

#### NAIM • UNITIQUETE 2 ALL-IN-ONE STREAMING SYSTEM

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Award-winning audiophile Network player supporting AirPlay® and DLNA wireless technologies, allowing you to stream music wirelessly from your iTunes libraries or iOS devices. When connected to your home network, you can also enjoy a wide variety of online music services remotely.

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**AUDIOLAB • 8200CD / 8200A • CD / AMPLIFIER**

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Designed to be the heart of a digital system. Includes asynchronous USB and a direct iPod input to optimise sound quality. All inputs can be controlled through an IR remote that will also control iPods, iPhones, PC and Mac computers.

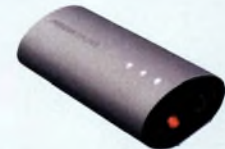
£599  
OR LESS



**AUDIOLAB • M-DAC • DAC / PREAMP**

Award-winning DAC featuring a USB input with asynchronous data processing along with two coaxial and optical digital inputs. High-res 24-bit/192kHz music files can be played via its coaxial input.

£249  
OR LESS



**MERIDIAN • EXPLORER • USB DAC / HEADPHONE AMP**

Explorer replaces your computer's sound card with a USB-powered DAC featuring Meridian's high quality audio circuitry with up to 24-bit resolution and 192kHz sampling. Includes 96kHz optical and fixed or variable analogue outputs.

NEW

£449  
OR LESS



USB  
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COAX

**MERIDIAN • DIRECTOR • DAC**

Featuring a range of connectivity, Director can be used with a wide selection of traditional components as well as high-resolution USB based sources. Director features technology drawn from Meridian's award-winning Reference 800 Series, offering up to 24-bit resolution and 192kHz sampling.

£1499  
OR LESS



**NAD • M51 • DAC**

This award-winning DAC / pre-amp features optical, coaxial, USB and HDMI inputs, all of which can handle files up to 24-bit/192kHz. The M51 will truly transform any system.



£1199  
OR LESS

£1499  
OR LESS

**CYRUS • CD8 SE2 / 8 DAC • CD PLAYER / AMPLIFIER / DAC**

With its 2 x 70w power output and extended range of digital inputs, the 8 DAC amplifier is a great partner for the award-winning CD8 SE2 CD player.



NEW

£349  
OR LESS

NEW

£379  
OR LESS

**MARANTZ • CD6005 / PM6005 • CD / AMPLIFIER**

Replacing the 6004 models, the 6005 amp gains digital inputs using the same 24-bit/192kHz DAC as the CD player which now features enhanced USB playback and improved performance.



£249  
OR LESS

£249  
OR LESS

**NAD • C 516BEE / C 316BEE • CD / AMPLIFIER**

Received an outstanding product award from Hi-Fi News magazine who described the C 316BEE as an "absolute barnstormer of an amplifier". The C 516BEE is the perfect partner



£349  
OR LESS

£499  
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**ROTEL • RA-10 / RCD-12 • AMPLIFIER / CD**

Award-winning amplifier from Rotel. Delivers 40 Watts per channel and includes four line level inputs and a phono input. Ideal partner for the RCD-12 CD player.



£1799  
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£1799  
OR LESS

**ROKSAN • CASPIAN M2 • CD / AMPLIFIER**

The M2 amp boasts 85wpc and five line inputs while the matching CD features a 24-bit DAC plus dedicated power supplies for the outputs.



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OR LESS



**ROKSAN • KANDY K2 BT • AMPLIFIER**

Sets new benchmark for performance and is even more powerful than its award-winning predecessor. Features apt-X for direct streaming via connection to any bluetooth-enabled device.



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**YAMAHA • CRX-550 • CD / DAB SYSTEM**

Yamaha's CRX-550 offers excellent audio quality from a CD / DAB System. Includes iPod digital connection for superior audio performance, USB input and subwoofer out.



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COM

**DENON • D-M39DAB • CD / DAB SYSTEM**

This micro component system gives you clean dramatic sound, and more life to iPod and iPhone music libraries via its digital USB input. Includes DAB/DAB+/FM tuner.



NEW

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Enjoy great sounding music from diverse sources, including Internet radio, music-streaming services, mobile devices, TV and other digital audio sources.

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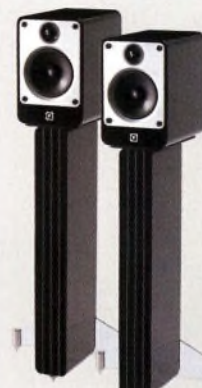
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Introducing the CM10, a new flagship for the CM series that combines technologies from the Reference ranges with innovative new construction techniques. The result is simply spectacular.

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Award-winning compact, floorstanding speakers featuring Tannoy's unique Dual Concentric™ drive unit along with trapezoidal cabinets. Exclusively finished in luxury Espresso colour real wood veneer.

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**Q ACOUSTICS • CONCEPT 20**  
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**£1499**  
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**MONITOR AUDIO SILVER 6**

2.5 way speaker system combining excellent dynamics with a naturally rhythmic sonic character and tight, controlled bass. The Silver 6 is an outstanding communicator of music and film audio.

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**PMC • TWENTY-23**

An open, engaging and communicative loudspeaker that defies its size both the depth of bass and scale of presentation by taking any music or film material in its stride. The sound is vivid and dynamic and delivered with authoritative bass.

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**£2300**  
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An innovative concept derived from the legendary LS3/5a. Rarely the case in such a compact design, the LS50 monitor delivers a rich, multi-dimensional 'soundstage experience' that is out of all proportion to its size.

**NEW**  
**£799**  
OR LESS



**MONITOR AUDIO BRONZE BX2**

Award-winning stand/bookshelf speakers featuring a 25mm C-CAM tweeter and 165mm bass/mid driver. Compact in size, but equipped to reproduce sound of immense stature and detail.

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Meet the newest and smallest member of the ultra-stylish Imagine Series. The deceptively small Imagine Mini makes a big impact on an already impressive range of award-winning speakers.

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**SONOS • THE WIRELESS HI-FI SYSTEM**

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The award-winning Sonos system now has a speaker to fit any room with the introduction of the PLAY:1 and an offer to get you started.

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**NEW**  
**£499**  
OR LESS



**NAD • VISO 1<sup>st</sup> • WIRELESS MUSIC SYSTEM**

Streaming system with both AirPlay® and Bluetooth. Ideal for wirelessly playing music from your iPod, iPhone, iPad or any Bluetooth or AirPlay enabled smartphone, tablet or laptop.

**HEADPHONES**

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**BOWERS & WILKINS P7 £329**

**NAD VISO HP50 £249**

**SENNHEISER MOMENTUM £259**



**NEW**  
**£599**  
OR LESS



**BANG & OLUFSEN • BEOBIT 12 WIRELESS MUSIC SYSTEM**

Compact, portable and powerful! Beolit 12 includes Apple AirPlay® which lets you enjoy your music wirelessly from your iPod, iPhone, iPad or computer through your wireless network.



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# Ingenious

Avid's latest turntable moves away from its traditional design philosophy, **Ed Selley** finds out if the house sound is there

**W**hen a manufacturer hits on a design philosophy that works it shouldn't be too surprising to find that it will use the same basic pattern for as many products as it can. However, in the case of Avid, this methodology is taken one stage further. The company's extensive range of turntables has all been designed 'top down.' The flagship Acutus turntable was developed first and every other turntable since is effectively as much of the Acutus as it is possible to retain at the new lower price point.

This has proved effective and means that Avid turntables have a strong family resemblance and a degree of

'house sound.' If you like what the Acutus does, the Diva – up until very recently the baby of the Avid range – will deliver much of the same characteristics at a more terrestrial level. The catch, or course, is that the Diva is effectively the lowest price that a turntable built on the principles of the Acutus can be produced. In the great scheme of things, the Diva is not hugely expensive, but it meant that Avid was missing out on the sub-£1,000 turntable market, until now that is...

Enter the Ingenium – the first Avid turntable to deviate from the tried and trusted Acutus pattern. The philosophies that mean that the

## DETAILS

**PRODUCT**  
Avid Ingenium  
**ORIGIN**  
UK  
**TYPE**  
Turntable  
**WEIGHT**  
5.8kg  
**DIMENSIONS**  
(WxHxD)  
390 x 305 x 130mm  
**FEATURES**  
• Choice of arm mounts for 8in and 12in tonearms  
• 33/45 RPM speeds available  
• Supplied clamp  
• Inverted stainless steel bearing  
**DISTRIBUTOR**  
Avid HiFi  
**TELEPHONE**  
01480 869 900  
**WEBSITE**  
avidhifi.co.uk

Acutus looks and sounds the way that it does have not been abandoned altogether, though.

The design is intended to dissipate energy away from the playing surface via the bearing and nothing on the Ingenium is there for decoration, but the layout of the turntable is different to any other Avid that's we've seen before. The chassis of the Ingenium takes the form of a two-piece cruciform with the longer section housing the bearing and tonearm mount and the shorter crossbeam adding stability. The motor is derived from the Diva and sits in free space behind the main chassis member.

The most visually distinctive aspect of the Ingenium's design is the bearing. This is set forward from the centre of the chassis, which means that you can see the entire assembly rotate if you are seated in front of the turntable when it plays. It also means that the spine of the chassis retains more of its structural strength as it is complete across the rear of the unit.

There are some other rather neat touches too. The cork-topped platter used on other Avid turntables is retained and the feet add some useful





isolation. The excellent Avid clamp is also an option.

As the main chassis member holds the bearing and the arm, the Ingenium differs from other Avid models in that you need to decide what arm mounting you want when you order it – all of the usual suspects are catered for and the review sample is fitted for and supplied with an SME cutout and arm (£1,015). This additionally has two knock-on effects that give the Avid a bit of clear space to rivals. The first is that the chassis can be ordered in a longer length allowing for the Ingenium to mount a 12in arm, which is something of an unusual option at this price. The second is that the chassis member can be extended in both directions and the Ingenium ordered to mount two arms, which is still fairly unusual at any price.

The Ingenium is free of adornments, but the finish is of an extremely high standard throughout. Everything feels extremely solid and very logically thought through. The skeletal design makes working on the deck very simple indeed and setup is extremely easy to carry out. There are a few

**Avid's Ingenium can be fitted with the Ortofon 2M Blue cartridge for £150**

**The SME M2-9 will set you back an extra £1,015**

minor detractors in comparison to some competitors at this price. The Ingenium has no cover as standard, although Avid produces a variety of options for an additional fee.

The other quirk is that the motor on/off switch is on the power cord and the chances are this will be dangling behind your stand or rack, which can make it difficult to reach. Speed change is done by moving the belt to a different pulley – this is not unusual on turntables that compete with the Ingenium, but it does require the platter to be removed in order to make it possible.

The motor itself is about the only vaguely complex part of the entire setup process on the Avid. It needs to be placed far enough from the chassis to allow for good belt tension or you can experience slight pitch instability on sustained notes. Provided this is done, the Ingenium is very speed stable indeed.

The simple act of supplying the Ingenium for review with a tonearm that costs more than the turntable does should be seen as a sign that the company has considerable faith in its new baby. If the SME M2-9 is a bit rich for your blood, you can order the Ingenium supplied with a Pro-Ject Carbon arm for £1,260 and some Rega arms will drop the price even further. If you can stretch to the SME, though, there is much to be said for this partnership.

### Sound quality

With the winner of the recent cartridge group test (*HFC* September 2013), the Nagaoka MP150 attached

– something the SME makes very simple – and connected to an Avid Ingenium phono stage, the turntable makes a very strong case for itself. In keeping with its bigger brothers, the Ingenium is not an intrinsically romantic sounding turntable. It is completely free of any softness or bloom and it is sufficiently revealing that it will show up the limitations on poor pressings. The rather better news is that with discs of any quality at all, the Avid is capable of a truly exceptional performance.

The most immediately arresting aspect of the presentation is the

**There is a wonderful effortless to the performance that is very compelling**

seamless integration from top to bottom that means you tend to sit back and enjoy the performance rather than spend time analysing particular facets of it.

With the sumptuous soundscape of the Hidden Orchestra's *Archipelago*, the Avid produces a wonderfully full and inviting performance that effortlessly spreads and layers the performers in a tangibly real soundstage. There is an effortless to the way that the Ingenium performs that is very compelling.

There is a considerable sense of control to the performance, too. With the faster and more aggressively presented *The Bones Cf What You Believe* by Chvches, the Avid gets on ▶





## Q&A

**Conrad Mas**  
Owner of Avid



**ES:** By necessity, the Ingenium has a different basic design to other Avid turntables. How did you decide on this form?

**CM:** Actually to the contrary. Despite the different visual appearance, Ingenium follows the same 'trickle down' product philosophy of our other designs. Sharing the same platter, bearing and separate motor of the Diva II the major difference is the main chassis, which is now fabricated rather than using our unique casting design.

**Was there a desire to allow for twin arm and 12in mounts from the outset, or is this simply a by-product of the design?**

Designed specifically for the Pro-Ject arm, other arm and twin arm options have been requested, but unlike the fixed parameters of our cast chassis the fabricated design of the Ingenium lends itself to these variants. You must always remember, however, arms are not then interchangeable, each Ingenium is specific for the arm its designed to accommodate only.

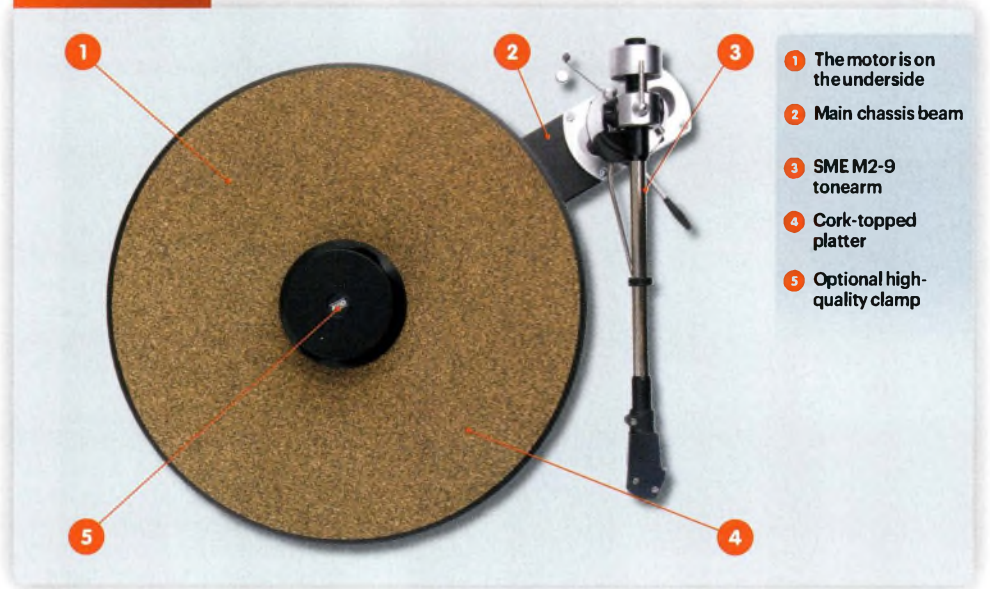
**Avid's design process has traditionally been 'top down.' Have you learned anything from the Ingenium that will be of use to other products?**

We didn't want to reinvent yet another rectangular wooden turntable, but retain our unique design philosophy. Pushing the possibilities of design verses cost, we quickly learned that we'd reached the limits of the trickled-down design.

**The review sample was supplied with a SME M2-9, are there other arms that you have tested with the Ingenium that you feel work well?**

Through customer feedback we are aware the Ingenium works well with a wide range of arms, hence the requested variants. Being neutral in character, like our other designs, it's very revealing of both arm and cartridge and should be a good platform for anything.

### IN SIGHT



- 1 The motor is on the underside
- 2 Main chassis beam
- 3 SME M2-9 tonearm
- 4 Cork-topped platter
- 5 Optional high-quality clamp

top of the rhythms and simply pounds along. After a considerable period experimenting with some of the more curious ends of my record collection, this turntable proves itself to be pretty much unflappable across the entire spectrum of music. The calm neutrality of the Avid is as happy with the pared-back simplicity of Fink as it is hammering through the pounding basslines of The Prodigy.

It takes a little while to realise that the Ingenium does something very unusual at the price. As reviewers we so often talk about the mighty soundstage of a Gyrodec or the legendary timing of the Linn LP12, ascribing character to the turntable itself. The Ingenium is by contrast almost entirely self-effacing. More than anything else, it is a platform for the arm and the cartridge that you choose to partner it with, rather than a part of the performance in itself. It is, in the best possible way a tool to aid your enjoyment of music rather than something that sets out to be the source of enjoyment itself.

This means that the character of the Avid is subtle to the point of reclusive. Having listened to a twin arm version with an SME on one side and Audio Note's fabulous Arm III on the other, the Ingenium reveals a consistently detailed and agile bass response with commendable depth to low notes.

By the same token, the 'take no prisoners' approach to poorer recordings seems to be in part down to the SME, but the Ingenium is not a deck that will flatter something that is compressed or hissy. That being said, the noise floor is impressively low and the excellent clamp makes short work of warped records.

The Avid is a subtly different proposition to some of the other turntables on offer at this price point, as the ease with which it accommodates an arm that costs more than the deck demonstrates.

### Conclusion

The Ingenium is comparatively light on features and while I am rather fond of its appearance, which results from the triumph of function over form, there are undoubtedly prettier turntables on the market.

What the Ingenium can do, however, is very unusual at this relatively sane end of the market. This is an incredibly neutral, accurate and revealing turntable that allows any arm and cartridge connected to it to lead the performance, while the deck itself gets out of the way.

When you consider that the Ingenium allows for a very wide variety of arms to be attached, you have a turntable that has the potential to make a great many vinyl lovers very happy indeed ●

### HOW IT COMPARES

The Avid costs from £800 less an arm depending on the cutout. It tends towards the more minimalist end of the scale in comparison to more highly specified offerings from Pro-Ject, Clearaudio and Rega, but none of these offer the arm-mounting options and the two armed variant of the Ingenium is in a league of its own in terms of choice of arms and ancillaries. The only decks that offer similar flexibility are the Michell Gyrodec and Nottingham Analogue Ace Space - both are more expensive, but more flexible in terms of placement. The Avid can legitimately claim to be the most flexible sub-£1,000 deck on the market, though.

### Hi-Fi Choice

#### OUR VERDICT

##### SOUND QUALITY



**LIKE:** Assured confident and neutral performance; superb build quality

##### VALUE FOR MONEY



**DISLIKE:** Won't flatter poor recordings; no cover; limited facilities

##### BUILD QUALITY



**WE SAY:** A hugely capable turntable that should shine with a variety of equipment

##### FEATURES



##### OVERALL





# T+A

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# Mini marvel

From the masters of affordable audio comes a new one-box player. **Andrew Simpson** lifts the lid on the Minx Xi

**B**y combining hi-fi sound quality with real world convenience, all-in-one digital music players signify a step-change for the hi-fi industry. Their allure is like that of CD in the eighties, appealing to both audiophiles and music lovers alike who simply want a fuss-free way to hear music, which in the modern age could be stored on a smartphone, laptop or sophisticated NAS drive.

Cambridge Audio clearly gets this and its Minx Xi combines features cherry picked from its affordable separates range, packed into an even more affordable do-it-all single box. So what you get is a 40W (claimed)

Class AB amplifier derived from the company's 351A integrated amp, dual Wolfson WM8728 DACs lifted from the 351C CD player, the streaming functionality of CA's NP30 network player and Bluetooth connectivity courtesy of the company's BT100 apt-X receiver. These units combined wouldn't leave you much change from £1,000, that Cambridge Audio has managed to bundle its selected tech into the £600 Minx, which also houses an audio-grade toroidal transformer, seems pretty impressive.

Digitally, the Minx streams a wide array of audio formats, including FLAC, ALAC, AIFF and WAV via UPnP, although bit depth and sample rate

## DETAILS

**PRODUCT**  
Cambridge Audio  
Minx Xi

**ORIGIN**  
UK/China

**TYPE**  
Digital music system

**WEIGHT**  
5.8kg

**DIMENSIONS**  
(WxHxD)  
270 x 90 x 285mm

**FEATURES**

- Network music playback (wi-fi, Ethernet and Bluetooth)
- In-built 40W amplifier
- USB, S/PDIF and analogue inputs
- Support for ALAC/WAV/FLAC/AIFF/MP3/AAC up to 24-bit/96kHz

**DISTRIBUTOR**  
Cambridge Audio

**WEBSITE**  
cambridgeaudio.com

are limited to 24-bit and 96kHz respectively. The Minx also does a dandy job of streaming internet radio from around the globe.

Externally the unit feels well made and unobtrusive, and the gloss white option adds glamour. The Minx shares its large dimmable display with the company's NP30 streamer, which perhaps lacks the visual drama of say Musical Fidelity's CLiC or Pro-Ject's Stream Box, but it's legible from a bus ride away and tells users what they need to know (seeing the file type, bit depth and sample rate of the incoming stream certainly gets top marks in my book).

Connectivity-wise the Minx is well spec'd, with its front panel boasting a USB input and two 3.5mm jacks for headphones and MP3 players. Round the back another USB input joins an Ethernet port, while a third USB connects the supplied Bluetooth receiver. Two sets of analogue inputs (via RCAs) and two digital S/PDIF inputs shared over RCA (coaxial) and Toslink (optical) complete the input line up.

Although only two pairs of speaker terminals mean bi-wiring is off the





a short two-pager to get you started. After connecting the supplied wi-fi dongle and Bluetooth receiver I hit 'standby': the Minx springs to life, scanning for available wi-fi networks to choose from. After entering my network's password via the front panel's rotating dial (you can also use the supplied remote), I'm connected.

Delving deeper into the unit's menu via its eight front panel buttons requires a quick read of the longer manual to understand what each one does, partly because their legends aren't immediately intuitive and partly because some perform multiple functions. Operating the unit via the front panel and supplied remote is fine once you get the hang of it, but it's a far more engaging experience controlling the unit via CA's excellent (free) Stream Magic app for Apple/Android devices. After quickly installing this on my iPhone and iPad, I'm off and running.

Features include naming inputs, tone and balance controls, creating playlists and memory for up to 20 entries, including internet radio stations and streaming sources. There's a 'reply' feature to interact with internet radio and services tailoring content to personal tastes.

Finally, there's a headphone jack, which auto-mutes the speakers when cans are connected.

### Sound quality

Partnering the Minx with a pair of Q Acoustics 2020i bookshelf speakers makes for a predictable marriage, as I expect this is the type of speaker the little Xi will find itself nestled up to in many owners' homes. Overall, the Minx may be small in size, but it's certainly not in sound. It's a lively little unit with a slightly forward presentation that likes to bring vocals and musical verve to the fore.

Streaming via Bluetooth is a real-world starting point to get a first

impression of the Xi's sonic capabilities, as this playback method will appeal to many users for its sheer convenience. Sending Pearl Jam's *Sirens* (at 256kbps) from my iPhone 4S via the standard Bluetooth codec (as Apple is yet to include the superior apt-X codec in its mobile devices), garners surprisingly impressive results. That the percussion is slightly fuzzy around the edges and the piano sounds a bit flat is hardly surprising, given the audio limits of my phone and the compressed bit rate. But what is surprising is how much life the Minx still manages to inject into the track,

### This is a convenient second system without the hassle of stacks of separates

making the source's shortcomings far less obvious. The Minx fills the room with Eddie Vedder's voice while keeping sibilance in check. Streaming the track over wi-fi from my PC helps sharpen things up, adding extra details to the strings while pushing more air around instruments, allowing them to find their own space, making the soundstage sound less congested.

While I expect Morrissey wouldn't give a gladioli about audio file formats in the digital age, The Smiths' recently re-mastered albums on CD are a worthy of inclusion in any audiophile's auditioning list. Streaming a 16-bit/44.1kHz ALAC rip of the maudlin track *This Night Has Opened My Eyes* reveals more of the Minx's cunning. Andy Rouke's walking bass lines are always a useful tool for measuring how well an amplifier can grip a speaker by the drivers and keep it in check. Via the Minx, his bass guitar is rendered with

menu, the jacks are well designed and removable to allow 4mm banana plugs. The Minx's sub-out connector also means the unit's ripe for a 2.1 system. Balanced inputs aren't on the menu either, but given the price this is hardly surprising, although a pre-out would have been useful to facilitate adding an external power amp.

Setup is fairly straightforward and, thankfully, instead of a user manual the size of *War and Peace*, CA includes

**Also available in a white finish, the Minx Xi is well made and unobtrusive**

### CONNECTIONS



- 1 IEC mains input
- 2 Analogue RCA inputs
- 3 S/PDIF inputs for Toslink and RCA
- 4 USB socket for Bluetooth receiver
- 5 Speaker connections



## Q&A

**Sam Ellenby**

Audio Partnership product manager



**AS: How do you think all-in-one players like the Minx Xi fit in to the hi-fi market?**

**SE:** People are looking for greater levels of integration, fewer boxes doing more things. To use an analogy, smartphones haven't replaced digital cameras and portable media players, but they have made the markets for dedicated devices more specialist. We want to support consumers who want the quality of a separates system, alongside a range of increasingly integrated solutions to reflect the different ways customers want to enjoy great sound. Even the most diehard audiophiles rarely have full hi-fi systems in their bedrooms!

**Why do you favour the Wolfson DAC chip for the Minx?**

We've been using Wolfson DACs for many years in our CD players and DacMagic range, and we've always had excellent results. They have a very clear sound, which allows us to accurately recreate the music as it was intended to be heard.

**The speaker terminals are very user friendly, did you design these?**

Yes, they are designed in house and toolled specifically for Cambridge Audio products. We went through a lot of iterations trying to get a solution that worked for everyone and paid close attention to customer feedback, to ensure the end result provides a secure reliable connection for bare wire or banana plugs. The way they rotate and can be removed makes it easy to connect up your speakers without too much groping around behind the unit.

**Why no pre-out function?**

We spent a lot of time listening to what our customers wanted from a music system like the Minx Xi before we started its development. The majority were interested in a simple integrated solution and many proposed extra features would have gone mostly unused, a pre-out to connect other products is just one example of the many ideas and suggestions we ruled out.



**CA's Stream Magic app is perfect for controlling the Minx Xi**

clarity, allowing me to follow its every move as his notes wander within the soundstage with lithe agility. And speaking of bass, the Minx is engineered with plenty of it, and hearing such fulsome lows from the little Qs suggests that the Minx is designed to get the most out of smaller/budget speakers in the lower registers. Although the Minx's bass is surprisingly powerful, compared to Cambridge Audio's 651A integrated amplifier (which normally sits right at the heart of my second system) it's not as well controlled, and doesn't start and stop with quite the same levels of precision.

Overall, the Minx's USB input garners the best results for dedicated audiophile listening and accessing USB content via the Stream Magic app is just as easy as accessing networked media. Comparing a 16/44.1 FLAC of Ben Folds Fives' track *Don't Change Your Plans* back-to-back via USB and wi-fi adds a greater sense of midrange poise via the former method. Playing via USB, Ben Fold's piano notes have a far more natural ring, emphasising a deeper soundstage compared to the one conjured up via wi-fi streaming, and the crisp taps on the cymbals sound sharper.

Taking the Minx to its audio limit comes in the form of a 24/96 FLAC of Nick Drake's *Five Leaves Left*, with the Minx now driving my reference Audiovector Mi 3 Signature floorstanders. The Minx has no problems keeping up with the pacy plucking of Nick's guitar during *Cello Song* while permitting Clare Lowther's Cello strings to flourish within the soundstage before easing gently away.

Centre imaging is nicely focussed and creates a soundstage that expands beyond the width of the speaker plane. The way the Cambridge Audio highlights the smooth nature of the Nick Drake album and other high-res material makes the little Minx sound far more mature than its price tag would suggest.

## Conclusion

Like mini-systems of old, all-in-one players often get a bad press in hi-fi land, as in their attempt to be a jack of all audio trades, they're sonically a master of none. Thankfully that's not the case with the Cambridge Audio unit, and what you get is a compact and confident all-rounder, with proper hi-fi credentials. For those already on the hi-fi ladder, the Minx will make a convenient second or bedroom system without the hassle of stacks of separates. For those just starting out on their hi-fi journey, the Minx is an amazing value introduction into what 'proper' hi-fi sounds like ●



There are plenty of budget streaming mini-systems out there from the likes of Marantz, Onkyo and Teac starting at £200, and some even come equipped with a CD player, but the audio grade spec and sound quality of the Minx moves it up a league. Its closest rival is NAD's D 7050 (£800), which also has an apt-X Bluetooth codec plus 192kHz streaming, a pre out and more digital inputs (although no analogue). With its 50W digital amplifier, the NAD may sound cleaner, but with less warmth. Naim's UnitiQute 2 (£1,150) with 32-bit/192kHz streaming will sound more refined than the Minx and comes with DAB and FM radio.

## Hi-Fi Choice

### OUR VERDICT

**SOUND QUALITY** ★★★★★  
**VALUE FOR MONEY** ★★★★★  
**BUILD QUALITY** ★★★★★  
**FEATURES** ★★★★★

**LIKE:** Great sound, looks and hi-fi pedigree at a bargain price  
**DISLIKE:** No pre-out; front panel buttons take some learning  
**WESAY:** Superb value package with proper hi-fi sounds that sets a new price benchmark

### OVERALL







“Get up and drive your funky soul!”

James Brown

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# Roots music

Has NAD gone back to its roots with the D 3020? **David Price** wonders if it's a case of traditional values in a modern setting

**D**oes the classic NAD 3020 integrated amplifier need any introduction? Most HFC readers will have owned one, heard one or at least known someone else who used one. It came out 35 years ago, for the princely sum of £59 in the UK, and was painfully uncool looking back then; its 3030 predecessor was a far more fashionable beast with its broad expanse of brushed aluminium, inset with big chunky analogue power meters. By contrast, the 3020 had a dull charcoal grey plastic fascia, a miserly mono LED power meter, and precious few facilities by the standards of the day.

Worse still, it put out a piffling 20W RMS of power into 8 ohms. Back then, the power race was just beginning to take off, and you'd be looking for 30W at the very least for any self-respecting new solid-state

amp. Fascinatingly though, it turned out to be a very loud 20W, because it could drive demanding loads with ease, meaning it virtually doubled its output power into 4 ohms, and nearly doubled that again into 2. This gave it a very strong, secure sort of sound – much more so than many rivals, which promised more on-paper Watts into 8 ohms. This pretty much summed up the original 3020 – all go and no show.

You can tell that NAD has tried to do the same with the new D 3020. Of course, it's not a carbon copy of the original, but just as the first one had real-world features and no gimmicks, so this new one goes the same way. Any modern budget amplifier has surely got to work in Class D, because this mode of operation has lower power consumption, higher efficiency and higher power output (for its size) compared to conventional Class AB

designs, which dissipate a lot of the power they use as heat. And so the D 3020 is, as its name suggests. Trouble is, some say the sound is a little drab and grey, lacking in the natural exuberance of a well-designed AB such as the original 3020. Still, let's not get too prescriptive; experience teaches us that it ain't what you do, it's the way that you do it!

The D 3020 is quoted as giving 30W RMS per channel into 8 ohms, and the company claims dynamic power of twice that, and as the load halves the power pretty much doubles until it's pumping out 150W on 2 ohm transients. That's not bad at all for something this size, indeed it's claimed to consume only 20% of the power of a Class AB design – when on standby for example, it burns a measly 500mW per hour! The circuitry was done by the original 3020 designer, Bjorn Erik Edvardsen, and it uses the latest version of NAD's PowerDrive circuit. And for any students wondering, yes it does have Soft Clipping, too. This stops the amplifier overloading in an unsavoury way, lowering the risk of it destroying your loudspeakers.

Being a thoroughly modern machine, you'd expect the D 3020 to have a plethora of inputs, and so it has. Of course, there's a single pair of RCA analogue line-ins for your 'legacy' sources; that would most

## DETAILS

**PRODUCT**  
NADD3020

**ORIGIN**  
Canada/China

**TYPE**  
Amplifier/DAC

**WEIGHT**  
1.38kg

**DIMENSIONS**  
(WxHxD)  
219 x 58 x 186mm

**FEATURES**

- Quoted power: 30W RMS per channel
- Class D output devices
- 2x optical digital inputs, 1x coaxial
- 1x apt-X Bluetooth, 1x asynchronous USB

**DISTRIBUTOR**  
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The D 3020 can lay flat like this or stand up on its end

likely be vinyl, but you'd have to buy the matching phono stage for this. A 3.5mm mini-jack gives you additional analogue connectivity for your iPod. Then there are two optical and one coaxial digital inputs, plus asynchronous USB (working up to 24/96). Wireless Bluetooth is also provided, using the fine-sounding apt-X protocol. Standard speaker binding posts are used, and facilities are kept to a bare minimum. The headphone amplifier, complete with 3.5mm jack, is the headline news here; plus a small card remote.

The D 3020 is a lovely thing to have and to hold, with its rubberised side panels and backlit fascia and top panel. It's designed to work standing up – Sony PlayStation 2-style – but can be used on its side, too. To this end, NAD supplies sticky feet for the owner to place in the relevant location, depending on which way they intend the amp to be used. I really like the volume display, which illuminates from behind the smoked Perspex fascia, and the backlit source indication. The single large control works on the volume, predictably, and the overall effect is of a nice little compact amplifier whose ergonomics someone has obviously put a lot of thought into.

### Sound quality

As you'd expect from a product that is totally different in engineering terms, the new D 3020 doesn't really sound identical to the original. Although there's certainly some shared DNA, as the new amplifier has NAD's distinctive 'dark' and 'velvety' tonality, and a nice, relaxed but enjoyable sort of gait. It makes music in an easy, effortless way and never sounds forced or in your face. Also, as per the original, the new 3020 goes a bit louder than its specifications would suggest and also drives tougher loads than you might expect.

Feed the new NAD some thumping drum'n'bass in the shape of Manix's *Living In The Past* from our fave mid-price CD player (Audiolab's 8200CD), and you get a clean, punchy sound with a very even tonality; there's no shoutiness across the midband, no harshness in the treble or boom in the bass. It's a very matter-of-fact sound, but pleasant with it and you don't get the impression that there are any particular weak points. Bass is decently strong and propulsive, the midband glistens with detail and the treble is smooth and refined. There's a certain 'dryness' that I find is

### NAD deserves a hearty pat on the back for daring to be different

synonymous with Class D amplifiers, and the NAD has this – it's not quite as expressive and open as conventional rivals like Yamaha's AS500, for example. The music is very ordered, but doesn't quite breathe so well.

Using the NAD's built-in DAC via the coaxial input, takes this a step further. In a sense, we get a little closer to the music, with a more intricate vocal texture to James Blunt's *You're Beautiful* and slightly better detailing to the accompanying percussion. The backing piano work takes on greater scale and the strings in the chorus tug a little harder at the heart. The result is a very pleasing performance, and one that would delight most casual users of the D 3020. Moreover, going via its internal Bluetooth connection from an iPad, the NAD makes a very nice noise from relatively humble beginnings. Still, it never really makes the leap from a good-sounding amplifier to a prolific purveyor of

musical passion – it's just too 'easy listening' compared to other £400 amps that are available.

The internal DAC only works up to 24/96, so I duly cue up Herbie Hancock's *Rock It* on my MacBook Pro via Audirvana and hook it up to the NAD via its USB input. Again the sound is impressive – tight, fast and extremely detailed, and also surprisingly dynamic and capable of high volumes in a largish room via the (admittedly quite efficient) Spondor A6R loudspeakers that I'm using. But again the sense of emotional detachment doesn't quite hold the listener's attention like either the original 3020 or the better of its current price rivals. For example, if it's a Class D amplifier you crave, then Pioneer's A50 at £100 more offers loads more power, whereas the Rega Brio-R (£400) is a far more expressive Class AB design.

### Conclusion

In the new D 3020, NAD has done a 'modern amplifier for all'. Its design and ergonomics are superb, and the company deserves a hearty pat on the back for daring to be different. The packaging is excellent, the DAC connectivity wonderful and the Bluetooth a surprisingly handy bonus, too. What's not to like then? Well, this new amplifier does sound a little flat by the standards of its market rivals. It is certainly a nice, smooth, tonally sophisticated sort of device, yet never quite gets to the heart and soul of the music. If you're looking out for a fine do-it-all integrated, then this is a genuinely interesting product. But unlike its classic namesake, it's no virtuoso music maker that slays its rivals in sonic terms.

The new D 3020 is aimed at a wider, less audiophile audience than the classic 3020, but in today's complex, energy-saving, multi-source world it still deserves to succeed ●

### CONNECTIONS



- 1 RCA analogue input
- 2 Loudspeaker binding post
- 3 Mains power output
- 4 Coaxial digital input
- 5 USB digital input

### Hi-FiChoice

#### OUR VERDICT

<b>SOUND QUALITY</b> ★★★★★	<b>LIKE:</b> Great styling and packaging; USB and Bluetooth connectivity
<b>VALUE FOR MONEY</b> ★★★★★	<b>DISLIKE:</b> Uninvolved sound; limited power compared to rivals
<b>BUILD QUALITY</b> ★★★★★	<b>WESAY:</b> A lovely little do-it-all integrated, although it's not best in class for sonics
<b>FEATURES</b> ★★★★★	

#### OVERALL





# 21st Century fox

The smallest model in PMC's twenty series has a secret weapon that belies its cute appearance **Jason Kennedy** checks it out

**W**hen PMC first launched the twenty series last year my first thought was: "I want to hear the big one, the twenty.24 floorstander". After all, when it comes to speakers bigger is always better, is it not? When I finally got a chance to review that model I was very confident that this had been proved to be the case once again. However, now that I've spent as much time as possible listening to the smallest model, the twenty.21 standmount, I'm not quite so sure. This little box is dangerously good.

## There doesn't seem to be a music type that the twenty.21s can't do justice to

When Peter Thomas developed the twenty series he set out to make every part of the speaker (except the actual drive units) as inert as possible. The cabinet, the driver chassis and the crossover construction were all looked at with a view to minimising vibration. He used sensors on individual parts and looked at waterfall plots of the signal decay after it had been turned off in order to identify what was coming out of the speaker at this point. The perfect speaker would stop emitting sound immediately, but in reality they don't, and continues to resonate for many milliseconds afterwards. It is these delayed resonances that are the enemy of speed and detail and it was Peter's design goal to minimise these artifacts so that it was possible to then hear the benefits of the drive units and components in the crossover.

Both these elements and the cabinets themselves are of a higher quality than PMC uses in its iSeries. The tweeter is a 27mm Sonolux soft dome that the company developed in

tandem with drive unit manufacturer SEAS. It has a distinctive metal grille that acts like a type of lens to improve dispersion. PMC is big on dispersion and goes to enormous efforts to make it consistent across the band. That's why the crossover point is a very low 1.8kHz – it means that where the mid/bass hands over to the tweeter the two have as close a dispersion pattern as possible. The bass driver itself has a lightweight doped cone in what the company calls natural fibre – a term that indicates that it's mostly paper, which has always been a very difficult material to beat in two-way designs.

The twenty.21 is just over a foot high, yet it packs a 1.72m advanced transmission line (ATL) within its distinctive rhomboid shape. The black foam-covered slot at the bottom is the

### DETAILS

**PRODUCT**  
PMC twenty.21

**ORIGIN**  
UK

**TYPE**  
Two-way  
loudspeaker

**WEIGHT**  
5kg

**DIMENSIONS**  
(WxHxD)  
152 x 325 x 277mm

#### FEATURES

- HF drive unit: 27mm soft dome, ferrofluid cooled
- LF drive unit: 140mm lightweight doped cone
- Quoted sensitivity: 87dB
- Quoted nominal impedance: 8 ohm

**DISTRIBUTOR**  
PMC

**TELEPHONE**  
0870 4441044

**WEBSITE**  
pmc-speakers.com

vent for this line and its function is to deliver low bass notes that are in phase with the output from the main driver. The cabinet shape has two advantages: it naturally aligns the acoustic centres of each drive unit and it's intrinsically very stiff. The only disadvantage is presumably the cost of production, but it gives the twenty.21 a distinctive look that sets it apart from the crowd.

Cable connections are via bi-wire binding posts that are supplied with gold-plated jumper bars so it's not necessary to have bi-wire cables. Cabinet finish is to a very high standard, I have the oak veneer but there are two other veneer options and gloss or 'Diamond' black to choose from. Magnetic grilles are also supplied.

## Sound quality

The chief appeal of the twenty.21 is its remarkable sense of speed. It is an incredibly coherent speaker, so much so that it outperforms larger multi-way speakers at rather higher prices in this critical respect. This is undoubtedly related to the work PMC has done to eliminate resonance in the solid parts of the system – resonance that is so common in speakers that it's a breath of fresh air to find one with so little.

I use this speaker on its dedicated stand, which has also had some attention with regard to resonance control. This in the form of a sandwich construction on the top plate with a damping layer in between steel plates. After some experimentation I discover that while this isn't a difficult speaker to drive, it responds well to amps with grip like the Leema Tucana, so this is what is used for most of the listening.

The first thing that hits you is the bass. Diminutive speakers have a psychological advantage in that expectations are low, so when real bass appears it's all the more welcome – but here it's different. This is very clean, taut and well-defined bass. It doesn't go all the way down, but goes far enough to do the business with the likes of *Dub Colossus*, which also throws up a massive soundstage that takes over the entire end of the room and the speakers themselves disappear. Next up is a bit of classic pop in the form of Herbie Hancock's *Emyrean Isles*, here the twenty.21 shows me just how incredible the band is by delivering the pace at which they work without any overhang. The energy they manage to put down on tape is extraordinary and seemingly none of it is left to the ▶

**You want inert, you got it. The twenty.21 is about as inert as they come**









## Q&A

**Peter Thomas**

PMC founder and designer



**JK:** Of the three models I've tried the twenty.21 seems to be the most coherent in terms of speed and imaging, why is this?

**PT:** All the twenty series have been voiced identically and we've paid a great deal of attention to making everything as inert as possible. The dispersion will be slightly better on the 21 and 23s as they use the smaller bass units and allow us to create a narrower cabinet (a good thing!).

Of all the four models, the low frequencies of the 21 will roll off earliest and this may give the effect of a faster more pacy LF.

**The twenty series stand has a sandwich construction on the top plate, can you hear what this does?**

We found that increasing the damping of the stand further and absorbing any residual ringing effects of the stands improves the smoothness of the very top end and sharpens up the already superb imaging. It's basically more inert!

**Given the apparent benefits of the rhomboid cabinet shape, is this something you might use with higher-end models in future?**

Possibly, but the additional internal bracing and heavier construction of the twenty.21 are by far the biggest contributions to the performance. The sloped cabinet was primarily designed to delay the tweeter signal with respect to the woofer to integrate the two drive units more accurately at the crossover without resorting to additional components.

**What is the advantage of laminate core inductors over ferrite ones in the crossover?**

They have a much lower saturation point than the ferrite solid core variety, which allows the low frequency to extend effortlessly even at higher levels with less compression and distortion. Sonically they have more 'life' and don't inhibit dynamics like so many core types. Air cores can be very lossy, so laminate core designs are the perfect balance of high power handling and dynamics.

## IN SIGHT



- 1 27mm soft dome, ferrofluid-cooled HF drive unit
- 2 Gold-plated bi-wire binding posts
- 3 Foam covered vent
- 4 140mmdoped cone LF drive unit

imagination, even if the recording is short on bass extension. Another Blue Note recording from the same era – Art Blakey's *Moanin'* – lets the speaker show just how different recordings can be, even if they came from similar sources. The character of each is loud and clear, but it's the playing that takes centre stage.

## The first thing that hits you with these diminutive speakers is the bass

A recording from the seventies, Frank Zappa's *Joe's Garage*, ushers in the fact that engineers had mastered the art of reverb manipulation by this stage. Here the scale is immense, but the imaging remains crisp within this context – you can pinpoint individual instruments and voices within the cavern created by effects. It is also interesting to listen to a familiar song by Steely Dan, I recently got a box set called *Citizen* with most of the band's work on (it's an old set) and it is really interesting to hear the way that the remaster of *The Royal Scam* has been manipulated. It's a bit more urgent and compressed than the vinyl, but nonetheless delivers the emotional goods with this speaker. It's so nimble and agile it's uncanny. Smaller speakers are always going to have the edge in terms of pace, but usually this is at the expense of bass power. Here the bass is both sufficiently muscular and extremely coherent and the timing is quite simply second to none.

## Conclusion

This little speaker is a lot more capable than virtually all the compact standmounts I've listened to. The combination of mercurial speed, effortless full-scale imaging and decent bass extension for the size makes it irresistible to the discerning music lover.

There doesn't seem to be a music type that it can't do justice to, there are occasions when more low-frequency gravitas would be nice it's true, but far more where the sheer speed and lack of time smear means that you are too caught up in the music to worry about tonal balance.

Add in the attention to detail throughout the design and the first-class build and finish and you have a loudspeaker that is very hard to beat. There are boutique brands with more caché, but you should buy them for snob value alone. If you want to really get involved in your music then I'd challenge anyone to find a better compact standmount ●



### HOW IT COMPARES

There are no other standmount speakers that I'm aware of that use transmission line loading. The Spendor SA1 at £1,395 has plenty of finesse and tone rather than pace and will suit those after a more relaxing result. Amphion's Argon 3 (£1,799) has impressive transparency, it's not as small as the 21 and can deliver greater bass extension but again doesn't compete on pace. A personal favourite is ATC's SCM11 (£989), this isn't as sophisticated, it has to be said, but it does handle power very well and it's 150mm bass unit will deliver more grunt than the twenty.21, albeit with rather less precision.

## Hi-Fi Choice

### OUR VERDICT

SOUND QUALITY



**LIKE:** Everything from the transparency to the thrill of the music and the image scale

VALUE FOR MONEY



**DISLIKE:** A matte finish lacquer would be nice, but what's not to like?

BUILD QUALITY



**WE SAY:** Stunningly good; in some respects the most thrilling sub-£2K speaker around

EASE OF DRIVE



OVERALL





# Bowers & Wilkins



## Pure and simple

**No artificial additives.** That's been our approach to sound quality from the start. And thanks to CM10's tweeter-on-top design, decoupled Kevlar<sup>®</sup> FST<sup>™</sup> midrange and hand-picked crossover components you can be certain that nothing gets between you and the true sound of the original recording. **Listen and you'll see.**

[bowers-wilkins.co.uk](http://bowers-wilkins.co.uk)





# For your ears only

TL Audio is serious about sound, and as **Lee Dunkley** discovers it takes the in-ear headphone experience to a new level

**O**t's amazing what you can discover right on your own doorstep. Just six miles down the road from my home is a company that's dedicated to hearing conservation and the manufacture of custom-fit products for hearing protection, residing in an unassuming building situated on a business park just a few miles from the M40 in north Oxfordshire.

Advanced Communication Solutions (ACS) has been supplying its in-ear plugs linked to a radio transmitter to musicians and professional audiophiles for live performances and broadcasts for some time now. The company has an impressive list of endorsements on its website from

fans and followers ranging from the BBC Orchestra to Phil Collins, Rita Ora and U2, to name just a few. Established in 1994, the company has earned itself a considerable reputation for customised professional audio products and joins forces with TL Audio to bring the V3 custom-fit, in-ear monitors exclusively sold through Richer Sounds stores.

TL Audio is best known in professional audio circles for its high-end studio equipment and mixing desks, combining the latest audio technology for recording studios with the warm, precise and detailed sound associated with valve technology. The TL Audio sound has quite a following among recording

## DETAILS

**PRODUCT**  
TL Audio  
**ORIGIN**  
UK  
**TYPE**  
Custom-fit, in-ear headphones  
**WEIGHT**  
Approx. 24g  
**FEATURES**  
• Quoted frequency response: 16Hz-20kHz  
• Quoted impedance: 40 ohms  
• Quoted isolation: 27dB  
• Medical grade silicon mouldings  
**DISTRIBUTOR**  
ACS  
**TELEPHONE**  
01295 266665  
**WEBSITE**  
richersounds.com

industry engineers and is acclaimed by some of the world's top producers and recording artists – its products have been instrumental in creating some of the greatest music recordings available today.

With such impressive credentials from two audio experts, you know your ears are in safe hands with the TL Audio V3s in-ear monitors, which is reassuring given that the first part of the custom-fit process is filling your ears with oodles of silicone!

## First impressions

The sales procedure is simple enough, but it takes around two weeks from receiving the impression of your ears before you take delivery of your hand-made V3 plugs. On the day of purchase you receive a unique code with instructions to contact the hotline and make an appointment for a member of the team to visit you and take an impression of your ears – the visit can, of course, be done at home or your place of work and at a convenient time to fit with you.

To get the perfect fit the first part of the impression process is to insert a small bung into the ear canal and fill it with soft medical-grade silicone injected from a syringe gun. The silicon sets quickly enough, and aside from the slightly odd feeling of having your ears pumped full of silicone and the curious sensation of having all



external sounds blocked out from your hearing for the very first time, it is a straightforward and harmless experience that takes no longer than 10 minutes to complete.

With the impressions successfully formed they are shipped to the ACS laboratory to begin the first stages of hand-making your very own custom-fit, in-earphones, which can be personalised with your name or a logo using laser etching – I opted for the first ever *Hi-Fi Choice*-branded in-ear phones. Neat, eh?

At the ACS lab a scanner makes a three-dimensional image of your ear impressions, and the process of making your very own personalised headphones begins. It's like a scene from a Bond movie, as the images of your ears are manipulated and turned into a moulding via a three-dimensional printer that uses a white powder material said to be more costly than Class A drugs.

### Sound quality

It's a red letter day when the finished pair arrive in their robust protective carrying case with a headphone adaptor, wax pick, comfort cream and carrying pouch. The individually tailored fit and acoustic seal are perfect, and the sense of isolation you get from the outside world on a first wear is significantly greater than with earbud types I've tried before, and the V3s cut the background noise level spectacularly well. It's a bit like wearing a handmade suit that's been expertly cut and tailored to your every contour, bringing a level of feel and comfort that's a long way removed from off-the-peg models.

The clear silicone shows the triple driver circuitry expertly assembled inside the hardened and buffed silicon compound. The V3s sonic characteristics have been carefully tuned by TL Audio to provide an even and balanced tone that's in keeping

with the valve-like studio sound its products are known for. The frequency range feels well extended and even-handed, with no hint of enhancement as can often be the case when makers attempt to compensate for deficiencies in the performance of its drivers or the type of material used in the acoustic seal. There are no such issues with the TL Audio V3s.

What hits you when you first listen is the bass depth and quality. It digs deep into the Arctic Monkeys track *Do You Wanna* to give a tuneful and natural level of bass detail that's like listening to a carefully chosen pair of loudspeakers perfectly placed in a tuned and soundproofed listening

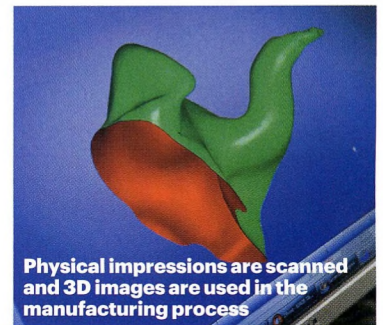
### The V3's acoustical sense of space extends well outside of the head

room. The V3s are impressive for their stereo imaging, too. Vocals are firmly focused centrally in my head, and instruments and backing vocals are expertly positioned slightly wide of the soundstage and clearly placed behind the lead vocal. This layering and sense of space to the image makes the V3s an addictive listen that allows you to hear well into recordings, revealing details and nuances that were previously masked.

Ben Howard's acoustic guitar playing on *Old Pine* is accomplished and on the V3s there's a sense of space around it that feels as though the track is being played right in front of you. The sense of head space is a characteristic that I've not readily associated with in-ear headphones, and can often give a closed, narrow sound that's lacking *air* around the recordings – the V3's acoustical sense of space extends well outside the head. A similarly wide soundstage is



TL Audio crossover and drivers assembled and ready to be positioned in the silicone



Physical impressions are scanned and 3D images are used in the manufacturing process

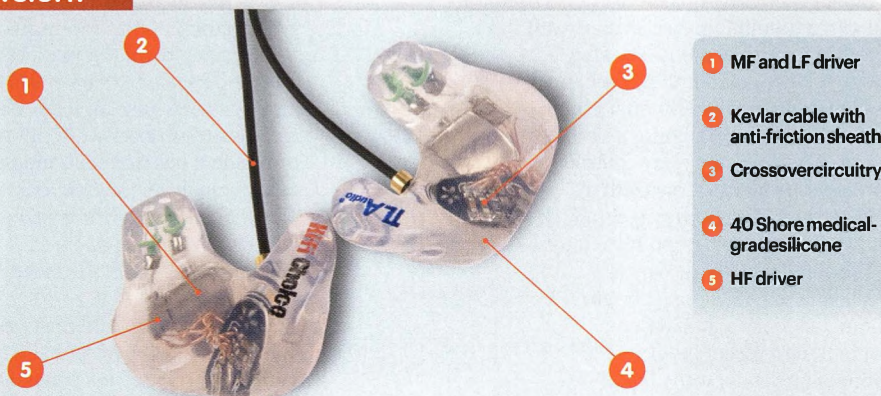
also presented on Bjork's *Homogenic* album. Her vocals are detailed, yet have a smooth characteristic on the TL Audios that never becomes wearing or grating.

Even on longer listening sessions the V3s remain comfortable to wear. There's little sense of fatigue on the ears no matter how complex the nature of the music and the level of isolation means lower volumes, which is good news for your hearing.

### Conclusion

The V3's ability to listen into recordings is addictive, and has me trawling through my music collection shining new light on lost details and nuances. The technique takes some getting used to when fitting to your ears, but once in you'll quickly get lost in a world of rediscovery, breathing new life into old music collections. Now isn't that what listening to music is all about? ●

### IN SIGHT



- 1 MF and LF driver
- 2 Kevlar cable with anti-friction sheath
- 3 Crossover circuitry
- 4 40 Shore medical-gradesilicone
- 5 HF driver

### Hi-FiChoice

#### OUR VERDICT

<b>SOUND QUALITY</b> ★★★★★	<b>LIKE:</b> Valve-like sound; layered soundstage; lower listening levels; personal fit
<b>VALUE FOR MONEY</b> ★★★★★	<b>DISLIKE:</b> Fiddly to fit; no inline remote /mic
<b>BUILD QUALITY</b> ★★★★★	<b>WESAY:</b> Valve-like sound, custom-fit in-earphones get you close to music and saves hearing too
<b>FEATURES</b> ★★★★★	

#### OVERALL







# The A Team

This Exposure combo looks to be a match made in heaven, **Chris Ward** loves it when a plan comes together

**B**ritish based Exposure has a long heritage of making well-regarded hi-fi products. Its product range boasts some serious high-end components that continue to blaze a trail for getting the most out of the CD format. The entry-level 1010 CD player and matching 1010 integrated amplifier came out in 2012, but new media players and budget DAC solutions may have stolen some of their limelight. So, given the quality of its higher end products, how does Exposure fair when building products on a tighter budget?

The 1010 CD player and 1010 integrated amp can only be described

as understated in appearance. Available with black or silver anodised aluminium fascias they extol a rather British restraint. The steel casework isn't as robust as some, but construction is solid. The sharp lines of the CD front plate house a simple array of push-button relay controls that operate all functions with a gentle press. The CD tray feels a little flimsy, but operates smoothly enough.

The small, blue-lit display is a challenge to read across a bright room and looks a little dated compared to recent innovations, although it can be turned off. Frustratingly, the diminutive remote doesn't allow the user to enter a

## DETAILS

**PRODUCT**  
Exposure 1010 Series

**ORIGIN**  
Malaysia/UK

**TYPE**  
CD player/  
integrated amp

**WEIGHT**  
5kg/7kg

**DIMENSIONS**  
(WxHxD)  
440 x 90 x 310mm  
440 x 90 x 310mm

**FEATURES**

- Analogue RCA output and optical out (CD player)
- 50W per channel RMS 8 ohms (amp)
- 3 analogue RCA inputs (amp)
- Fixed gain AV input, line level 'tape' output (amp)

**DISTRIBUTOR**  
Exposure Electronics Ltd

**TELEPHONE**  
01273 423877

**WEBSITE**  
exposurehifi.com

numeric track number and so I find myself jabbing the track forward button to get to my desired tune.

The matching amp is reassuringly weighty and sports the same silky aluminium fascia as the CD player. Around the back of both units connections are retained in sturdy backplates securely fixed to the chassis. Exposure claims some internal components in the 1010 series are shared from its higher priced models. Features are relatively spartan – the CD player has just a simple pair of analogue outputs and a single optical output for those wishing to experiment with offboard DACs. The amp has three pairs of RCA inputs, a fixed gain AV input and a tape record connection. Neither component has a headphone jack so headphone lovers should look elsewhere. Single-wire speaker connections is enabled by flush-mounted 4mm shrouded speaker sockets.

Quick Start manuals ensure novices get connections right, but also set more sophisticated expectations around full run-in and warm-up times for more experienced audiophiles.





The combo needs to warm up and comes properly on song after about 30 minutes from cold. Despite guidelines to turn the amp on at minimum volume, I get a small 'pop' through the speakers on power up. Exposure claims this is a foible of the model, but no reason for concern.

**If the silver finish isn't to your liking there's always the black option**

### Sound quality

Right from the outset this combination commands your attention. Together they seem to deliver a passion for music that just gets your toes tapping. Some hi-fi components can earn the compliment 'toe-tapping' in a way that smacks of nice character to us plain-faced individuals. Yet brilliant pace, rhythm and timing should not be seen as a runner's-up prize. I'd go further and say this is a primary hi-fi virtue that some rivals can miss altogether. This Exposure combination achieves a rare balance between accuracy and soul.

### A focus on great sound quality and a passion to get closer to the music you love

Ben Harper's *Gold to Me* leaps from a stable soundstage with absolute authority. Bass lines have powerful weight, yet clear leading edges that help you lock into the compelling drive of the track. The Exposure combo comes across as having brilliant timing and infectious rhythm, especially around the lower registers. Yet this pair also possesses a true lightness of touch, a smooth, informative mid band coupled with an airy treble that suggests the combination is very even-handed in delivering all the music on the disc. The CD player successfully picks up on Harper's subtle rubbing of guitar slide on steel strings way back in the mix. Equally, hand chimes in the track are tightly focused and continue long after some other budget CD players have lost some of the decay detail.

Switching to Mutya Buena's track *Just A Little Bit* confirms the system's natural ability with timing and rhythm. It locks straight into the funky groove, with cleanly separate bass, drums, vocals and brass all gelling into this modern soul classic.

Turning back the clock with a spin of Saint-Saëns' *Organ Symphony* can show up budget systems because they struggle to wrestle the bass weight with critical midband detail, but in this instance the Exposure combo doesn't panic. Organ weight is convincing, although things get a little congested when the full orchestra joins in.

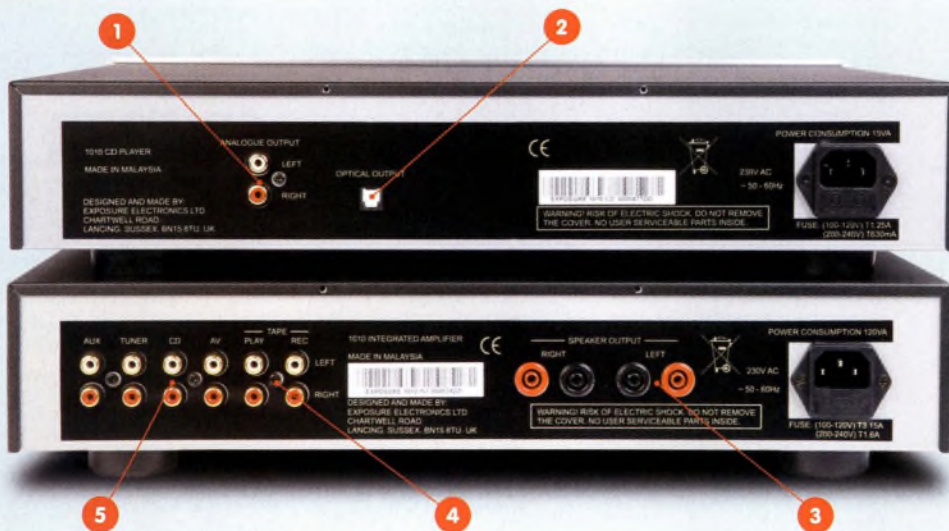
Listening to John Grant's *Pale Green Ghosts*, the complex rhythms of the syncopated electronic keyboards, vocals and claves are handled with assurance. Layers of music have real clarity and depth, creating a mesmerising backdrop for the rich, airy vocals to take one step forward. It's a confident blend of fizzing treble energy, lush midband detail and potent bass drive.

Strong rhythmic bass control is usually the preserve of 'muscular' amps and smooth, lifelike vocals generally come from plenty of mid band detail or valves. Given there's only a claimed 50W on tap and no tubes in sight, where is this magic coming from? In pursuit of deeper insights I break up this happy pair to quiz each in turn.

In my reference system it seems as though it's the 1010 CD player that's mostly responsible for the grippy bass and airy soundstage, while the amplifier appears to be where much of the finesse is happening around the convincing midband.

The 1010 player excavates plenty of rich detail from CDs and treble energy ▶

### CONNECTIONS



- 1 Analogue RCA outputs
- 2 Optical digital audio output
- 3 Shrouded-plug speaker outputs
- 4 RCA tape loop
- 5 CD input



## Q&A

David Denyer  
Exposure PR



**CW:** Many budget music solutions now look to computer files and DACs. Do you still have faith in CD as a quality source?

**DD:** Yes, certainly, CD has been the primary source for most music lovers for over 30 years. We feel we can still push the boundaries of performance both in terms of ultimate performance and performance against cost.

**How have you cut costs to build the 1010 components for the money?**

Rather than the aluminium chassis that we use for our higher-priced models, the 1010 casework is steel to reduce cost. Although generally we use the same quality of parts, making cost savings by reducing power output, for example. The 1010 series is manufactured in our Malaysian factory, which is superbly equipped with highly skilled engineers, but allows us to build at the same quality for less money. In the case of the 1010 series, only the final QC takes place in our UK premises.

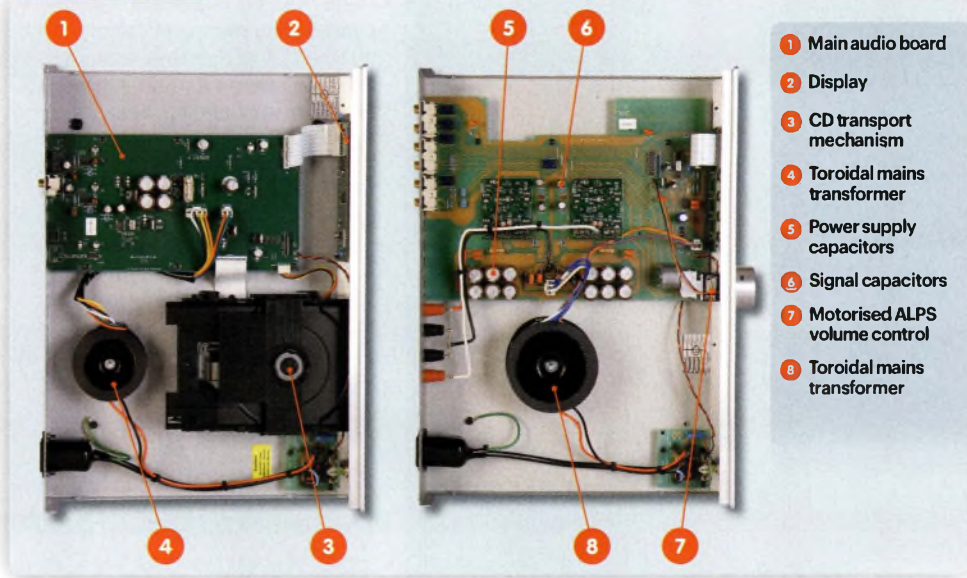
**To what extent are the 1010 components getting 'trickle down' benefits from more expensive Exposure models?**

In the critical areas of the 1010 series we try to use the same technology and quality of parts as in our more expensive models. For example, in the 1010 amplifier, the volume control is still a motorised ALPS unit and the power amp modules use the same power transistors as other models, including the range-topping MCX.

**With so many competitors, what would you say Exposure stands for?**

Exposure aims to make products that sound good and work well for many years to come. We believe good hi-fi is still all about hair-raising and spine-tingling listening experiences. Exposure's focus has remained very much on delighting the ears. We're obsessed with sound reproduction and passionate about music.

### IN SIGHT



- 1 Main audio board
- 2 Display
- 3 CD transport mechanism
- 4 Toroidal mains transformer
- 5 Power supply capacitors
- 6 Signal capacitors
- 7 Motorised ALPS volume control
- 8 Toroidal mains transformer

feels extended. The 1010 is getting to some extra truth that other players may smooth off in the name of an easier listen. In isolation this could be too revealing in the wrong system. At the other end of the spectrum, bass power can be punchy and full, so again, a mismatched amp or inefficient speakers could lose the quality message this player dredges up.

If the 1010 CD player is a class act for the money, then the 1010 amp is a bargain. Where the CD finds extra treble and bass detail along with great timing, the amplifier has a real flair for relaying the emotion of music. Great timing is preserved and its wonderful midband helps you get all the pivotal information and intonation around voices and instruments. Bass has weight and attack, yet also warmth and agility.

But the real magic happens when they work together. Where the CD could potentially be too revealing, particularly on harsher tracks, the amp helps out with some forgiveness and extra insight into the music. Like any great double act, they play to one another's strengths and support the other when things get tough.

### Conclusion

These Exposure components get you focusing on enjoying your music. Forget the sweet spot, this combination wants you up on your feet dancing. But this infectious rhythm and timing doesn't come at the expense of accuracy.

The 1010 series components represent excellent value for money and buyers are clearly getting trickle-down insights from Exposure machines higher up the range.

This is a fine example of how the road to hi-fi should start – a clear focus on delivering great sound quality and a passion to get you closer to the music you love. If you're looking to buy a starter system, I've not heard anything sound more right than this combo at this price. Separately they're strong, but together they make a hugely compelling case for an audition ●



The budget CD and integrated amp market is competitive and strong offerings from Rotel, Marantz, NAD and others all deserve auditions. Rotel products can dig out strong bass and have a far longer feature set, but they may not have the transparency, coherence and timing of the Exposure combo. Budget Marantz products will generally aim for a smoother sound and may suit those looking for a more laid-back delivery. NAD has just put the cat among the pigeons with the revival of its iconic 3020 amp (reviewed on page 50) with an intriguing new set of features. However, they may not have the sheer long-term likability of the Exposure combo.

### Hi-Fi Choice

#### OUR VERDICT CD

SOUND QUALITY



VALUE FOR MONEY



BUILD QUALITY



FEATURES



OVERALL



**LIKE:** Rhythm and timing; treble detail and tuneful bass; understated looks  
**DISLIKE:** Display hard to read; otherwise nothing at this price  
**WESAY:** Revealing player with great timing, extended treble and strong bass

### Hi-Fi Choice

#### OUR VERDICT AMP

SOUND QUALITY



VALUE FOR MONEY



BUILD QUALITY



FEATURES



OVERALL



**LIKE:** Communicative midband; great pace and timing; complements CD player's strengths  
**DISLIKE:** No headphone jack  
**WESAY:** A highly likeable and capable amp that gets you closer to your music



P R I M A R E

BD32: "PICTURE MARVEL"



"I'm saving up for a Primare, no question...the BD32 provides the sort of entertainment levels that most commercial cinemas would be proud of."

**Home Cinema Choice 206**



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**Hi Fi News, February 2012**

**Trade-in your old BD player and get up to £1500 off a new Primare AV system!**  
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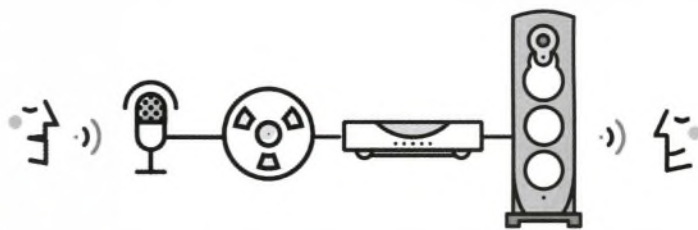
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# Exakt

# SCIENCE



Active digital loudspeakers are rare in hi-fi, but Linn's new platform could change this, says **David Price**

**R**arely is something so apparently simple in theory, yet so complex in practice. Conventional moving coil loudspeakers – as we know – use just a magnet, coil and cone to turn the small electrical current that comes from an amplifier into sound waves. But that's the easy bit, because the trouble is getting all this to give a smooth, even sound.

For this reason, speaker manufacturers use a number of different drive units within a single speaker, all purposed to do the same job at different frequencies. The woofer does the bass, and sometimes the midrange too, then there's a midband driver and a tweeter for the treble. There are all sorts of permutations, but whichever is chosen, an electrical crossover unit has to divide up the signal to the different units to make sure they're not overloaded.

This creates a private hell for speaker designers; not only have they got the drive units to worry about, but the phase distortion and frequency irregularities, that the crossover introduces. Factor in the nightmare that is designing the box to house them all in and you see why it ends up being a challenge not far off that of manned spaceflight!

## Getting it right

In truth, no speaker designer ever gets it right – never has, and never will. Even in cost no-object loudspeakers, designers are still clutching at straws. Some clutch better than others, of course. And some do their best to ensure the straws are large and easily reachable, and one of the best ways is going active. If you put the amplification after the crossover, you're able to tailor both the crossover, amp and the drive unit itself better for the job in hand. The simplest way to

think of it is the difference between an off-the-rack suit and a bespoke, custom-tailored one. If you get the bits made to do the job correctly from scratch, you end up doing next to no alternations after you've tried it on because it was designed to fit right from the start.

Trouble is, active is expensive, and so only generally appears in high-end domestic hi-fi systems and professional monitors. An active speaker system requires the preamp to feed an active crossover, which splits the signal into bass, mid and treble frequencies, then sends

## No longer does ramming speakers against rear walls foul up the phase or muddy the bass

each respective one direct to the speaker drive units via a power amp.

The active crossover adds to the expense, but it's well worth doing it this way because it can be configured more precisely, and less intrusively, to the loudspeaker. The result is that active systems sound even greater than the sum of the parts.

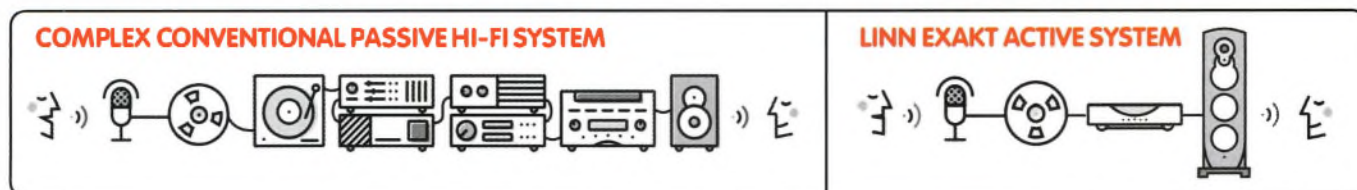
"To significantly mitigate the loss of the passive crossover, Linn introduced Aktiv systems, which eliminate this inter-band interference and match the signal more precisely to the drive unit," says Linn's Gilad Tiefenbrun. "By providing a dedicated power amp to drive each drive unit, active systems ensure far greater efficiency, suffer less loss than passive crossovers and sound better."

For this reason, a number of hi-fi companies over the years have offered active versions of



their loudspeakers on their flagship products. Users report a tighter, faster, more powerful and punchy sound, along with far more life and sparkle to the music, compared to a passive version of the same system.

Traditionally, it made sense to do analogue active systems. Digital audio has been with us for decades, but when the source was primarily analogue it was less intrusive to keep everything in the analogue domain. Now with most people using digital sources, there's no reason to convert the music into analogue before splitting it up into different frequency bands for amplification. Instead, it can be kept in the digital domain – where powerful digital signal processing can do this







Every Exakt speaker is uniquely configured to perform exactly as intended

more accurately – and then be converted to analogue. “All analogue crossovers distort the music signal to some extent”, says Tiefenbrun, “It affects the timing of the music as it reaches the ear, and magnitude distortion is inevitable due to component tolerances. But with digital, at last we have perfect crossovers”.

### The Exakt factor

Linn recently announced its flagship active loudspeakers have just gone digital, and its system is called Exakt. But there’s a twist; Linn hasn’t simply ‘translated’ existing analogue crossovers into digital signal processing, it has gone further. It performs the active crossover work in the digital domain, so the digital music comes in, is split into bass, mid and treble frequencies digitally and then converted to analogue before it’s amplified. What is novel about Exakt is the extra functionality offered by bespoke drive unit compensation.

“It’s not just crossovers that introduce significant distortion, the drive units also do. With Exakt, we are able to measure precisely the variances in each drive unit in the factory and correct these during the manufacturing process. This means every Exakt speaker is uniquely configured to perform exactly as intended” says Linn. As well as doing the crossover work digitally and tailoring it for each drive unit, the system provides active room correction. Every Exakt System can be configured for the characteristics of the room.

Basically, Linn’s Exakt is an intelligent, software-upgradeable digital active

loudspeaker platform that goes beyond the scope of both conventional analogue active systems and existing digital ones. Doing it this way, says Gilad Tiefenbrun, offers absolute accuracy of data, guaranteed low latency, extremely low jitter, and extreme precision synchronisation between speakers.

Intriguingly, Linn is not keeping a lid on its source code either; it hopes and expects coders to write their own variations of its room correction algorithm. Tiefenbrun tells me: “We feel this technology is truly transformational and we will seek to make it available to more and more Linn customers”.

I auditioned the new Klimax Exakt System, comprising the Klimax Exakt DSM digital active crossover ‘black box’ and the Klimax Exakt 350 Speakers. First, you get your music in – either streamed from your home network from a hard drive or from a digital disc transport if you use its digital inputs. Then, the DSM box divides it up into bass, midrange and treble analogue feeds using powerful DSP. This feeds the Klimax Exakt 350 speakers, via a special Exakt Link; the speakers have their own amplifier modules sitting at the back of the cabinets.

Any new set up of an Exakt system first needs the configuration app to be run. A range of variables are entered, including the size and shape of the room and the distance you position the speakers from the rear wall. Data on the individual drive units will come preinstalled, so the Exakt system already knows the precise performance characteristics of every speaker unit – Linn now measures every driver and enters its unique

### AKTIV LIFESTYLE

Linn hasn’t only recently discovered the benefits of active loudspeaker systems. The company’s very first box, the wardrobe-like Isobarik was offered in active Professional Monitor System (PMS) configuration. Back in 1977 Linn didn’t make amplification, so the company recommended Naim and Meridian power amps to get these huge £1,000 behemoths singing. Later on in their lives, Linn’s Sara speaker was also converted for active use, giving mid-market standmount buyers an opportunity to reap the benefits.

In 1988 the ‘Barik was discontinued, and three years later Linn launched its next, far more modern big box – the Keltik. This ran for 11 years and was notable for being only available in active configuration. A year after its launch, Linn launched Aktiv cards, which could be inserted into Linn amplifiers – initially these were launched for Keilidh and Tukan speakers, then subsequently for the rest of the range. This gave Linn a fully fledged active speaker portfolio, going right down to small standmounts. Linn’s big Komri also got the benefits of active operation in 2001, and even the passive version had active bass units!

Sensing the tide was turning and vast sprawling systems of electronics, speakers and cables weren’t the way forward for the modern audiophile, in 2005 Linn brought out its first integrated Aktiv speaker, the Artikulat 350, which was upgraded to the Klimax 350A in 2008. It was a far slicker package, and can be seen as a stepping stone to the new 2013 Klimax Exakt, which is Linn’s first digital active system. At this stage, Exakt technology is available to owners of Linn’s flagship speakers – Klimax 350s and Komris – “but we plan to add support for more and more of our range, past and present”, says Gilad Tiefenbrun.

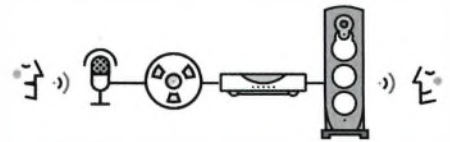
performance parameters into the Exakt DSM box from the factory, via the internet. Should a bass driver fail and be replaced under warranty, the unique parameters of the new driver are sent from the factory online to the Exakt DSM box, which then re-adjusts itself to take account of the new driver’s parameters. So the Exakt DSM box always knows precisely where the speakers are and which individual drivers it is using, and is duly able to tailor the sound accurately to what is required by conditions in the listening room.

Doing a direct A-B comparison between Linn’s top analogue active system and the Exakt digital equivalent is fascinating, as the difference is just as profound as between a passive system and an active one using the same components. An extended listening session at the Linn factory demo room showed the improvement in unequivocal terms. The ▶





## FEATURE LINN EXAKT



The new Exakt platform is being offered as a retrofit to some classic Linn analogue active systems, including the Komri

### BIG SOUND AUTHORITY

Linn's first active loudspeaker, the Isobarik PMS, was launched in 1977 to critical acclaim, and sold for 15 years – which is a long time in loudspeaker terms! You'd never call it a looker, as it had a face that only a mother could love, but inside the big 760x380x380mm (which sat on 300mm high stands), 40kg box was some serious firepower. It was effectively a three-way design with six drive units hidden behind its Declon foam grilles. These comprised upward-firing mid (KEF B110) and treble (Scanspeak D2008) drivers, and the very same could be seen on the front baffle, along with a KEF B139 'race track' elliptical woofer – plus another one of these inside the cabinet, isobarically loaded. The crossover separated the frequencies at 375Hz and 3kHz, and the heavy bass cabinet was completely sealed, working as an infinite baffle.

The Isobarik became infamous for being one of the hardest loudspeakers to drive, presenting a punishing 3 ohm load to amplifiers, meaning that only a few manufacturers' amplifiers could drive it at the time. Generally, Naim NAP135s got the job – although not exceptionally powerful they were stable into low loads. The result was a loudspeaker that was said to be fairly flat from 20Hz to 20kHz, although was certainly quite generous in the bass and didn't sit too happily hard against a rear wall. It still had a very big, powerful sound with loads of drive and energy – just what the latest generation of Linn Exakt speakers also do.



1977's Isobarik started Linn's love affair with active speakers

350 speaker modules and replacement 3K arrays, costs £25,000. The package to upgrade externally Aktiv Komri and Klimax 350s includes the Klimax Exakt DSM and a pair of Klimax Exakt Tuneboxes is £26,000. The Klimax Exakt DSM isn't available on its own, as it needs to be paired with Klimax Exakt Tuneboxes or Klimax Exakt 350 speakers.

Overall, this is a most interesting new development in active loudspeaker systems – one that offers real, sonic benefits over the old way of doing things. Active digital systems aren't new, but specially tailored, carefully calibrated, drive unit bespoke ones are, which is why Linn's new Exakt platform is important. Whether other manufacturers develop active digital speakers along similar lines remains to be seen, but the system has real and demonstrable sonic benefits – if, of course, you can afford it! ●

standard analogue active Klimax DSM feeding Klimax 350 speakers is a fine-sounding setup – powerful, even and expressive, with lots of detail and a visceral, tactile sound. Switching to the active digital Exakt system yields a far cleaner, crisper, tighter, bolder and more solid sound. The system gains a sense of architectural rightness that wasn't there before. Talking Heads' *Once In A Lifetime* takes on extra depth and insight; instruments are better spaced and able to play more independently of one another than previously.

Treble comes over with a little more sparkle, and seems to gain better decay – you can hear the hi-hat cymbals tail off better, while the snare drums appear to sit more confidently in the stereo mix and cut through it more decisively. The spaces between the notes are better described, and dynamics are carried with more clarity. The result is a far more lucid rendition of the music where all the individual elements interlace better with one another; there's less vagueness and a more natural rhythmic ebb and flow to the proceedings. Rather than making the music sound more digital, the Exakt system makes it seem less.

### Changing rooms

The room correction is equally impressive; I tried the speakers in their acoustically optimum position, and then moved them right against the rear walls with the system reconfigured for precisely this. The difference in sound was negligible, showing the efficacy of the digital signal processing; no longer does ramming the speaker against a rear boundary foul up the phase, sully the imaging and give a muddy overall effect. It's pretty powerful stuff!

The Klimax Exakt DSM box isn't just a digital streamer, it's a fully featured digital preamp that will work with any digital input and it also has an analogue line input with a built-in

analogue-to-digital convertor, so you can plug your turntable in. Obviously, running a digital source then number crunching it digitally before converting it to the analogue domain just before the power amps is the ideal incarnation of the Exakt system, but it worked surprisingly well with an analogue source, too.

The A-D convertor built into the Klimax Exakt DSM is obviously of very high quality, and the Linn Sondek LP12 turntable sounded superb when 'Exacted'. Still unmistakably an LP12, it seemed tidier, tighter and clearer, although a little of that familiar 'analogue-y' sound is gone. I feel the improvement garnered from the Exakt system is at its most profound when it works on digital sources from the get-go – and it is profound!

### The active digital Exakt system yields a far cleaner, tighter, bolder and more solid sound

The Exakt platform is currently available in two forms. The Klimax Exakt System here is a simple and complete package, whereas Klimax Exakt Tuneboxes are designed to allow the existing Linn speaker owners to upgrade to Exakt. At this stage, Exakt is available to owners of Linn's flagship speakers – Klimax 350s and Komris – but the company plans to add support for more and more of its range, past and present.

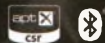
The full Klimax Exakt System – comprising the Klimax Exakt DSM streamer digital preamplifier and Exakt signal processor, and the Klimax Exakt 350 loudspeakers – costs £50,000. The package for upgrading existing Klimax or Artikutal 350 integrated Aktiv speakers to a complete Klimax Exakt System, including Klimax Exakt DSM, Klimax Exakt



Lightning does strike twice.



**NAD D 3020**  
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Legend has it that the NAD 3020 brought true hi-fi sound to music lovers the world over, stunning millions by sounding bigger and way more powerful than it had any right to. NAD now introduces the D 3020 Hybrid Digital Amplifier, a completely modern take on the original NAD 3020 for the digital audiophile. Using the latest lightning fast digital technology, wireless streaming with aptX Bluetooth, an unique implementation of NAD PowerDrive™, and hybrid digital architecture, the D 3020 represents the same game-changing innovation that raised the original 3020 to cult status.

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# Reader review

We've read your reviews and put together a shortlist, now take a look at another of the entries that impressed our judges

## Competition details

Back in the July issue we launched a unique competition giving you the chance to do what we do – write about hi-fi. We asked you to put together 1,000 words about your favourite system and why it means so much to you. The lucky winners will get the chance to write for HFC in a future issue...



## The incredible bulk

Look beyond the bulk of the Leema Antila MkII S and there's one hell of a CD player crying out to be praised

**F**eigning only the slightest interest, my guest or victim – depending on your point of view – mutters: “So does it only play CDs then?”. Each to their own and all that jazz, but in my early years, on my quest for better-sounding audio, I quickly discovered that not all have been blessed with the gift. That gift

being the ability to become excited at the merest glance of hi-fi.

Forced to agree with my visitor, considering today's technology, the Leema Antila MkII S CD player is a rather bulky-looking piece of equipment. Especially comparing its size to the multitude of features miniature devices now offer, one could rightfully assume that surely



this beast has other tricks up its proverbial sleeve!

Having said that, beauty is in the eye of the beholder and this Antila to me is right up there with the best. Given a choice of silver or black, I personally felt silver to be less imposing and within my environment and furnishings the obvious choice to blend into the surroundings.

Although the player doesn't run particularly warm, the black heat sinking running down either flank of the unit provides a sufficiently glamorous dose of pimping, to ensure this CD player is a strong enough contender to be instantly recognised as a serious piece of hi-fi hardware.

The usual lineup adorns the fascia; mode select, drawer open and



standby. The LCD display and its backlight have the option to be turned off to achieve maximum sound quality. The top plate is beautifully engineered, sporting dimples in the form of the Leema Acoustics company logo. This proves itself to be very tactile indeed and a nice touch – therefore touch it, I often do.

To the rear of the Antila the facility for both balanced and unbalanced outputs are provided, digital outputs and Leema's own LIPS connectors, allowing intelligent communication between various Leema system components. In the heart of this bad boy are no less than 20 digital-to-analogue converters.

Now with the opportunity to convert a non-believer to my way of thinking, and having gently persuaded my guest to the comfort of the listening area, I scan through my little plastic cases of pleasure and immediately start to make my selections.

### Top drawer

The solid metal drawer of the Leema Antila graces open and I drop my chosen disc in. Admittedly, I've read reviews that knock the loading mechanism, stating it to be noisy and not the smoothest available. To be honest, as I climb the huge tree of hi-fi upgrades I find the drawer mechanism to be superior to those fitted on any of the models that I've previously owned and in my opinion the drawer feels sturdy, solid and perfectly reliable.

Luckily, the track I chose to impress my guest with is the first on the CD, which is handy as one issue that I initially feel could perhaps hinder my love affair with the Antila player is that there is no provision to direct access or program track selections. "How would I be able to cope without this feature?" I hear you ask. Answer, easily. You can, of course, hold the next track button down on the somewhat basic remote control until the desired tune is located. Although I still find this method to be a shade on the hit or miss side. However, due to the lack of this feature – to my amazement – my music library has

### I smile to myself – my guest has launched into his talented air guitar routine

probably doubled, possibly even trebled in size. Where once I would load in a disc, and from memory, select, for example, tracks four and nine, I find that I'm just loading a disc into the Antila, sitting back, pressing play and starting to enjoy listening to all of the tracks – just as the artist intended. I now tend to experience the entire CD rather than skipping the tracks that on the initial playing may have failed to float my boat. Often this leads to finding a world of wonderful music that otherwise may have escaped me.

**Leema's Antila MkII is available in both silver and black finishes**



### ABOUT JEZ

It all began for Jez at Knebworth in the summer of 1979. Amid thousands of awestruck and dazed faces he stood enthralled by Led Zeppelin's performance. Back home, he excitedly tried to relive the experience, only to be enormously disappointed by the sound emanating from his hand-me-down music centre. Armed with his meagre savings, (he was, after all, only a teenager back then), he purchased a budget amp, deck and speakers. The first play of *Stairway To Heaven* – Jez tells us – was magical. He was transported back to that glorious summer evening.

Nowadays CDs are Jez's preferred source and he likes to sit back and fill the room with the likes of Bowie, Dylan, Radiohead, Laura Marling, Antonio Forcioni, Johnny Cash, Bon Iver and Muse.

So let the music play. My first choice: *Songbird* from the *Simply Eva*, Eva Cassidy CD. Less is more as they say. The Antila immediately manages to delve into the first few acoustic chords, delivering enthralling strings from a divine velvety darkness, rich, fluid and with a sparkle on the highs that would coax any listener's attention. Then Eva's deliciously smooth voice elevates over the acoustic guitar and hovers gloriously in mid air, the passion in her voice building through the classic lyrics, feeding the Antila to produce breathtaking vocals.

### Grip like a vice

Next up, Bon Iver, from the *For Emily, Forever Ago*, recording. A truly haunting masterpiece, with dense and evolving songs, which the Antila grips like a vice, reproducing steely notes that could shatter glass and digging deep into the moody, mournful falsetto voice of Justin Vernon, completely filling the room with an all encompassing audio nirvana.

I sense the time is right to shift up a gear, and in order to reveal the Antila's ability to rock, I opt for Muse's *Origin of Symmetry*. As the awesome guitar riff and Bellamy's fairy dreamtime piano on *Newborn* kicks in, with the Antila producing an expertly defined soundstage, wide, deep and focused, I just know this arrangement will hit the spot. By the time the vicious edge of the guitar on *Plug In Baby* thrashes into the room, I smile to myself – my guest has launched into his talented air guitar routine. I'm sure the calibre of axe men like Hendrix or Slash would struggle to better the performance.

Finally, as I retrieve the disc from the drawer, I glance over my shoulder as my guest comments: "Well that's answered my question 'does it just play CDs?' No it doesn't just play CDs; it really does play CDs." ●



*exposure*  
high fidelity engineering

# 1010

**hi-fi** l'hī'fīl informal  
*adjective*

of, used for, or relating to the reproduction of music or other sound with high fidelity.  
noun (-pl. -fis l'ha 'faizl)

indulge your senses with real hi-fi sound

**high fidelity**

*noun*

the reproduction of sound with little or no distortion, giving a result as similar to the original as possible.



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## THIS MONTH



**ED SELLEY**

**EXPERTISE: REVIEWER**

For the best part of 10 years, Ed was developing and supporting products from some of the biggest names in audio. He enjoys blogging about his favourite tunes, too.



**NEVILLE ROBERTS**

**EXPERTISE: ENGINEER**

Retired NHS director, electronics engineer and physicist Neville is very much into valve technology. He's a classical music lover and serious vinyl junkie.



**PATRICK CLEASBY**

**EXPERTISE: TECH GEEK**

Patrick works in a high-level technical support role in the broadcast industry, when not fiddling with his networked music collection and a rapidly expanding shelf of vinyl LPs.



**DAVID PRICE**

**EXPERTISE: REVIEWER**

DP has spent much longer than he'd care to admit buying and upgrading his own hi-fi system, not to mention reviewing thousands of separates over the years.



**ANDREW SIMPSON**

**EXPERTISE: REVIEWER**

Andrew's been passionate about hi-fi since he was a wee nipper. When not obsessing over his next upgrade, he can usually be found under the bonnet of his 1973 MG Midget.

**Email us at** [letters@hifichoice.co.uk](mailto:letters@hifichoice.co.uk) **or write to:** Hi-Fi Choice Letters, AVTech Media Ltd, Hadlow House, 9 High Street, Green Street Green, Orpington, Kent, BR6 6BG **Your letters** may be edited before publication and we cannot enter into personal correspondence

▶ **Stream of genie**  
I bought the October issue particularly for the Stream Xa review, but am confused by it. When I read it, I took it that all the CD resolution material was being played from the QNAP and the hi-res from the Synology so all via Ethernet. But the comment at the end is that hi-res was not better than 16/44.1, possibly due to the jitter findings. But the jitter findings are that jitter is bad on the network connection, not specific to hi-res or other. This means that the CD resolution track would also suffer from the jitter issue. Am I missing something, was any of the testing done via the non network inputs?

*Dave Easey*

**PC:** Hi Dave, an astute observation of something that was left in there deliberately so you could infer my meaning. One specific piece of hi-res did not sound as good. Basically with this

streamer in particular I found that it could be made to sound average or brilliant depending on the server software providing the music. Worse still it wasn't even consistent – different pieces of music could invert which server sounded good or bad.

## Help! Do I go for the Creek Destiny 2 or Audiolab 8200P?

The results made me think that maybe my hi-res should be housed in QNAP style, or did I need a better server software? Subsequent to the review I pressed on, searching for an alternative to the flaky Logitech server. Minim server was a strong candidate, as there are slightly fiddly installs for both Synology and QNAP. The initial results were awful, but the easily configured option to stream as WAV made a significant difference. I continue to test and



According to DP and ES, Creek is the way to go for Roberto

tweak just as much as your average analogue head.

In the depths of despair I have even thought that the laptop and USB DAC route is the way to go for the sake of my own enjoyment, but what I am trying to do is find the best way to get the convenience of server-stored music with the excellent quality direct connect can give.

In my subjective listening tests I am now convinced that some streaming servers sound worse than others with some devices and some music. My view is that it is best to be armed with all the servers and use a 'horses for courses' approach. Why should the links in the digital chain not be subject to the same attempts to work out via swapping and elimination what works best for

our individual tastes. In short much like our favourite turntables, when set up correctly, the Stream Xa can sound amazing. Set it up wrong, however, and it can sound drab.

▶ **Creek or Audiolab?**  
I'm thinking about upgrading my Onix A65 (it's actually driving a pair of B&W CM8s). My final choice is between the Creek Destiny 2 or Audiolab 8200P/Q combo. Would it be a real upgrade? Any advice you can give would be much appreciated.  
*Roberto Bini, Italy*

**DP:** Hi Roberto – my preference would be the Creek; it's a far more engaging-sounding musical performer, and has a warmer, sweeter, richer tonality that would better suit your B&W loudspeakers. It also has plenty of power and strong dynamics for an amplifier of its price. I think you'd find it a major step over and above the Onix, which will sound a bit flat and opaque by comparison. It's not always one can say this, but this time you'll not be wasting your money!

**ES:** I'm with David on this one. The Creek Destiny 2 is one of the most grown-up amps at the price point and the consistent showing ▶



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### ► Pick and mix

I live in Johannesburg and enjoy reading your magazine. I am in the market for a stereo sound system. My choice is between a Rotel RA-12 and RCD-12 or Audiolab 8200A, 8200CD and iPod doc. I plan to pair with Castle Knight 5s.

The advantage of the Rotel amp is the inbuilt DAC USB on the front panel and the phono stage, but I feel I will be missing out on the pure audiophile Audiolab stereo system. What do you think?

*Katlego Makube*

**DP:** Having reviewed both sets, I think you should get the Audiolab 8200CD silver disc spinner and 8200A amp. The main reason is that the Audiolab CD player is a good bit better than the



it makes in group tests demonstrates the strength in depth it has. There are very few amps under £2,000 that can hold a candle to it. I would hope that a demo with it will quickly reveal the strengths of it and show an improvement over the Onix.

### ► World of confusion

I have a separates system dating back to the nineties and though I still play the occasional bit of vinyl and CD, I have rather left my system behind and now listen to mainly MP3s. Most of my music is either a rip from my CDs or stuff that I have purchased from iTunes. I tend to attach my iPod to my hi-fi using a dock, but am very unimpressed with the sound. Strangely, it sounds better from my computer and even when I use the iPod in the car. Is there a specific reason for this?

I'm thinking about exploring getting something like a streamer, but really don't have the first clue what is the best way to go. I'm not really that bothered about having multi-room like the Sonos offers, but am wondering what is the best way to make my iTunes purchases sparkle in the same way that my vinyl does

(or at least come close). Would I be best streaming the music from my computer, from a hard drive or even a streamer?

I have to admit I'm confused and would appreciate you explaining it to me as I'm a complete novice in this particular area.

*Mick Williams*

**AS:** Firstly if you're buying music from iTunes at a compressed bitrate of 256kbps (the iTunes standard), then the reality is iTunes purchases are unlikely to ever sound as good as a decent vinyl or CD rig. That said there are, as you say, a few steps you can take to get the best out of your iTunes purchases and your iPod. It also sounds to me like the quality of your hi-fi is highlighting the iPod's audio flaws and perhaps your car audio isn't as revealing? iPods are okay on the move, but frankly come up short when trying to drive a dedicated hi-fi system. So, what to do? Firstly when ripping CDs, changing your import settings to rip in uncompressed formats such as Apple Lossless (ALAC), will greatly improve the sound of your rips. You can also change your settings to automatically compress when syncing to your iPod, so your

Rotel, even if things are a bit closer when the amps are compared. The Audiolab 8200CD also has a USB input, so you've effectively got the same functionality. By far the best way to get good sound from your turntable is to buy a separate phono stage, such as the Rothwell Audio Rialto (£375); any built-in design is unlikely to give anything except very mediocre results as they're usually based on a cheap chip with little care taken to make them sound good.

**ES:** I concur with everything DP says, the 8200 series will give you the digital inputs to match the Rotel and an excellent performance.

higher-res rips don't take up too much of your iPod's memory.

If your PC is becoming your main audio source then consider buying a dedicated external DAC to convert your digital music files into audio, instead of using your

### I'm thinking about a streamer, but don't have a clue which way to go

PC's internal DAC to do this. With the rise of computer-based audio, there are plenty of sensibly priced standalone DACs out there to get you started, such as Musical Fidelity's V-DAC II, which you should be able to pick up for a little over £100.

Running iTunes on a PC means you cannot bypass your PC's internal sound card entirely, which is why many PC users favour alternative software such as JRiver or foobar2000. If you want to stick with iTunes check your PC's audio settings are set to the native resolution of the audio you're

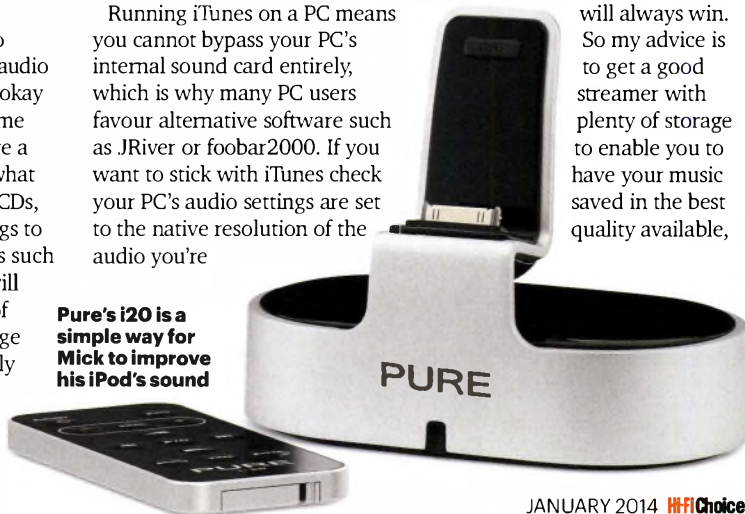
playing (which will be 16-bit/44.1kHz from CD rips), to minimise your PC's influence on the audio signal.

Adding a streamer with a built-in DAC could be a cost-saving solution in the long term, which will also bring extra convenience, allowing you to stream audio from a number of devices over wi-fi, although your music will still need to be stored on a PC or hard drive.

**DP:** I'm afraid you'll never get your iTunes purchases sounding as good as your vinyl – even the so-called 'audiophile' 256kbps AAC quality iTunes Plus files. Ideally, you need to rip your CDs to FLAC (ie non-data reduced) files, and get your downloads in 'studio master' 24/96 quality whenever possible; check out the Linn Records site or B&W's Society of Sound (Google these to find online). An alternative (admittedly more expensive than AS's suggestion) USB DAC is Audiolab's excellent M-DAC (£600) and pipe your computer music files out via a good-quality USB lead, such as one by Vertere. Use a special 'hi-fi' music player app such as Audirvana, which will turn your computer into a high-quality digital transport. If you want music to sound as good as vinyl, get a turntable!

**NR:** As David says, you will never get MP3 music to 'sparkle' like vinyl for a number of technical reasons. It's a bit like cassette vs. reel-to-reel, although in the end, many companies managed to get very good sound from the convenient cassette, but their cassette players carried a high price tag. CDs can sound pretty good, but despite the problems of surface noise, vinyl will always win. So my advice is to get a good streamer with plenty of storage to enable you to have your music saved in the best quality available, ▶

Pure's i20 is a simple way for Mick to improve his iPod's sound





but don't expect MP3 files to sound as good as records.

**ES:** As everyone else has pointed out any iTunes purchase will be a compressed file and this will struggle to match your CD or vinyl material. With this in mind, if you are looking for a boost for your iPod, something as cost effective as the Pure i-20 will give you a useful system upgrade.

If you are looking at a streaming system, don't be too quick to dismiss Sonos simply because you can have more than one room of it (which might yet prove useful). It is bombproof in terms of setup and a very slick introduction to streaming. If you like what you hear, you can then add an external DAC or use the excellent resale values so that you can move further up the streaming food chain.

### ➤ Needle work

**There's so much rubbish on the TV now, that recently I have reverted to spending much of my free time listening to my old classical vinyl records and extending my library of these. However, although my JVC JL-A40 direct drive turntable – despite being 50 years old – is performing admirably, the cartridge is a JVC Z-2E. This again seems to be fine, but I am having difficulties in obtaining a replacement elliptical stylus and wonder if you might be able to recommend a possible supply/hi-fi shop?**

**I have now recommended obtaining copies of *Hi-Fi Choice*, but most of the adverts don't seem to cover JVC cartridges. I might have to consider buying a replacement moving magnet or moving coil cartridge etc if I cannot obtain a replacement stylus.**

**Incidentally, I do have a music room that uses my old Celestion speakers plus further Wharfedale speakers and using a Denon amplifier. Your help/comments would be much appreciated.**

Keith

**DP:** Not that it makes much difference Keith, but your JVC JL-A40 is actually about 40 years old, not 50! Still, that's more than old enough and perfectly illustrates how beautifully the Japanese were building turntables back then; your '40 was a mid-price deck, and certainly no more expensive than a Rega Planar 3, but still it spins magically! Your matching JVC Z-2E was a good cartridge in its day, but is frankly past it now. Cartridge technology has come on a lot since then, and any 40 year-old pick up will be clapped

### My 50-year old cartridge finally needs replacing, what do I go for?

out; if not the stylus then the cantilever and/or damper. So, I would recommend a new cartridge; Dynavector's DV10x5 high output moving coil would be ideal at approximately £350. It's a fine mechanical match for the good-quality higher-mass S-shaped tonearm, and will stand an upgrade if you ever feel like moving up to a modern, higher-end turntable. Alternatively, if you just want a cheap and cheerful basic moving magnet, then Audio-Technica's AT-95E (£35) will suffice. Either way, make sure you tighten the cartridge up securely in the headshell, place the deck on a secure and level support and track at the manufacturer's recommended tracking force.



**Dynavector's DV10x5 is ideal for Keith's needs**

**NR:** Hi Keith – Welcome back to vinyl heaven! I have done some digging and you can obtain a JVC Z-2E compatible stylus via eBay from the US for around £10 including postage! However, closer to home, Stylus Plus on 01474 873678 or [www.stylusplus.co.uk](http://www.stylusplus.co.uk) sells replacement styli for the JVC JLA40 record player, so it might be worth giving them a ring to check the compatibility with your cartridge.

### ➤ Stick or twist

**I was a very early 'adopter' of playing/streaming music from hard drives. I currently have all my CDs ripped to FLAC and stored on a QNAP NAS. I've recently purchased a Musical Fidelity M1 CLiC and play from the NAS via an Audio Quest Ethernet cable.**

**Out of curiosity, I recently tried playing files from a USB stick via the front port. At first I didn't think there was any difference as I was trying to 'hear' for specific changes in quality. However, after switching back and forth a few times and over a period of days, I found that I did prefer the sound via the USB stick. It is difficult to describe the difference, but it seemed more 'airy' and engaging.**

**The question I have is whether the difference is caused by the fact the files were playing from a 'solid-state drive', or if the difference was through the way the USB circuit 'processed' the data compared to the Ethernet circuit? If it is down to the SSD, I will consider buying an external SSD drive, and playing through the USB port. I have over 600GB of music at the moment, so would need a 1TB drive, and these are by no means cheap. If it is the USB circuit causing the**

### ➤ Weakest link

**Despite not hearing as well as I used to, I'm still listening to CDs. Living in a small flat, I use headphones – Sennheiser HD 700s – and a Lehmann Black Cube phono amp. My CD player is an elderly Arcam CD82**

**I think the latter is the weak link in the chain. I'm looking for more clarity, verve and excitement, but without any tiresome 'in yer face' affect, and not losing the musicality.**

**I have thought about a switch to an Audiolab or Naim player based on reviews in hi-fi mags.**

**My musical tastes include Pink Floyd, Massive Attack, Enigma and Annie Lennox in the main.**

**Your advice and suggestions would be warmly welcomed, but please bear in mind my funds are quite restricted.**

*Mr J Philpot, King's Lynn*

**DP:** I agree that your venerable Arcam CD82 is the weakest link in the chain, but I am not sure that the Audiolab 8200CD – to which you refer – would be dramatically better. It would be better for sure, but the scale of the upgrade wouldn't be quite as huge as you'd hope for. That's why I'd save my pennies and go for a Bel Canto CD2 (£2,400), which is a seismic shift away from your Arcam. It's very big hearted, full and musical – much more so than the Arcam – and is upgradable with various power supply options. Moreover, it has an excellent CD mechanism, so as your system progresses you can use it as a top-flight disc transport to work with the very best DACs available.

**ES:** If funds are restricted and the Arcam still spins discs a treat, why not add a DAC? Something like Audiolab's peerless 8200DAC would be a significant performance boost, but even Cambridge Audio's bargain DacMagic Plus might be a useful step forward, too. Both would also allow you to dabble in computer audio as well if you fancied.





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difference, I could buy an external hard disk, at about an eighth of the price, and play through the USB port.

I do intend to move into hi-res music, as soon as I can buy the types of music that I like, and don't want to play music from a PC.

Any advice you can give would be greatly appreciated  
*Alan Bridgens*

**DP:** It's very difficult to give you a definitive answer here, Alan. Frankly it's case by case, and depends on how the network media player is implemented in practice – the integrity of your network, the power supplies, etc. It needn't necessarily be the case that SSD sounds better, but obviously here it does, and it's certainly true to say that there is less to go amiss down the data playback chain. For this reason, many computer audiophiles prefer SSD memory playback to any other, but again there are SSDs and SSDs; if you talk to hardcore computer audiophiles, they have their favourite makes. So while it's hard to be accurate in practice, in theory SSD should be best, as it's a stable way of getting data into your DAC.

**NR:** As DP says, it's always tricky to give a definitive answer regarding whether a USB feed sounds better than streaming over a network as there are so many variables. This does appear to be the case with your system and has also been my experience, which is precisely why I have my music on a USB stick plugged into my Squeezebox Touch! I suspect the culprit is increased jitter resulting from streaming over a network, which the player has to compensate for and this does indeed affect the quality of reproduction. I have to say that I am not a great fan of SSDs as they are still relatively expensive and do seem to have reliability issues. I would, therefore, suggest investment in a less expensive USB external conventional disk drive as that will achieve the same benefit, but at a considerably lower price.



## Letter of the month

PRIZE  
WINNER

### Chip change

In your October issue you reviewed the Pro-Ject Head Box DS (above) and stated that it used a Burr Brown PCM1792 chipset. However, for cost reasons Pro-Ject has substituted a Cirrus Logic CS4344 DAC chip into this product.

Now, if your five star review was of a unit containing a Burr Brown chip, it is only fair to point out that this is not the product that is now offered for sale.

It seems a dubious practice to send reviewers a product then change it so soon thereafter. P.S. I enjoy your magazine enormously.

*Lawrie, by email*

**ES:** This is unfortunately where the time delay inherent to reviewing for a magazine can be a problem. The Head Box arrived with the DAC in question and no mention of it being changed. As I can only evaluate what I was given, I felt that this iteration of the Head Box warranted the five star score it received. Until such time as I can look at one with the new chipset in it, I don't know what the difference in performance is likely to be. What I will say is that the excellent USB implementation, headphone amp and general build quality look to be unchanged, so I don't believe the product will have turned into a turkey.

**DP:** Obviously we can't keep track of individual component changes to the things we review, after we've reviewed them – this is a massive logistical challenge. I agree that it's a little confusing for manufacturers to subsequently modify a product after the review, and this doesn't often happen, but when it does it is usually for practical reasons of component availability, or lack thereof. In the final analysis, we'd always recommend readers use our reviews as a guide to buying decisions, rather than the final answer. As ever, there's no substitute for trying before you buy!

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# TALK

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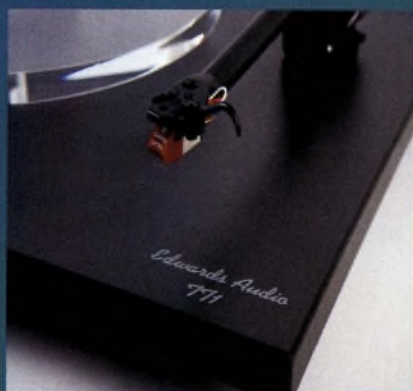
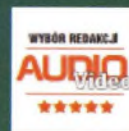
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# Listen without prejudice

There's no denying it, we all like to drool over stunning-looking kit, but argues **Jake Day-Williams** in doing so aren't we forgetting what hi-fi is really all about?

**W**hat is it about fans of technology, or more precisely fans of AV tech? You don't see magazines devoted to coffee-making machines, irons or kettles in the same way that you do TVs, Blu-ray players and hi-fi gear.

In my 15-plus years working in this industry it's never failed to amaze me the extent to which enthusiasts fetishise equipment. They're happy to sit and read about specifications, often drooling over pictures of hardware and adding them to their wishlist without ever having actually seen or heard them in action.

Perhaps the most extreme example of this is Apple, which appears to be in the unique position of being able to produce pretty much anything content in the knowledge that there will be fanboys (and girls) queuing around the block to be among the first to get their hands on it. It might be stretching the imagination a bit, but it's not too difficult to envisage a scenario where Cupertino's finest release a block of wood with the Apple logo on it to an expectant audience. It has no practical use, no functionality and has no visible features apart from the famed logo. There would be plenty of people – and I know a few and even regard some of them as friends – who would opine that this is the most gloriously designed piece of wood ever and how wood was never really worth

**I like to think that we in the hi-fi world are that little bit more refined**

bothering with until Apple came along and breathed new life into this ailing format.

You get the idea, although I'm

straying from the original point I was trying to make, which is that all too often we tend to get too wrapped up in the equipment as opposed to what it should do and how well it really does it.

Over the years I've edited all kinds of magazines providing buying advice on everything from MP3 players, to VHS video decks and TVs to mobile phones (I think it's probably best that we gloss over my brief impressive stint at the helm of *Beanie Baby Magazine*), and frequently the focus has been on the beauty of the product, it's functionality, how bright it is and how loud it can go, while all too often how well it can actually perform the task it was designed to do is glossed over.

I'm sorry to keep returning to Apple (I don't hate it, honest, I just don't get the unquestioning worshiping of every new piece it produces), but the original iPhone is a perfect case in point. There's no disputing the fact that this is probably the most iconic mobile ever and to a certain

extent forced every other manufacturer to reconsider its approach to producing phones – but the truth is it was pretty cruddy as a phone – you know, a device for talking to someone else. While there's no doubting the apps, design and build quality of it raised the bar, it was

not an especially good phone. And this infuriates me.

So what's all this got to do with hi-fi I hear you ask. Well, I'm approaching the end of my first year working in the hi-fi industry and I have to say that I've found it really refreshing in the way that the fetishism of equipment doesn't seem to happen in quite the same way. Yes, there are people that show similar devotion to certain brands in the same way Apple fanboys (and girls) do, but what I enjoy about the hi-fi industry is that it seems to remember what this whole hobby business is actually all about... music. When I worked on TV mags, no one ever seemed to talk about good movies, entertaining TV series or quality dramas. Instead it was all about how big the screen was and how loud it could go. I like to think that we in the hi-fi world are a little bit more refined.

Sure, there are always going to be those that get hung up on specs and features, but at it's heart I think that all you readers – along with the manufacturers and reviewers – care about is finding the best kit to produce your favourite music in the most spine-tingling way. It doesn't matter if it's a DAC, a CD a piece of vinyl or even a stylophone, if your music sounds great, then surely it's a good thing?

## Now that's what I call music

We might disagree about what music we like – I'd imagine I'd be sent packing from *HFC* with my tail between my legs if the powers that be heard some of the stuff I like to listen to, but whether it's Hendrix beating seven bells out of a guitar, Joni Mitchell singing her heart out, or (and this is where I'm almost certainly going to start alienating one or two of you), Plaid squelching out some of the most beautiful electronic sounds known to man, all we should be worrying about is if our equipment can make the hairs on the back of our neck stand on end like they did when we first got excited about music in our youth. Surely, that's what it's all about, isn't it? ●



**It's safe to say Jake won't be joining queues outside the Apple Store anytime soon**



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# Thank you for the music

Impressed by iPlayer? You ain't seen nothing yet. The BBC has surpassed itself with Playlister, linking its radio output with streaming services like Spotify, says **David Price**

**M**y brother invented the BBC iPlayer. Well, sort of. Working as an online producer for the Beeb circa the dawn of the new millennium, he had the idea of making a downloadable front end for one of the several streaming apps around at the time. His concept was that it could be used to play BBC-specific content from the corporation's amazing sound archives.

Sadly he didn't go on to garner fame and fortune as at the time the powers that be weren't very keen on the idea. Indeed such are the labyrinthine politics of the Beeb that he suspects that the idea had already been had anyway, in some other far-flung department, and management were keeping it secret. What this tells us is that the BBC is well aware of its position as custodian of the nation's entertainment and the amazing part it has played in our cultural life. And so it flipping well should be!

That's why the iPlayer as it is currently constituted, is such an amazingly handy little thing. In simple terms, it's a sort of modern combination of a telly and a VCR. You can watch things being broadcast now and also watch things that were broadcast earlier. The iPlayer works with radio, too – meaning it's wonderfully flexible. Basically it's a one-stop-shop for recent BBC output online.

Much as I love it – and indeed my brother (he ain't heavy, etc) – the concept isn't and wasn't new. As far back as the early nineties, I remember writing an essay about what was called 'VOD' (video on demand) for my master's degree. I even

remember we had the ex-boss of ITV come to my university to talk about the concept. It all sounded very dazzling and brave new world back then, but now it's a plain, everyday, utilitarian service, just like having a phone line. What the iPlayer did was to address a basic shared need (to watch or listen to BBC content, old or new).

So what other basic shared needs do we have? Given that this is a hi-fi magazine, I won't stray too far off topic, so let's stick with music. While many readers of this august journal may listen to music in a very structured way – that is, they sit down and deliberately select it from their own personal libraries, which have taken years to build often at great personal expense – there is a vast number of people who do not do this. The non-*Hi-Fi Choice* reading, lest we forget, get most of their music from the radio.

Recognising this – and frankly it should know – the Beeb has come up with an iPlayer v2.0. Well, sort of. The BBC

Playlister is what it says on the tin; it's a clever system to integrate the music that BBC radio networks broadcast – songs you hear in offices, factories and waiting rooms across the land – with Spotify, YouTube and Deezer. These three 'online content resources' – which is about the best description I can think of for them – are now what vast numbers of people use to get their music. Instead of having a house bursting with CDs, records, DVDs and VHS videos – and I'm sure you've been to a few in your time – the idea is that someone else gets to keep all that music in their 'warehouse', and you can just access it as and when you please.

Playlister is an ingenious bridge between BBC Radio, which a great many people listen to, and the places that actually store the things that BBC radio plays. It links the music you hear on, say, BBC 6 Music, and the places on the net you need to go to find it. As I write this, *Domino* by Jesse J has just been played on BBC Radio 1. But the Beeb doesn't own the rights to play this in full online (it can play a short excerpt), whereas Spotify does. So Playlister is a space for you to browse recently played tracks, or the most popular ones, online, and then tag them so they'll be added to your Spotify and Deezer playlists. Any time you hear a piece of music you like playing on the Beeb, you can hit the 'add to Playlister' button and you'll be able to enjoy it later via these three online services.

Playlister harnesses the power of playlisting to take you much closer to the position of personally having an infinite music collection, easily accessible and instantly updatable. It's the musical equivalent of having 'bookmarks' in your browser that take you to your desired web page without actually having to store the whole internet on your computer. Frankly, only the BBC could do this, because it has so many radio stations and such a powerful online presence. Linking the music played on these to the music held on Spotify, YouTube and Deezer is another genius move, then. My brother and I will continue to listen to much of our music via our vast record collections I am sure, but even we will find the new BBC Playlister a boon in our increasingly online world. You can find it here: [www.bbc.co.uk/music/playlister](http://www.bbc.co.uk/music/playlister) ●



**Could Playlister be as much of a game changer as iPlayer has been?**

## Only the BBC could do this, because it has such a powerful online presence

as the early nineties, I remember writing an essay about what was called 'VOD' (video on demand) for my master's degree. I even



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# Taking over the asylum

Recording artists are taking a growing interest in the way their music is produced and delivered. **Nigel Williamson** asks if this is such a bad thing or the emperor's new clothes

**E**ver since the gramophone was patented in 1887, the recorded sounds made by popular musicians have been shaped by the technology available – as has the way in which we have consumed and listened to those sounds. At every stage of technological advance, musicians have proved incredibly inventive in realising and exploiting the new possibilities on offer. Yet by and large the recording industry has always consisted of two camps. In one corner, the technocrats from Thomas Edison and Emile Berliner to Ray Dolby and Amar Bose. And in the other, the artists from Caruso and Jolson to Nirvana and Lady Gaga. The two need each other, but their roles have remained quite distinct and separate.

Recently, a growing number of artists are taking more interest in the delivery of their music. Indeed, some have even started telling the boffins that they've got it wrong. Neil Young rails loudly that: "The promise of perfect sound forever propagated by the inventors of the CD was a bust" and that the quality of the MP3 "offers only an inkling of the flawed format they were hoping to emulate".

For two years he has been threatening to unveil his high-resolution Pono music delivery system, which he claims will "rescue an art form" and "liberate the music of the artist from the digital file and restore it to its original artistic quality."

## We are now seeing artists rejecting the advances made by the boffins

Jack White is another who loathes the digitalisation of music. The former White Stripes frontman recently donated \$200,000 to the National Recording Preservation Foundation and at his Third Man Records in Nashville he uses fifties equipment to record studio performances direct to acetate. "The digital formats in the last 20 years have proven to be anything but fail-safe," he says. "The tapes break or the information can't be retrieved."

Ry Cooder is a long-time opponent of the advances that have transformed recorded music – ironic given that his 1979 LP *Bop Till You Drop* was the first rock album to be recorded digitally. When I interviewed him a few years ago he was adamant that the golden era of pop music had ended in the sixties with the phasing out of valve technology and nothing had sounded as good since.

They're not the first artists to display a close interest in technology. In the late forties, Bing Crosby invested \$50,000 in Ampex, fired by his enthusiasm for the

development of magnetic tape because he disliked live radio and wanted to be able to pre-record his shows. And it was the eagerness of artists to harness advances in sound technology that helped to create everything from Phil Spector's infamous wall of sound, psychedelia and prog-rock to synth-pop, the dance culture of the eighties and nineties and modern-day electronica.

Yet in all of these instances, artists were embracing technology and hailing progress. What we are seeing now is a number of artists rejecting the 'advances' made by the boffins and protesting that modern technology is preventing their music being heard as it was intended.

Neil Young grandly likens hearing music via Pono for the first time to "that first blast of daylight when you leave a movie theatre on a sun-filled day." Pono power, he says, touches the listener where other music delivery systems cannot: "It moves you, so you can feel."

Jack White uses similarly romantic language in voicing his objections to modern sound technology. Ditching digital, he says, is about "unlocking the richness of the artist's music" and "capturing something realistic, soulful and beautiful."

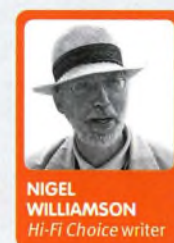
## Quality street

So are artists like Young, White and Cooder visionaries on a mission to save music or are they reactionaries, attempting to turn back the tide of progress as they create a misguided nostalgia for an imaginary time?

The answer is probably subjective, for my suspicion is that what we're talking about here is an emotional response to how we hear music rather than a technical one. It might be heresy in a hi-fi magazine, but my favourite story about how musicians judge sound quality concerns Bob Dylan and the Grateful Dead's Jerry Garcia, selecting material for a live album from a tour they'd done together in the late eighties. Garcia assessed the material by playing back the master tapes on huge, state-of-the-art studio monitors and was baffled by Dylan's preference for listening to cassette transfers on a dodgy \$50 boom box from Wallmart. When they compared notes, both came up with exactly the same track list ●



**If Neil Young is to be believed, Pono will "rescue an art form"**



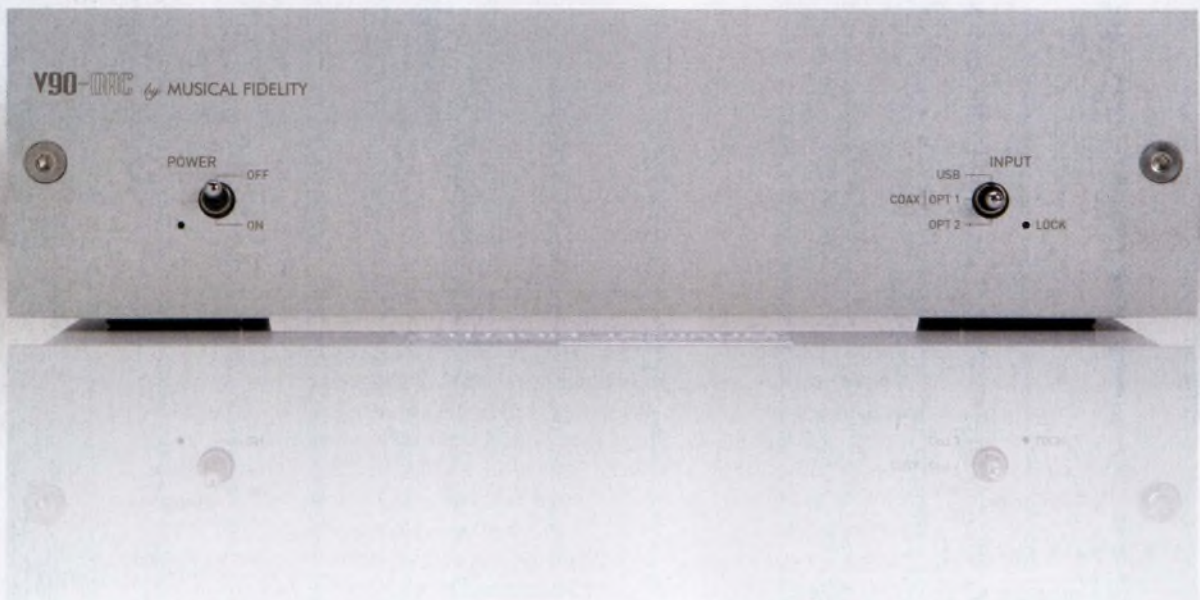
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# A moving experience

Relocating to a new home is universally recognised as one of the most stressful things we can do, but it's 10 times worse for the hi-fi enthusiast reckons **Tim Jarman**

**B**y the time you read these words, I will be well into the process of moving house (with any luck the whole awful process will be well and truly over and done with). Even for ordinary people this is one of the most stressful things there is to experience, but for the audiophile it ramps it up to another level entirely. Everywhere I look there are problems, things that could go wrong, things to trip me up.

Take records, not a problem if you only have just one or two, but when there are lots you suddenly have an issue. Records in bulk are extraordinarily heavy, they may fit neatly into one of those multi-coloured folding plastic crates, but once you fill it you won't be able to lift it – which is just as well, because if you could the bottom would drop out. Records ideally should be packed last and unpacked first to avoid warping under non-ideal conditions. Imagine how popular this will make the audiophile of the house when the crockery and cutlery are still to be located and the fridge isn't even properly working yet...

Cassettes (of which I have rather a lot) are less of an issue, providing that they don't get packed near the loudspeakers or anything else magnetic. You could say that it can't happen, but it can and it has.

The main pieces of equipment are really something to

## Moving a familiar system to a new location can give it a different flavour

When you are struggling to move heavy, delicate things in confined spaces and you are already fed up and tired, that's when. Much of my gear came with transit locks and other bits and bobs that I'm sure I have somewhere. Those odd-shaped bits of plastic, red painted screws and pieces of cardboard that look like a CD with a tongue sticking out all have an important job to do, even if it isn't always obvious what it is. Who invented transit locks that can only be fitted or removed by turning the equipment upside down? If ever anyone needed a definition of the phrase "self defeating" then this must surely be it. Cables don't like to be disturbed either. I'm looking forward to months of sorting out "one channel missing" type issues because something has broken somewhere. One last strand that has been good enough for months (years?) is bound to be just waiting to break somewhere. Many of my cables are custom made to specific lengths (I can't stand all that dusty clutter that lurks behind many a hi-fi rack), how

fret about. When is a turntable lid most likely to get scratched, a cartridge broken or a woofer dust cap get pushed in?

many of these will now be useless when things are put in different places in their new home? Something else to consider is that a decent FM antenna will need to be sorted out for the tuner.

What will reception be like? Will BBC Radio 3 even shift the signal strength meter

off its stop? On the other hand, a bit of wire pushed in the back may bury the needle, but I've never lived anywhere like that before. "Can you achieve full quieting on 91.3MHz here?" isn't a question that many vendors or estate agents can answer.

## Room with a view

So many potential problems, but here's the big one. My current listening room is, quite by accident, superb. In there even fairly mundane gear really sings and unlikely combinations gel like you won't believe. I don't know why that is, but a few common sense factors are all in its favour. The room is just about the right size, not claustrophobically small or so big that the sound gets lost. It is roughly square and the loudspeakers are backed by a solid outside wall. There are no alcoves or other problematic features and there are no cable routing problems when everything is placed where it should be. I have friends who have endless problems with listening rooms (whether they acknowledge this or not), the result being that no matter what they do or how much they spend on upgrades and accessories the system never sounds quite "right". Am I about to join them? I just don't know. You get all sorts of stupid data when you buy a house, but the answer to "is this a good place to listen to music in?" isn't amongst it. In the end you have to take a chance and hope that there is a combination of furniture and hi-fi that gives acceptable results.

But regardless of the horrors, there's always a silver lining. Moving a familiar system to a new location can give it a completely different flavour, so perhaps there is a new aspect to all my favourite music that will be revealed once I get the equipment up and running. Plus, I know for a fact that I have a Zerostat gun for my LPs somewhere, although I've not seen it for ages – perhaps it will turn up amid the chaos... ●



**Is Tim's move going to give his system new life, or be a cause of disappointment?**





# Minitest

IN-EAR HEADPHONES £120-£150

Four in-ear headphones are put through their paces as **Adrian Justins** plugs in and nods to the beat...



## Sennheiser IE 60

PRICE: £130 CONTACT: 01494 551551 WEBSITE: [en-uk.sennheiser.com](http://en-uk.sennheiser.com)

**SENNHEISER'S WIDE RANGE** of headphones contains some stylish models, but the IE 60 is not one of them. Clad in black and dark grey with tacky gold flourishes, there's little about the colour scheme or the styling to suggest these are better quality earphones. Build quality is much better.

A couple of rubber hooks are provided for routing the cables over your ears and down the back of your neck. There's a wide selection of in-ear silicon tips, so there's every chance of finding yourself sonically isolated (Sennheiser claims by 20dB) from the outside world.

The IE 60 uses dynamic drivers with neodymium magnets and offers low impedance, easily facilitating

playback at low volumes and allowing you to go loud. Sonic quality is superior to cheapo earphones, with a much greater dynamic range. But the emphasis is on vocals, Jeff Buckley's rendition of *So Real*, for example, has good clarity and emotional impact. *Show Me The Wonder* by the Manics lacks a bit of punch while *Rewind The Film* sounds boomy at the lower registers. The effect is a bit like throwing a blanket over a good set of monitor speakers.

### VERDICT

With a sonic signature lacking transparency and a design that only a mother could love, the IE 60 never lets you forget you're wearing earphones



## B&O Play Earset 3i

PRICE: £120 CONTACT: 0118 9692288 WEBSITE: [beoplay.com](http://beoplay.com)

**BEARING THE HALLMARKS** of Scandinavian design, this is a typical blend of form and functionality that places comfort at the forefront. Its earbuds aren't sound isolating so they don't go right into your ear canal. This normally means there's a fair chance of them falling out during movement, but B&O has an elegant and effective solution. The buds are attached to telescopic poles, with about 1cm of additional height on offer. At the top is a curved, plastic coated bar that hooks over your ear. Rotation through 360° of both hook and ear bud is possible, giving plenty of scope for finding a comfy fit. The plastic coating looks the most likely part to fail over time, but the construction of the moving parts is top notch. Four pairs of foam covers for the hard plastic drivers and a stiff leather storage pouch are provided. A

dynamic driver provides full-range frequency response and inline remote provides playback control of Apple iDevices, an inline-free version sells for £20 less.

Impedance figures aren't given, but the Earset 3i can go louder than necessary with ease. At all volumes it delivers a clean and clinical sound, with the nuances of The Unthanks' North-Eastern accent nicely balanced against the treble of the accordion and gently plinking piano. What it lacks is bass, Tina Turner's *Private Dancer* for example lacks impact both vocally and instrumentally. Richard Hawley's crooning during *Rewind The Film* almost takes on demo track qualities. Chasing bass via an iPhone's EQ settings has dissatisfying consequences for the overall feel of the sound, but pushing the buds further in proves more effective.



### VERDICT

Built to a high standard, the Earset 3i delivers a clean, lively sound. Bass is in short supply, especially if the buds only cover the ear canal







## HELP &amp; ADVICE

Good earphones are like wearing a watch – if they're comfortable you forget about their presence. Unlike a watch, you may find yourself inserting them and taking them out frequently so it's important to find a set that don't require too much fumbling around. In this price bracket that can be a problem, as manufacturers try and engineer models that fit snugly, deliver acoustically and don't move around in position. When shopping around

bear this in mind as much as considering durability (is the cord strong, are the plugs rubber capped, do the tips stay in place?). Then there's the question of technology. Most models use dynamic drivers, which produce a warmer, bass-enriched sound, but balanced armatures extract greater detail. The Audiofly AF78, for example, is an interesting hybrid. Each model has its own sonic signature, which can be as subjective as appearance.

## Bowers & Wilkins

### C5

PRICE: £150 CONTACT: 0800 2321513 WEBSITE: bowers-wilkins.co.uk

**IT HAS CERTAINLY** got style but you could be forgiven for thinking the C5 looks a bit loopy. Even holding it for the first time it's hard to imagine how the buds fit in your ears, with a cable trail that bends up and over the top of each enclosure. It's actually an inspired design that holds the buds in place by adjusting the cable to fit snugly in the lower recess of your outer ear. You simply push or pull the cable (which grips nicely) through the groove on the forward side of the enclosure until the bud holds firm. You also need to choose the best-fitting silicon tip to give yourself a 23dB attenuation from the outside world. An inline remote provides Apple iPhone control, but not all functions seem to work with iOS 7. In terms of comfort, the C5 feels deceptively snug, only revealing its tightness on your ear canals when you remove it after extensive listening.

It uses a dynamic driver, but there's innovation at work thanks to a special Micro Porous Filter filled with hundreds of microscopic steel balls, which allow sounds to diffuse, more like open-back earphones.

In terms of performance, the dominant characteristic is low-end emphasis. The bass signature at the start of *Under Pressure* (David Bowie and Queen) arguably stealing the limelight too much. Elsewhere, things feel more dynamic and have greater impact than the other models. Classical music is sumptuous, with the sublime sounds of the violin at the start of *The Lark Ascending* sounding detailed and involving. High impedance limits the volume to comfortable levels with the C5 always maintaining an even response across all frequencies. Despite favouring the bass, *Show Me The Wonder* (Manics) is punchy and engaging.



#### VERDICT

Simple yet stylish with a unique adjustable cable, performance is lively and detailed, but the emphasis on bass may not please all



## Audiofly

### AF78

PRICE: £150 CONTACT: 01903 768910 WEBSITE: audiofly.com

**WITH DUAL DRIVERS** onboard the AF78 is a marriage of balanced armature and dynamic driver technology. The intended result is a combination of good separation and plenty of detail in the high end with well-defined response in the lower and mid frequencies. Consequently the driver housings are a tad wide, although they perch comfortably enough in the outer ear. This is the easiest model to insert and remove quickly, but also the most prone to come out when running for a bus.

The outer edge is vented and trimmed with a metallic trim. The braided cable with twisted core, Kevlar-reinforced conductors and Cordura outer sheath seems strong. Accessories include an Airline adapter, signal-splitter, cleaning tool, four pairs of silicon and two pairs of memory foam eartips.

Using the memory foam tips is the most effective way of shutting out the outside world, but the silicon ones may prove more comfortable depending on your inner ear. Memory foam also affects the performance, resulting in a slightly more deadened sound. Opting for the silicon allows the sound to breathe and bring out the best of both drivers. *The Lark Ascending's* lead violin, for example, is tight and controlled, eeking out every last drop of treble, while the dynamic driver lends warmth to the lower register. Similarly, with *Twilight* by Antony & The Johnsons, the vocals soar against the shimmering cymbals, gently plonking piano and bass guitar. But the balanced armature can make vocals overly clinical, losing some of the warmth and Geordie character that's inherent in The Unthanks' superb *Sad February*.



#### VERDICT

The precision of the balanced armatures and warmth of the dynamic drivers combine well to deliver a satisfying sound







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# Smooth operator

Once one of the most ubiquitous disc spinners, Dual's CS505 turntable now resides in the 'where are they now' file, says **David Price**

**T**hese days, a couple of hundred pounds will buy you a decently made, well integrated turntable that won't recut every vinyl disc that you play. It was not always the way, however. More 'seasoned' hi-fi campaigners will remember that back in the earlier days of analogue replay, there were plenty of record players on offer that would not only imperil your ears, but your prized and expensive LPs too!

The early seventies wasn't a nice place to be for relatively impoverished audiophiles wanting to grow their beloved record collections. Lest we forget – indeed it's perhaps better that we tried – the mainstream offering for many people was basically a choice between the Garrard SP25 Mark V and the BSR BDS95. While these days, people look on the Garrard brand with a mixture of nostalgia and reverence thanks to the majesty of the 301 and 401, let's not forget that those were largely tailored for studio

and/or broadcast use. The mainstream SP25 was all most could afford, costing around £30 with a plinth and smoked perspex lid and it was no 401. A clunky, rim-driven relic, its platter was as noisy as the bundled arm was sticky; there was friction and noise everywhere you looked on an SP25 – and its BSR rival was no better.

In 1973, Pioneer transformed the budget turntable market with the

**A highly affordable budget turntable that outclassed all entry-level decks**

PL12D. Purpose-designed to offer far higher quality than the aforementioned British vinyl spinners, it did to them what Honda did to our motorcycle industry – and soon enough the man in the street was able to buy an altogether more refined

design using belt drive, to give lower noise, wow and flutter and silkier sound, thanks to its fine tonearm. But the PL12 didn't live forever. Pioneer gave it a new set of clothes in 1977, which was undoubtedly sleeker, but it took a little bit of the quality out the deck.

**Dig the new breed**

The replacement PL112D didn't set the world alight, and suddenly people began looking for a new, affordable, turntable king. Dual was where the buying public's collective gaze shifted to. Rega had already introduced the £100 Planar 2 by then, but it was just a bit too expensive – especially when you factored in the cost of a decent cartridge such as the (then) popular Grado F1E+1 for £15 or so. The new CS504, however, was a German-made precision instrument that retailed for about the same price as the Rega, but included a pre-fitted cartridge. Throughout 1979, Dual's CS504 sold solidly, only to be replaced by the



CS506. This was essentially the same design, being a pressed steel subchassis onto which a high-quality AC synchronous motor was fitted, and a decent main bearing. The main difference was that the plinth was a little sleeker, and the deck received a new 'Ultra Low Mass' tonearm...

Vinyl fans of a certain age will remember that the seventies was a decade defined by moving magnet cartridges, and the drive forever lower tracking forces. The Shures of the day tracked well at around 1.5g, an amazingly low amount when the ceramic cartridges of a decade earlier had been crunching their way through record grooves at over three times that amount. They were often high compliance designs, and this saw a movement among tonearm designers of the day to produce arms that were a good mechanical match. Low mass was the answer, with SME's Series III being the epitome of this. The new Duals followed suit, boasting new 'ULM' arms complete with fitted, matched Ortofon OM cartridges.

The CS506 received rave reviews, but at around £100 it was more of an upgrade from a Pioneer PL12 than a replacement for it. What the hi-fi world needed was precisely the latter – a highly affordable budget turntable that comprehensively outclassed all other entry-level decks. It was at this point that Dual played a blinder; making its UK debut at the Harrogate show in 1980, the new CS505 was simply a stripped down, price-cut '506 selling for the keen price of £59.95. This was it – a new pretender to the budget turntable throne!

Not only was the price a nice surprise, it soon became clear that Dual hadn't taken much that was meaningful out of the fine CS506. To wit, the stroboscope light had been deleted, although the deck's stroboscope cut into the edge of the platter was retained. The vari-speed control of the 506 had been kept too, making it a bit harder to set speeds, but still any house with any electric lighting made it possible to discern what speed the deck was running at. It was an annoyance to lose the strobe light, but hardly holed the deck below the waterline. The plinth changed, too. In the place of the 506's nice piece of timber, there was a plastic moulded plinth that didn't exactly seduce the eye. But nor was it an eyesore, and not something you might call a deal-breaker; the charcoal grey Dual CS505 looked clean, crisp and functional, even if

it wasn't as cool as the Rega Planar 2! The decent-quality Ortofon OM cartridge was retained, as was the excellent (at the price) ULM tonearm, plus all else that was good about the 506. That meant that you got a beautifully smooth operating machine – something that felt even more precise and finely setup than the hitherto class-leading PL12D, and a world away from the Palaeolithic 'Captain Caveman' user experience of the SP25! Like every good bit of German-made kit, the Dual had an innate solidity that was also infused with slickness. The deck's lift/lower cueing lever was a joy to use, the tonearm well aligned and very low in friction for a budget design; its straight-pipe aluminium armtube with spring-applied vertical tracking force conferred a sense of class that were previously unknown pleasures for buyers of budget turntables!

### Coming up trumps

The deck itself worked very well, too. You'd never call any particular aspect of it over engineered, yet conversely nowhere was it under done. The lightish platter spooled up to speed snappily – even if it wasn't quite the match of the big, fancy Japanese direct drives of the day in this respect – and when there kept its speed well. Its motor being referenced to the mains frequency didn't help in absolute terms, but in its own way the Dual still sounded good.

In absolute terms, it was a smooth deck with just enough speed instability to manifest itself as vague and unincisive, yet little enough not to draw attention to such issues. It lacked a whole octave at the bass end of the spectrum, and wasn't the most extended up top either – but again within its limits it sounded smooth,

**The original instructions show how to set up the Dual**



### BUYING

Because so many Duals were made back in the day, it's hardly a hassle tracking one down now. Most will still be spinning as well as they ever did. If you possibly can, try before you buy. The deck should be silent and smooth in operation, with no funny noises as the platter spools up to the correct speed – Duals were loved for their slickness back in their heyday. The motor shouldn't rumble and the arm should move very freely across the disc as you hand cue. The oil damped lift/lower device was a joy to use when new and should still be now. If all these boxes are checked, then you've found yourself a good one and be prepared to pay the princely sum of £50! Later decks were called the CS505/Improved; these are more desirable simply because they have a better headshell, which abandoned the rather fussy cartridge carrier system of the original. They also went on to get a better, flatter turntable mat and there were more minor modifications made to the plinth. The deck ran on for many years, with a few further subtle tweaks, but you shouldn't really pay more than £100 even for a mint example in its box. Still, bargain hunters should find this works out to be a lot of turntable for the money.

open and pleasantly musical. By today's standards, it would hold its head up happily against any entry-level Rega or Pro-Ject package. A neat touch was that at the end of the record, the arm would automatically lift and the motor stop – avoiding sending your stylus to oblivion.

Everything about the Dual CS505 was just right; the performance it delivered relative to its modest retail price was miraculous, the quality and build were excellent (again, considering its cost), and the neat packaging of a fine little cartridge (which incidentally was upgradeable by the simple expedient of fitting a better OM-series stylus) and auto-stop sealed the deal. There was simply nothing not to like.

Dual's CS505 went on to be a massive seller and form a leading part in vast numbers of eighties hi-fi separates systems. Indeed, for many it was their last record player before they 'upgraded' to one of those new-fangled Compact Disc spinners. Throughout that decade, tens of thousands of 'Duals' (because the brand name and this particular model became to all intents and purposes one and the same) sat in student bedsits spinning everything from classic Genesis albums to Frankie Goes to Hollywood. They made a nice noise, worked with the reliability of a Swiss train and operated with riflebolt precision. For the same reasons they were so good back then, they still have appeal now – so if you're looking for a vinyl spinning bargain, you know where to go! ●



# A breath of fresh air

Roksan's Oxygene components are minimalist, but as **Ed Selley** discovers, there's substance behind the style

**A**s an industry, hi-fi tends to be determinedly conventional. Even when a manufacturer claims to have done something bold, there are underlying processes and practices that mean that even the busiest of reviewers generally has a reasonable handle on what a piece of kit is likely to do when they are confronted with it for the first time. In a sense, this system is no different – you stick CDs in it, it relies on the same cabling as anything else and when all is said and done it is an amp and CD player. The Roksan Oxygene components and their partnering Darius S1 speakers manage to feel different from the pack, though, and so have a similar effect as a lungful of their namesake after an hour in a stuffy room.

Each Oxygene unit – and as it stands there is an amp and CD player, but more models are planned – is a 310 x 310cm square when viewed from above. Roksan has abandoned the 'full-width' size of 430mm, but

also spurned the 'half-width' dimensions that most hi-fi components plump for if they are less than full size. The result is unexpectedly effective. The Oxygenes look compact, but still feel like serious hi-fi products rather than something dammed with the catch-all 'lifestyle' term that too often is applied to something designed to look nice rather than sound good. This is partly down to the fact that each is a hefty slab of aluminium that is painstakingly hand finished in Germany to achieve the desired level of fit and finish. This means they feel wonderfully substantial, but the sense of quality is also down to the internals – more of which later.

If the differences to the Oxygenes began and ended at their shape and construction, that would be reasonably interesting, but wouldn't be anything like the whole story. Roksan has worked hard to ensure the Oxygenes aren't undone by the little details. The oversize white dot





This is a system that is unfailingly capable at finding the musical message

COMPONENTS

1 **ROKSAN DARIUS S1 SPEAKER £4,500**

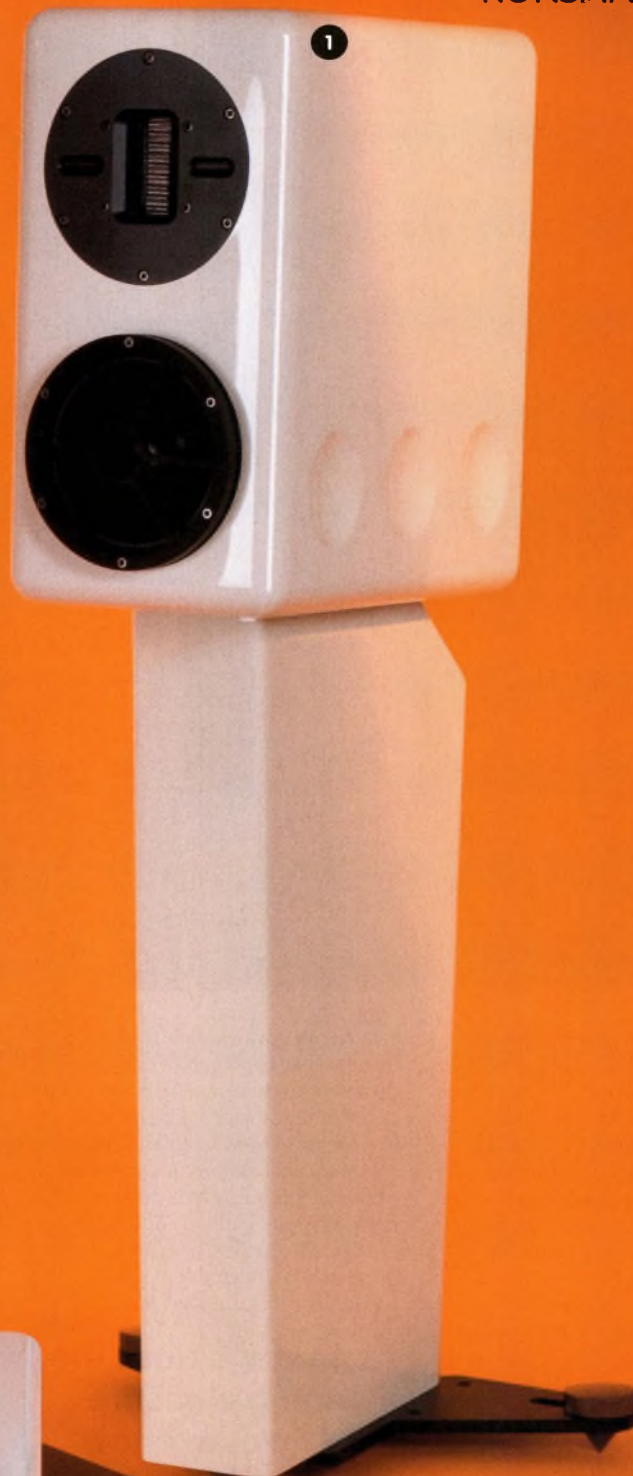
The Darius S1 is designed to partner the Oxygenes and is a sizeable two-way standmount combining a 5.25in midbass driver with a ribbon tweeter that are mounted in a sizeable cabinet supplied with a dedicated stand.

2 **ROKSAN OXYGENE CD PLAYER £2,800**

The Oxygenes CD is a heady combination of bang up to date internals like the Burr Brown PCM1796 DAC and high-quality analogue output mated to an inductor drive to keep that stunning casework as clean as possible.

3 **ROKSAN OXYGENE AMPLIFIER £3,000**

The perfect styling match for the CD player, the Oxygenes amp features three line inputs and an integrated Bluetooth module that all make use of the 75W output from the Class D amplifier stage in the unit.





## BEAUTIFUL SYSTEM ROKSAN OXYGENE



matrix displays have turned up on products before, but combine with the casework design to achieve a look that is at once stylish, but equally practical – the size of the displays means they can be read from the other side of a room, but can also be dimmed if you find them distracting.

The control interface is the star of the show, though. Buttons would require unsightly holes in that aluminium carapace so each Oxygenes instead has a piezo electric pad on the top that can be used to change inputs, skip tracks and perform other functions. As these are unmarked, they take a little getting used to, but you quickly find yourself controlling them with the assurance of Obi Wan Kenobi confounding a Stormtrooper.

### Under the hood

Internally the Oxygenes give at least a cursory nod to the standard practices of the industry, but the quality of the components used is extremely good. The CD is built around a Burr Brown DAC and components evolved from the Caspian range. The amplifier is more of a departure from the Roksan norm, though. While I imagine it might have been possible to use that aluminium body to cool an exotic Class A stage, Roksan has instead decided to use a Class D amp and the 75W output that results should

ensure you have enough power for the loft apartment stylish enough to do justice to the amp in the first place.

One final surprise and delightful feature sat in the back of the amp is an apt-X-capable Bluetooth module, which allows for a connection of a mobile device on the fly in addition to the three line inputs. It is easy to be dismissive of Bluetooth as a mere convenience feature, but the latest

### At no stage does the listening pleasure ever tip over into a dull or safe sound

apt-X codec is capable of sending a CD-quality file between suitably enabled devices for a very simple and gratifyingly flexible streaming system.

Partnering the Oxygenes is another new arrival to the Roksan range. The Darius S1 is a hefty beast next to its slimline brethren, but there is no shortage of applied technology. The 5.5in mid bass driver might be conventional – although the protective grille vaguely reminiscent of Hannibal Lector's facemask is a novel touch – but the ribbon tweeter that partners it is more unusual and these two drivers are placed in a substantial cabinet that is available in

**Above left:** The Darius S1 combines a 5.25in driver and ribbon tweeter to impressive effect

**Above centre:** Large displays and touchpanel controls make operating the Oxygenes a truly unique experience

**Above right:** The casework is beautifully finished and very attractive

white and black lacquers to match the electronics. The Darius is a standmount, but given that the dedicated stand is supplied, you might consider them a slightly distinctive floorstander. It's a speaker that makes much more sense seen in the flesh – the distinctive dimples down the side of the cabinet and the slight rake to aid time alignment mean that it is far more than a big white box, but a genuinely interesting object in its own right.

As a system, the effect is striking without dominating the room. The electronics have a presence that is greater than their size might suggest mainly down to their lines and the attention to detail that's been lavished on their design and construction. The speakers feel equally special and their striking design makes them furniture in their own right. The overall impression is of a system that isn't afraid to be hi-fi, but goes about it in a different way to the norm.

### The in sound from way out

The sonic performance is similar to the aesthetics in many ways. This is unquestionably hi-fi, but like those stylish exteriors, there is a real-world ability that is deeply impressive. The Kings of Leon's *Mechanical Bull* suffers from most of the worst excesses of modern mainstream recordings, but





this system manages to soothe these issues out of the way and find the enjoyment this album has in spades. The Oxygen amp is a fantastic demonstration that the topology of an amplifier matters much less than the execution. The potent bass and sense of agility might be seen to be a hallmark of Class D, but the sweetness and detail that it brings to vocals is something you might not have previously felt a Class D amp could deliver like this one can.

### Wall of sound

Some of this appealing tonality is down to the happy synergy between amp and CD player, but the latter has a raw ability that is very impressive. Listening to the barely contained fury of *The Downward Spiral* by Nine Inch Nails, the Roksan has absolute control and unpicks the dense layers of music into a well-defined and expansive soundstage that makes this recording work where so many rivals simply present a wall of noise.

The role of the Darius speakers in this even handedness is extremely important too and makes a hugely convincing case for designing speakers and electronics together. The Darius is more understated sonically than the bold looks might suggest, but this slightly self-effacing ability rounds off a system that is



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**WEBSITE:**  
roksan.co.uk

wonderfully easy to listen to for extended sessions. The ribbon tweeter avoids the slightest sense of brightness, but the attributes this type is praised for are well in attendance. The extraction of detail from massed musicians in The Cinematic Orchestra's peerless *Manhatta* is only something you notice when you listen to something less competent back to back. The Darius is never showy – the sort of well lit top end that beguiles in demonstrations, but is wearing after a

### As happy with small scale classical as it is a rock band tearing up a stadium

tough day in the office. There is simply no ambiguity to the placement of musicians and their relation to one another and their output is a body of individuals working in unison rather than a single poorly-defined mass.

The most significant attribute this trio possesses is that at no stage does this control and long-term listening pleasure ever tip over into a dull or safe sound. The characteristics of Roksan equipment that has earned it the following it has – a rhythmic and unfailingly musical sound that is as happy with small scale classical as it is

a rock band tearing up a stadium are preserved in the Oxygenes. What Roksan has done is retained its identity while doing something bold. You can sit down for a full-bore listening session, but this system will also delight if you pair up a tablet and send some Spotify to it – there is a real-world usability to it that means you find yourself using it and enjoying it all the time.

### Access all areas

And it is this accessibility that makes the Roksans so special. They are genuinely wonderful devices to interact with and the quality of the execution means they meet their hugely ambitious design premise. They are unapologetically distinctive, but spend any time with them and it is clear they are sufficiently well implemented that you don't find any of the styling cues or ideas a pain. This is further aided by the way it sounds. This is a system that is unfailingly capable at finding the musical message. The balance it walks between flattering less than perfect recordings while extracting every nuance of brilliant ones is key to its charms. The Oxygenes are the hi-fi equivalent of a really good pair of shoes, as happy at the pub as they are in a work environment – and that is the hallmark of truly great design ●





# BBC Radiophonic Music

Unlocking the BBC Maida Vale studios' broom cupboard of retro-futurist sonic invention, **Simon Berkovitch** steps into his TARDIS to see what the fuss is about

**W**ith its recent 50th anniversary, the profile of *Doctor Who* has never been higher. Yet no celebration of this institution is complete without a tip of the hat to one of the most recognisable pieces of electronic music ever written – the programme's theme tune. Ron Grainer may have the writing credit, but it's Delia Derbyshire's remarkable realisation that ensures her then-place-of-work's page in the history books.

Established back in 1958 by composers Daphne Oram and Desmond Briscoe, the BBC Radiophonic Workshop was set up to provide the corporation's

drama department with weird and wonderful sound effects and electronic compositions. Based in the BBC's Maida Vale studios, London, its practitioners drew inspiration from avant garde techniques and realised those wild ideas by pushing reel-to-reel tapes, oscillators, diodes, found sound and self-created gadgets and instruments to their absolute limit. Unconventional and underfunded, members dedicated themselves to birthing previously unheard sounds in an environment that looked like a Heath Robinson drawing come to life.

Youthful talent such as Delia Derbyshire, John Baker and

David Cain approached this task with a healthy disregard for convention. Backwards tapes, painstakingly constructed loops, rhythmically treated non-instruments and white noise all combined to create some of the sixties' most memorable, offbeat and downright innovative soundscapes, jingles, sound effects and TV themes – with Derbyshire's *Doctor Who* theme sitting atop the pile.

By the seventies, whooping oscillators gave way to expensive analogue synthesisers – such as the EMS VSC3 (also used by Brian Eno in *Roxy Music*) and Synthi 100 – and a new breed of composers, including Malcolm

Clarke (Pertwee-era *Doctor Who* synthscapes) and Paddy Kingsland (incidental music for 1981's *The Hitchhiker's Guide To The Galaxy* TV series).

Unfortunately, cuts at the BBC led to the Workshop's closure in 1998, 40 years to the day after it had opened, yet it continues to cast a long shadow into the 21st century. In recent years, its spirit has been found alive and well in the inventive, often playful, work of electronic alchemists such as Aphex Twin and Mordant Music to name but two.

Let's set the TARDIS for 1958, hit the dematerialisation button and go back to the source of the sound of the future...



## Daphne Oram

The Godmother of the Radiophonic Workshop

**D**aphne Oram led a life of firsts, including being the first woman to head an electronic music studio – the legendary Radiophonic Workshop, of course.

Her BBC career began during WWII, joining the corporation as a junior studio engineer. Her interest in tape recorders, electronic music and *musique concrète* did not go unnoticed. Asked to compose music for a 1957 BBC play – *Amphitryon 38* – Oram's title composition may have been under a minute long, but its impact was explosive. With its sine wave-generated oscillations, the music was wholly derived from synthetic sources. This was the first time that the BBC had commissioned such a work – and one of the first occasions in which the general public had been exposed to electronic music.

Oram's score is the most significant composition in the history of the Radiophonic

Workshop – it directly led to its foundation. She and fellow composer Desmond Briscoe were given a budget to set up the Workshop in 1958. She assumed the role of studio manager, yet, less than one year on, she resigned, increasingly dissatisfied with the BBC music department's lack of interest in her work.

### Amphitryon 38's impact was truly explosive

Her tenure at the Workshop was brief, but her influence is immeasurable. Post-Workshop, she set up her own studio, providing electronic music for radio, TV and film. She also created the 'Oramics' compositional machine – included in a major exhibition of electronic music at London's Science Museum in 2011. Sadly, she died in 2003.

**Oram's stint at the Workshop was brief, but instrumental**



## Delia Derbyshire

Meet the woman behind sci-fi's greatest-ever signature tune

**T**hanks to Delia Derbyshire, on 23 November 1963, avant-garde music was no longer for the elite; it arrived in every home in the country, thanks to her brilliant work for a new BBC sci-fi drama – *Doctor Who*.

Although prolific, Derbyshire's arrangement of the *Doctor Who* theme alone guarantees the Radiophonic Workshop's poster girl immortality. This legendary assignment was one of her first for the Workshop and undeniably the most memorable of the hundreds of radio and TV programmes Derbyshire blessed with her genius.

Veteran composer Ron Grainer may have written the music for *Doctor Who*, but it's Derbyshire's treatment that transforms a children's TV theme tune into one of the pinnacles of 20th century electronic music. Some of Derbyshire's other best-loved work – such as the beautiful *Blue Veils and Golden Sands* – also

appeared as incidental music for the show throughout the sixties.

Derbyshire's extra curricular activities included her participation in projects to promote electronic music, such as 1966's Unit Delta Plus (with fellow Radiophonic Workshop composer Brian Hodgson and

### The Doctor Who theme guaranteed immortality

EMS founder Peter Zinovieff), the band White Noise, who released the classic album *An Electric Storm* in 1968, and compositions for music libraries, some of which were used on *The Tomorrow People*. Like her predecessor, Oram, she left the BBC in 1973, disillusioned. Derbyshire returned to music in the late nineties, leaving an unfinished album at the time of her death in 2001.

**Doctor Who introduced the Workshop's music to the masses**





# John Baker

Painstaking tape editing meets jazz-tinged compositional flair

**J**ohn Baker's instinctive flair for rhythm, love of jazz and an ear for meticulous tape splicing ensured him a unique place in the ranks of the Radiophonic Workshop throughout his tenure. His combination of talents made him a popular choice for signature tunes for regional BBC TV and radio – as well as popular programmes such as *Blue Peter* and *Newsround*.

Educated at the Royal Academy of Music, classically trained Baker joined the BBC in 1960. He was assigned to the Workshop in 1963 and stayed until 1974.

His work is distinctive in its use of sonically manipulated household objects to add rhythmic colour to compositions – years before samplers, synthesisers and multi-track tape recorders made this commonplace. One Baker innovation was to record the twanging of a ruler

on a desk, for example, change the speed, alter the sound's pitch and compose a melody from the various sounds. Despite being a workaholic

while a Workshop member, he added nothing more to his discography after his departure, unfortunately beset by personal problems.



# David Cain

From catchy jingles to eerie poetry and electronic oddness

**D**avid Cain joined the Radiophonic Workshop in 1967. Jingles and signature tunes were his forte, as well as creating the incidental music for radio adaptations of classic novels, like *The War of the Worlds* (1967) and *The Hobbit* (1968) – the best of which can be found on Reflex's *Music From the BBC Radiophonic Workshop* compilation (right).

Cain – in collaboration with poets Roland Duncan and Derek Bowskill made one of the strangest LPs that emerged from the doors of the Workshop – and one of the most sought after.

*The Seasons* was issued on LP in 1969, intended as a resource for drama workshops in schools. It's not hard to imagine secondary school kids – and teachers – being spooked by the unexpected weirdness lurking in this record's grooves: eerie poetry drifting atop

Radiophonic oddness – created by wave generators, filters and varisped tape machines – and haunting pastoral acoustic instrumentation.

A major influence on Workshop fans *The Seasons* is a beautiful, unsettling LP that disappeared on release, but has since been reissued.



## SHOPPING LIST

The output of the Workshop has been well documented, so here are eight choice cuts from inside and outside of the BBC's Maida Vale studios...



**Daphne Oram**  
*Amphitryon 38*  
The radical piece of music that got the whole show on the road. Attune your ears to the genuine sound of the future...



**Ray Cathode**  
*Time Beat*  
Maddalena Fagandini joins forces with a pre-Beatles George Martin for this eccentric sixties instrumental.



**Delia Derbyshire**  
*Doctor Who*  
As otherworldly a record as Joe Meek's *Telstar* – as well as being the crowning achievement of the Workshop.



**John Baker**  
*New Worlds*  
A great showcase of Baker's skill for manipulating the sound of everyday objects – and the theme music for *Newsround*.



**White Noise**  
*An Electric Storm*  
Delia Derbyshire and Brian Hodgson teamed up with David Vorhaus to produce this astounding LP for Island records.



**Russe/St. George/Vorhaus**  
*Standard Music Library: Electronic Music*  
Much of this library music was used in kids' drama *The Tomorrow People*.



**Paddy Kingsland**  
*The Changes (Suite)*  
The soundtrack to the cult TV series is a fusion of Indian instrumentation and vintage synthesisers.



**Peter Howell**  
*Greenwich Chorus*  
This Vocoder-heavy gem is a superb example of some of the Workshop's often overlooked eighties output.



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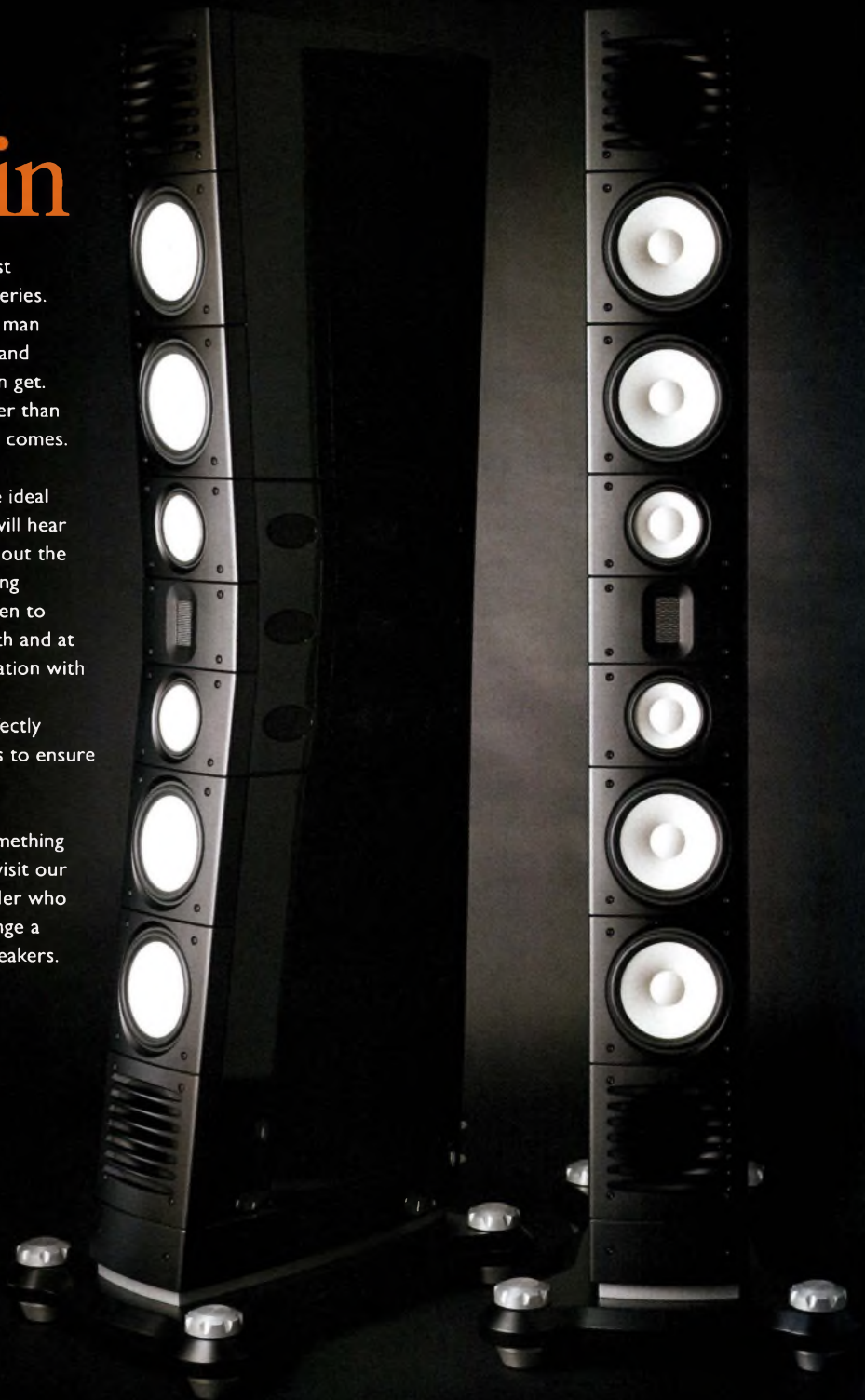
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**100 Grateful Dead**  
Sunshine Daydream

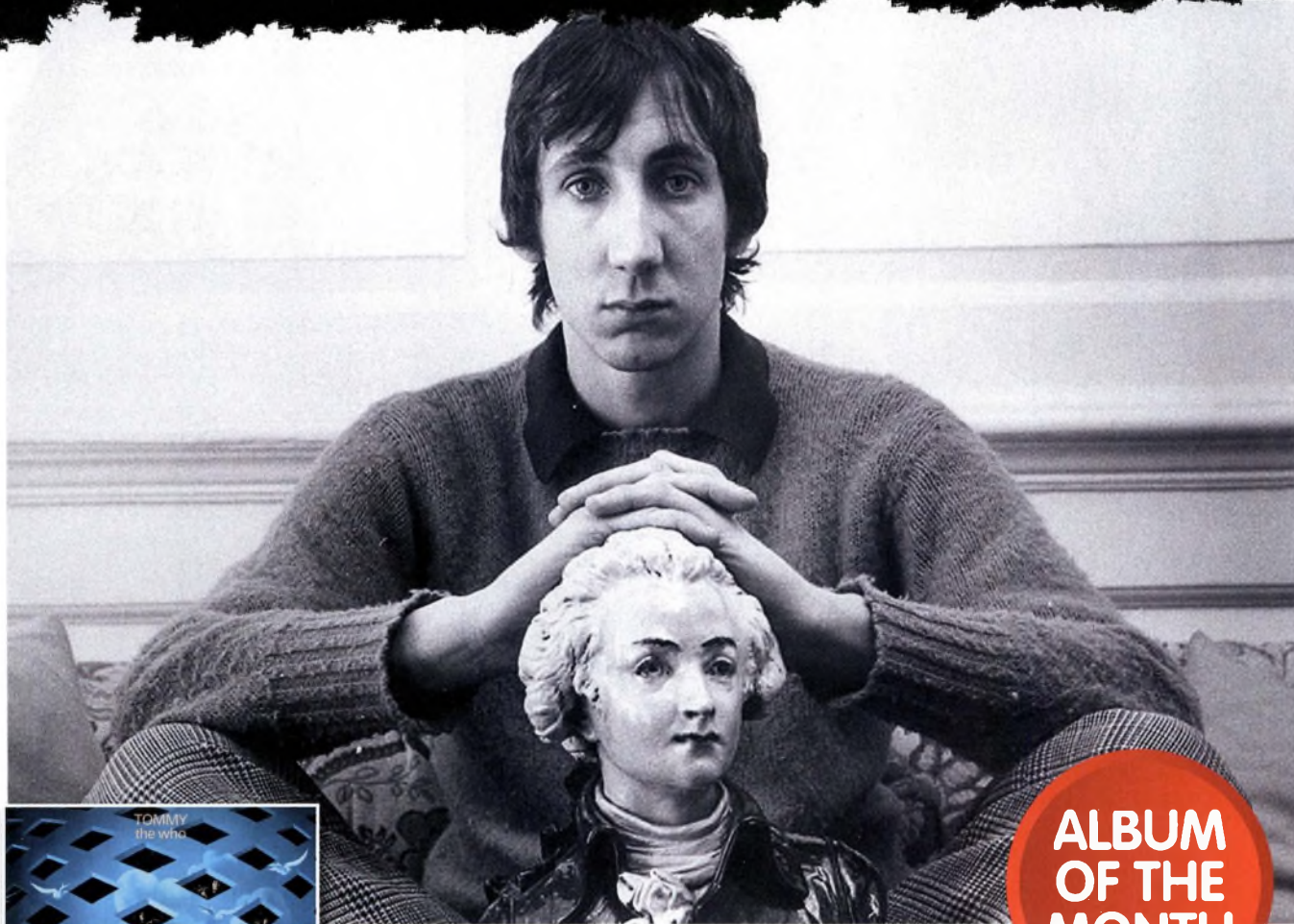


**100 Morcheeba**  
Head Up High



**101 Chopin**  
6 Polonaises  
Rafal Blechacz

# Musicreviews



## The Who Tommy Deluxe

★★★★★

**ALBUM  
OF THE  
MONTH**

Four-CD set **Universal**

**CONTRARY TO POPULAR** opinion, Pete Townshend's famous story of the pinball playing "deaf, dumb and blind kid" was not the first 'rock opera'. By the time *Tommy* appeared in 1969, the Pretty Things had beaten The Who by a year with their album, *SF Sorrow* concept. Nor is it even the Who's best 'rock opera' and most critical opinion now recognises *Quadrophenia* four years later as a more mature and fully realised work. But that said, there is no denying that *Tommy* is a landmark album and represented a new pinnacle of ambition that opened up possibilities previously unimagined in rock music at the time. In the years that followed its release, *Tommy* became not so much an album as an industry. A grandiose 1972 version featuring the London Symphony Orchestra and Chamber Choir was followed by Ken Russell's 1975 film. By the nineties they had been joined by a Broadway stage production. Townshend has also reprised the

work regularly on stage with The Who and two years ago lead singer Roger Daltrey took his own solo version of *Tommy* on the road.

These expansive spin-offs have tended to take the focus away somewhat from The Who's original 1969 album and this latest deluxe reissue allows a welcome opportunity to return to the source in a freshly remastered edition, augmented with further discs including Townshend's original demos, full-band studio outtakes and a dynamic live recording of the work from a 1969 concert performance in Ottawa, Canada.

Townshend's skills as a songwriter ensured that the majority of the tracks are capable of standing on their own and can be enjoyed outside the 'operatic' concept'. *Pinball Wizard*, for example, ranks alongside any of the Who's early chart singles as a classic three minute pop song, while the "We're not gonna take it/See me, feel me/Listening

to you" sequence remains one of the most dramatic in rock music. Some of the character pieces such as *Fiddle About* and *Cousin Kevin* have proved less enduring and seem clumsily constructed to advance the plot. Today words such as groundbreaking and ambitious still apply, but overall it's hard not to conclude that *Tommy* struggles to live up to the genius tag bestowed upon it at the time. If it is a masterpiece, then it is a distinctly flawed one.

The bonus material adds an interesting insight into how Townshend grappled with the enormity of his ambition and built up the tracks by multiple overdubs featuring not only the power trio of bass, drums and electric guitar, but acoustic guitars, piano, organ trumpet and French horn. The remastering works hard at creating a warm and natural tone to the original tracks and the 5.1 surround mix on Blu-ray has a sharp clarity **NW** ▶





HOT PICK



Grateful Dead

Sunshine Daydream

★★★★★

3 CDs plus DVD

Rhino

ON AUGUST 27, 1972 the Grateful Dead played a show in Veneta, Oregon that has since attained legendary status as the Holy Grail among fans who trade tapes of the band's concerts. It has taken more than 40 years to be officially released, but the three-hour set justifies the show's exalted reputation as every style and genre of American music is cosmically transmuted into some of the most audacious, freewheeling rock'n'roll ever made.

The Dead recorded all their concerts direct from the soundboard and stored

**This is perhaps the ultimate must-have Dead album – the finest show they ever played**

everything methodically on 16-track analogue tape in a vast vault. Painstaking restoration and remastering of the 40 year-old tapes has resulted in pristine sound. For a band that was always more comfortable on stage than in the studio this is perhaps the ultimate must-have Dead album, a celebration of what many believe to have been the finest show the band ever played. **NW**



The Waterboys  
Fisherman's Box

★★★★★

7 disc box set

EMI

**THE ALL-EMBRACING FUSION** of folk, country, Celtic roots and roots rock that Mike Scott's band fashioned on 1988's *Fisherman's Blues* made for the Waterboys' finest hour. Yet until now we've only tasted a few choice morsels from a vast ocean of material the band produced. Across 121 session tracks arranged chronologically we hear a canonical album being written before our ears, like a great painter opening his sketchbook and revealing how a masterpiece is created. The results might've been fragmentary and tedious, but the impulse behind the music is so warm and generous that instead it's quite thrilling. **NW**



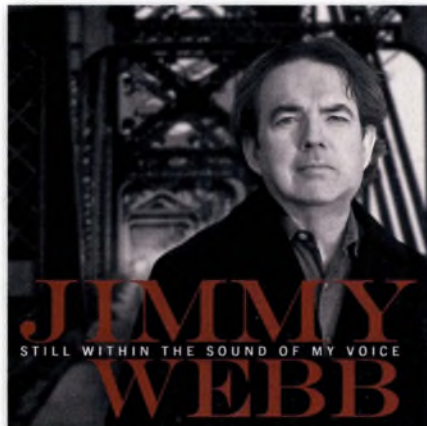
Morcheeba  
Head Up High

★★★★★

CD

PIAS

**THE LONDON-BASED ELECTRONICA** and trip-hop pioneers are back with another clutch of finely crafted downtempo tunes. After breaking with the group for a few years, original singer Skye Edwardes is back and her voice is as voluptuous as ever. With the help of a coterie of special guests including Rizzle Kicks and Jurassic 5's Chali 2na, Skye and the Godfrey brothers have concocted a typically slick and nuanced sound while never forgetting that a noddy beat needs a great tune to make it perfect. Standouts include the first single and anthem-in-waiting *Gimme Your Love* and the hooky, driving rhythm of *Face Of Danger*. **DO**



Jimmy Webb

Still Within The Sound Of My Voice

★★★★★

CD

Membran

**THE LEGENDARY SONGWRITER** behind *By The Time I Get To Phoenix* and *Wichita Lineman* follows his *Just Across The River* album from 2010 with a trawl through his extensive back catalogue in the company of rock royalty. The arrangements are for the most part tasteful, quiet and slow, designed to be savoured in private, accompanied by a melancholy mood and a glass of wine. Carly Simon pops up to trade verses on a mellow version of *Easy For You To Say*, Joe Cocker lends his croak to *The Moon's A Harsh Mistress* and there's also a delicate acoustic guitar-led version of *MacArthur Park* sung by Brian Wilson that's a world away from Richard Harris' overwrought original. **DO**



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AUDIOFILE VINYL

★★★★★

Mary Black  
No Frontiers

180g vinyl

Pure Pleasure/3ú



**NO FRONTIERS WAS**

Mary Black's 1989 breakthrough album, spending a year in the Irish top 30 and producing the hit *Columbus*, which made her name well beyond

the Emerald Isle. It even made the hallowed ground of *HFC Blind Listening Tests* back in the day. It is, therefore, ripe for a re-issue and sounds very sweet indeed on Pure Pleasure's new cut, which comes in a full gatefold sleeve. This album is a great showcase for Black's clear, strong voice and the skills of her largely acoustic instrument

equipped band. They play with heart and precision, working with rather than behind the central voice. While there are a number of fine tunes on *No Frontiers*, *Columbus* seems the strongest. It was written by Noel Brazil who contributes three of the better songs on the album. The title track is also excellent, lyrically and musically it gets to the heart of the matter in elegant fashion; it's easy to hear why it has become a standard in Black's homeland. Say *A Little Prayer* is less successful largely because it comes with the baggage of previous incarnations that would be difficult for anyone to equal, but one can forgive a little indulgence in an otherwise remarkable example of its genre. **JK**



## HIGH RESOLUTION DOWNLOADS



### Emily Barber Dear River



24-bit/96kHz

Linn records

**THIS IS SOMETHING** of a twofer collection: two versions of the same songs, one with electric guitar and another with acoustic accompaniment. That's the sort of trick that you really need the class of a Richard Thompson to pull off. Barber is not in RT's league, but she writes sweet, light-hearted songs and has a pleasant voice. The 24/96, Calum Malcolm recording is fine and complements her voice and band exceedingly well. **MS**



### Peter Gabriel And I'll Scratch Yours



16-bit/44.1kHz

Bowers & Wilkins

**THIS FOLLOW UP** to the *Scratch My Back* album, in which Gabriel performed covers of a dozen of his favourite songwriters, allows some of them to re-interpret a selection of his songs, including a magnificently downbeat, distortion-ridden *Solsbury Hill* performed by the superbly curmudgeonly Lou Reed, who sounds possibly – some might say appropriately – less inspired than the others included, in particular Paul Simon and his quite touching cover of *Biko*. **MS**



## Chopin

6 Polonaises; Polonaise Fantasia  
Rafael Blechacz



479 0928 CD

Deutsche Grammophon

**DG'S 1976 RECORDING** of these pieces still sets the standard by which all subsequent performances are judged. Blechacz has a solid technique and he plays these (mostly) virile extrovert pieces with plenty of bravura. There is perhaps a lack of poetry at times; a lack of inwardness and repose. But the old Pollini set is likewise a little brusque in places, and it's perhaps better to err on the side of assertiveness rather than play the music too delicately. DG's recording sounds very natural and true, capturing even the loudest fortes with ease – though whether your amplifier and loudspeakers can reproduce them without flinching is another matter! **JH**

**Setting the standard by which all subsequent performances are judged**



### Bartok Violin Concertos 1 and 2; Isabelle Faust, Swedish Radio Symphony orchestra, Daniel Harding



HMC 902146 CD

Harmonia Mundi

**THE TWO CONCERTOS** for violin by Bartok are very contrasting pieces. The early first concerto, by turns lyrical and ardent then animated and grotesque, and the mercurial folk-inspired second concerto each inhabit very different worlds. Isabelle Faust makes the most of these extremes, and one is constantly astonished by the swings of mood and variety of pace, especially in the second concerto. She is admirably seconded by Daniel Harding and the SRSO, and Harmonia Mundi's recording sounds effortlessly smooth and refined, despite a wide dynamic range and some impressive deep bass. **JH**

## BLU-RAY DVD



### The Rolling Stones Stones in Exile

DVD

HOT PICK



In 1971 The Rolling Stones left the UK as tax exiles and spent a summer in France writing and recording *Exile on Main Street*. This documentary tells the story of the decadence of the time interspersed with the songs that ended up on one of their most influential albums. The extensive footage and stills give a real flavour of the place and time, while extended interviews with the band and others fill in the details that didn't make the final cut. What's most remarkable is how such a shambolic situation resulted in such great music. **JK**

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**KUDOS** X2 speakers £700. Naim Nait XS amplifier with sonic bliss PSU and Flashback Cables Y Performance cable £700. Both boxed in excellent condition: **07794339784** (Nottingham).

**YAMAHA** AX863SE 7.2

AV Amp with KEF5005 6.1 surround sound system with REL acoustics quake sub-woofer. Excellent Condition. Boxed with manuals. £400 ONO: **01772 719653** (Preston).

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**REGA** RS3 speakers for sale. Excellent condition, cherry finish. £375. Buyer to collect: **07940 659 3840** or email: [davidwhatley@gmail.com](mailto:davidwhatley@gmail.com) (Brighton).

**WANTED** Linn Lingo Mk 1 (shoebox size) PSU for LP12, must be in good working and aesthetic order and come complete with internal interface board, switch, interconnect and power lead: **01159894266** or email [hanumike@gmail.com](mailto:hanumike@gmail.com) (Nottingham).

**RADFORD** STA25 series 3-valve power amplifier. It has been cherished by myself for the last 15 years. I am reluctantly downsizing hence low £900 OVNO. Silver High Breed Epitome 8



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interconnects with phonos £50: **02476 679165** or email: [davidhirst244@02.co.uk](mailto:davidhirst244@02.co.uk).

**THORENS** TD160S with Rega RB202 arm, in very good condition, arm has ISO Stub End £300 ONO. Please email for photo set & pick up address: **07806658731** or email: [wright08jonathan@hotmail.com](mailto:wright08jonathan@hotmail.com) (Leicestershire).

**DYNAVECTOR** P75 phono amp MM/MC. Excellent record reproduction £110: **01903 260310** (Sussex).

**MERIDIAN** 588 CD player. Very low hours (been in its box most of its life), XLR and RCA outputs. Can demo £875: **07973 426291** (Birmingham).

**200** Hi-Fi magazine for sale. *Hi-Fi Choice*, *Hi-Fi News*, *Hi-Fi World* £120 ONO Buyer collects: **01484 427426** (West Yorkshire).

**MISSION** 751 standmount speakers, rosewood finish, good condition but not boxed, complete with manual. Prefer buyer to collect. Ideal for medium-sized room £25: **01908 645353** (Bletchley).

**MANA ACOUSTICS** six-tier equipment rack £350. One turntable with reference top £250. Two power supply tables £50 each. Buyer to collect: **07860155521** (Middlesex).

**REGA** ear headphone amp, black, boxed £80. 5 x 1m Chord Silver Siren interconnects £25 each or 5 for £100: **07936 518220**

(Swansea).

**NAIM** X2 Hi-Caps, Naim NAC 82, Naim SBL speakers (walnut finish): **01623 230472** (Notts).

**WANTED** singletannoy GRF corner cabinet with silver duel concentric cone, walnut finish. Cash waiting, will travel: **07983 722880** (Bristol).

**PURE** Power P700 mains regeneration unit, three years old £600 ONO. Rega Planarr 3, Acos-type arm, spare headshell with Ortofon VMS 20E MkII. Turntable needs attention £50: **01652 640088** (Lincolnshire).

**KUZMA STABI** S/Stogi S/ Martin Bastin digital supply. New. Mint. (£3,350) £1,500. Croft Charisma X preamp. MM input. Separate power supply. Re-valved. VGC (£3,750) £1,000: **01453 519700** (Gloucestershire).

**MAGNAPLANAR** SMGA speakers for sale, one owner from new, great di pole sound, too big for new flat £125: email: [bernkarm@yahoo.co.uk](mailto:bernkarm@yahoo.co.uk) (Essex).

**RUSS ANDREWS** Signature Powerkords x2, 1m length. Wattgate 350l AG IEC Plug (RRP £440) £300 each or £290 collected. Mint condition, smoke-free environment: **01902 884694** or email [jukey39@yahoo.co.uk](mailto:jukey39@yahoo.co.uk) (Dudley).

**LFD** NCSE integrated amplifier (number 187).

**BUYING TIPS** **BUYING SECOND-HAND** can be a great way to pick up a bargain. A formerly expensive second-hand component might well prove a better long-term bet than a brand-new product if the price is right. **DO SOME RESEARCH** on which brands have a good service back up, so if something does go wrong, you can get it fixed. Unless you purchase from a dealer, you're unlikely to get any warranty, so it's up to you to ensure the fitness of any gear that you buy. **USUALLY** speakers should be less prone to breakdown than amps, and amps should be more reliable than CD players. But any abused component could be trouble – have a proper demo and judge the seller as well as the goods!



Gun metal grey finish, mint condition, one year old, very little use. Have original box, packaging and user leaflet (£4,500) £2,250 ONO excludes postage: **+353 87219 4900 (Co. Antrim).**

**ROKSAN** XPlatinum pre-amp PR15B-black, remote, manual and boxed, 1 owner excellent condition. 5 line ins including 2 XLRs (1 for A/V) plus 1 tape in/out and 2 twin pair outputs (phono + xlr)!!! £1,200 ONO: **07812 935242 or email: dubmaster@talktalk.net (Surrey).**

**ARCAM** A85 integrated and P85 power amp in silver with oak finished PMC TB2s that have had the '+' tweeter upgrade. £600 ONO: **01795 522448 or email: reynolds853@hotmail.co.uk**

**ATC** SCM 11 black, 18 months old, mint, little use, 4yr warranty, original packaging, documents, cash £750 (£1,150) buyer collects. Atacama stands £45. REL Quake sub £75: **07733 428736 or email: gill@gillbrears.plus.com (Huddersfield).**

**WANTED** late van den Hul Frog gold cartridge. One requiring repair considered. White Beauty also considered: **01505 346791 (Renfrewshire).**

**DYNAUDIO** Excite X16 Speakers £300 ono (£1000+ new). Dark cherry real wood veneer. Includes Apollo speaker stands - floor spikes, welded construction and filled with silver sand, plus bungs for rear ports. Four years old, but treated well and in good condition, no boxes. Minor cosmetic blemishes to the underside of one speaker and the side of another. Will deliver within a 30 mile radius otherwise buyer collects: **01489 582325 or email: lowtherman1@gmail.com (Fareham, Hants).**

**MONITORAUDIO** R270HD Floor standing slim speakers piano black lacquer 12 months old £350. Monitor Audio Bronze BXW10 Subwoofer walnut £250 both excellent condition: **07800 606892 or email: schandler@dopag.co.uk (Worcestershire).**

**CHORD** Epic Twin speaker

cable, 3m pair bananas (£293), £140. Chord Chorus 2i/cs, 1m RCA (£280), £120. Chord Cadenza VEE i/cs, 1m RCA (£200), £100 or £325 for the Chord set. Audioquest CV-6 (with 32V/dBs battery) speaker cable, 10ft pair bananas (£400), £140, Audioquest King Cobra i/cs, 1m RCA (£215), £105, 0.8m RCA (£95) or £295 for the Audioquest set. Van den Hul The First Ultimate 2 i/c, 0.6m RCA (£250), £110. All VGC and in original packaging: **07772 711432 or email: richard.schofield@kcl.ac.uk (Bucks).**

**LEHMANNAUDIO** Rhinelander headphone amplifier, the critically acclaimed amp, only a few months old in perfect condition, complete with manual, £199: **01303863424 (Kent).**

**AVI** Neutron V speakers. In piano black gloss, as new condition, hardly used. Boxed, £240: **01642559204 (Cleveland).**

**DENSEN** B110 amplifier in silver, recently upgraded to + version £875. Gizmo remote in black £85. MM phono board £85. Or all for £995. Can demo, buyer collects: **075011 30403 (Southampton).**

**SPENDOR** A5 compact column loudspeakers, black, unmarked, boxed, exquisite sound £1,100: **01952 728773 (Shropshire).**

**BOWERS & WILKINS** pair floorstanding 683 speakers. Red cherry finish, unmarked and occasional use, factory packing £575: **01908 376966 (Bucks).**

**WANTED** Marantz AV9000 pre-amp. TEAC X1000R reel-to-reel. Buyer will collect: **01243 860634.**

**MONITOR AUDIO** M8 Gold, floorstanding speakers. Purchased in 1993 costing £1,100. Good condition. £150 to a good home: **stephen.geary2@ntlworld.com**

**LINN** LP12, fluted corner braced plinth, full Cirkus Upgrade, latest laminated Armboard and Lingo Power Supply. Fully loaded bearing with red cap so ready to go. In excellent condition with original boxes and internal packaging, together with set up instructions for

the LP12 plus the Lingo manual. £765. Linn Ittok LVII Tonearm in very fine condition - only marks are on the headshell where the cartridge has been fitted. Bearings are beautifully smooth. Comes complete with accessories and Linn packaging. Serial number is 5021438. £450: **0121 7041188 or email: boballen@sky.com (Solihull, West Mids).**

**BRING** your Linn LP12 up to date! I have a lovely brand new Cherry plinth bought from Grahams, but ended up having a black one instead. Half price £200: **0208 5242181.**

**WANTED** amplifier in mint/near mint condition for vinyl turntable: **01305814033**

**MUSICAL FIDELITY** M6 preamp, M6 CD player, F15 power amp. All silver, all boxed, as new: £800 each. Martin Logan Odyssey speakers excellent condition: £1,000. New home forces sale: **07581 390 326 or email: keithsunasky@outlook.com.**

**NUFORCE** Icon HDP DAC/headphone amp. 24/192 coax/SPDIF 24/96 USB + 3.5mm inputs RCA/6.3mm outputs. Drives to 96mW @ 600 ohms. Good condition, £400 new; £190 ono +post/pick up: **0779244536 or email: drherd@talk21.com (Edinburgh/Lothian).**

**YAMAHA** AS500 with Yamaha YDS12 for iPod etc, as new boxed £159: **02392 453382 or email:**

**alanmcleod535@btinternet.com .**

**CHORD** Indigo XLR balanced interconnects 1m, immaculate condition (£1,340) £495 ovn: **01159288006 or email: Rolfjordan@Gmail.com Nottingham.**

**GAMUT** L3 standmount speakers. Birds eye maple. Superb condition. Grilles, manual etc. Demo welcome. Collection only. Fantastic sound and stunning looks. £1,925 ono (£5,400): **07725 072878 (Leics).**

**CHORD** Cobra Plus sub signal leads, 10m (£147), 3m (£70): £100 for both plus postage. Ecosse Baton II Ref Interconnects 0.8m (£100): £50 plus postage. Russ Andrews RGB Scart (£200) £60 plus postage: **01772 812992 (Preston).**

**ATLAS** Elektra 1m XLR balanced interconnects. Boxed. Fantastic sound and condition. Can be heard before purchase. £185 ovno: **01159288006 or email: Rolfjordan@gmail.com (Nottingham).**

**PIONEER** CS-301 speakers in black finish £45, Mordaunt-Short MS235 speakers in wood finish £45, Bang & Olufsen P30 speakers in wood finish £75: **01302 772495 or email: adrian.petch@btinternet.com (Lincolnshire).**

**MARANTZ** PM6003 integrated amplifier, well reviewed, in mint condition, boxed with manual, light use, bargain, £100. Buyer to collect: **01253 856422 (Lancashire).**

**MISSION** 792 speakers, matching stands, gloss, excellent condition £350. 4 Russ Andrews 1m Power Max IEC cables £25 each. Kimber 4VS speaker cables 2.5m terminated £60. Will post. Prices exclude p&p: **01772 468116 (Lancashire).**

**SUGDEN** Mystro amp with free Sugden CD 21 (£3,000) £500. As new, one owner. Celestion A3 top of the range speakers (£2,750) £500. Amp three years old, guaranteed until October 2014: **01246 224144 (Derbyshire).**

**SPENDOR** A6 floorstanding speakers. Oak finish, excellent condition. £1,100 ono. Can demo. Buyer collects: **01798475319 (Essex).**

**DENON** DVD-A1 DVD player (not Blu-ray) champagne colour with Denon D Link and remote/manuals. £300. Denon AVC-A1SR amp, champagne colour. With remote and manuals. £350: **07767 270242.**

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## Bowers & Wilkins P7 headphones

**THE LATEST AND** most expensive Bowers & Wilkins headphones are also the most desirable. The smell of the leather as you open the box, the contrast of chrome and black, it all says luxury. You also get a lot in the box. There are two alternate cables, one for use with Apple portables with inline volume and play/pause control, and another straight wire (without gain) for more discerning listeners. There is also a good quality pouch and a mini to standard (3.5mm to 6.3mm) jack adaptor. The P7 phones are largely devoid of plastic which is why they look so sexy, the chrome plated metalwork looks robust, but doesn't make them heavy – they feel secure, but light on the head although they weigh a confidence-inspiring 290g. The earphones are folding thanks to a clever hinge mechanism that makes them reasonably compact.

### Lend me your ears

The earpads are large enough to fit around most ears and have a dual cavity cushion design that is said to maintain a consistent volume of air between drive unit and head, there's no foam here. Each pad is magnetically attached to its earphone and the left one requires removal in order to change cables, this also reveals just how shallow the actual enclosure is. Each one harbours a 36mm cone driver with a small roll surround, which is an unusual approach in headphones where the cone and surround are generally the same material. Bowers & Wilkins has also put a lot of effort into the baffle design, this has bracing for rigidity and is perforated for sonic ventilation, the holes being covered with a mesh that controls radiation from the rear of the drive unit. It's more – it would seem – than just a sexy looking pair of cans.

Paired with an iPod and using the iPod cable the sound is pretty open for a closed-back design and has reasonable if not terribly exciting bass, but it goes down a ways. The in-line remote is intuitive to use and is possibly worth sticking with if you need instant control, but as soon as I



swap over to the standard cable the sound takes a giant leap (for sound kind) in the right direction. This is clearly a revealing headphone because without that little lump in the cable it's delivering extremely entertaining results with excellent definition across the board and far greater resolution of leading edges. They time really nicely with this cable and the bass has shape and texture, the overall effect being to make the music more interesting and engaging. In truth it's hard to imagine anyone wanting to use the Apple control lead with a headphone of this transparency, whatever the source.

I move over to a Russ Andrews headphone amplifier to get a better idea of the P7's capabilities, a move that much to my surprise doesn't make as big a difference as the cable. This could be because I listen at quite low levels on headphones and the iPod has enough juice to drive the P7s, I am also streaming music from the same source; a NAS drive, so the quality is close. But the amp does give a bit more dynamic punch, detail and low-end solidity, and opens up the mid and top nicely. Now it is quite easy to drift away with the music, especially Billy Gibbons' solo on *Snappie Kakkie* (ZZ Top – *Tejas*). This reveals the P7's strength with transients as well as its overall transparency, there is plenty of

texture and tone to get your teeth into. This sounds like the result of a slight lift in the upper midband, but it works well with the gently boosted bass that only occasionally makes itself heard. It is easy to distinguish between high-quality streamers thanks to the P7's resolving qualities in both the spatial and timing departments, but even easier to enjoy the likes of Gregory Porter giving it his all – *Liquid Spirit* is pretty remarkable when heard with headphones of this calibre.

### P for perfect?

The P7 is a very good headphone for those who want to enjoy their music in the home and on the move – you find something better for quiet environments by looking for an open-back design, but as portability is so important today I suspect that Bowers & Wilkins is on to a good thing. There's also the bling factor to consider when you're out and about and in this department the P7 has very little serious competition. That coupled with its obvious ease of drive make it a tempting proposition for anyone looking to up their musical enjoyment and their street cred. Just be sure to remember to throw away the iDevice control lead as soon as you open the box and it'll be top-notch light entertainment all the way. **JK**

#### DETAILS

PRICE  
£330  
WEBSITE  
[bowers-wilkins.com](http://bowers-wilkins.com)

#### OUR VERDICT







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# Dali

## Fazon Mikro speakers

**THERE'S NO SHORTAGE** of micro speakers on the market, most of which are destined to live tortuous lives stuck in a corner of a cheap bar, playing James Blunt albums from a battered CD changer – or maybe in a student bedsit on the end of a PC, if they're lucky. But Dali's Fazon Mikros are different.

Normally, you'd expect to use them with a subwoofer. With a bass response falling off a cliff at 95Hz, you'd never expect a full-range sound with this baby box on its own. But if you ram it right up close to a rear wall it works surprisingly well. Using rear boundary reinforcement and rigidly mounted they can actually be turned into very effective performers!

Help out the Mikros' bass by clever positioning and you can enjoy their thrilling yet surprisingly smooth sound. You get a wonderfully tight, taut performance from (almost) bottom to top; the tiny drivers are so light that they machine-gun the music out at you with incredible fleetness of foot, making even the laziest of mid-west session drummers sound like Keith Moon after one too many cups of coffee!

### The light stuff

One reason for this is the aluminium cabinet; it's very light so doesn't store energy like a wood box stuffed full of cotton wool, and everything is bolted in place with surprisingly large allen bolts. Dali hasn't scrimped on the drive units either – there's a very passable-sounding 20mm soft dome tweeter crossing over to a 100mm pulp-coned woofer at 2.65kHz.

Another reason for the amazing speed is that they aren't ported, but this causes its own problems as you lose a good deal of sensitivity if you don't make a hole in the cabinet and reflex load the mid/bass unit. Read the quoted 84dB sensitivity figure and weep! With my reference Creek Destiny 2 amplifier, which packs 120W RMS per channel of power, this isn't a problem, but many will use a micro amp and such a thing will struggle with these power



hungry pixies! Dali recommends amplifiers of 30 to 120W, and claims its nominal impedance to be 6 ohms.

Overall quality of construction is excellent at the price, with a superb gloss lacquer finish to the magnetically shielded, metal cabinets. Behind, recessed push-button speaker terminals make connection easy. The grilles are removable, but the speaker sounds better balanced with them on, to my ears. Vital statistics are 196x113x96mm and 1.5kg.

Feed the Dalis a smooth, svelte sort of source like Audiolab's 8200CD, and they sing. What defines them is their combination of relative smoothness – there's no nasty shoutiness or tonal grain – and that dizzying transient response, which seems to make almost any full-size speaker sound fat, slow and bloated. It's not just out-and-out speed either, as they're very good on signposting the subtle dynamic accenting in the music, so you really get a sense of a rhythm playing, in almost anything you care to play. From Miles Davis' *So What* to Stereolab's *Spark Plug*, they seem to eke out the rhythm in the music like a heat-seeking missile, and bounce along having enormous fun.

Of course, you're never going to get the visceral low end you'd expect from a big floorstander, but the amazing thing is that what little bass they do have is so punchy and

propulsive that it somehow doesn't seem to matter. Sensing that immensely supple and expressive (upper) bass, your brain seems to fill in the gaps – so while you can't quite feel it, you still know the bass is there. In all seriousness, I find myself having a riotously good time with 4hero's 1995 drum'n'bass classic, *Parallel Universe*. What the Mikros lack in scale, they more than make up for with a wonderfully transparent and detailed midband, and sublime image projection – more than almost any other speaker I've heard, these seem to dissolve into space faster than a shooting star. The result is never less than riveting, real edge-of-the-seat stuff.

### Up against the wall

A great little box then, and thoroughly recommended. But be prepared to ram them against a rear wall, use a smooth, fulsome-sounding source and an amplifier with a good amount of wallop. Even then, they will never fill the Royal Albert Hall with sound, and if you're a headbanger then you'll hear them start to compress things at very high levels. If you can live with all these caveats, they have got to be one of the best ways of spending £300 on speakers. And it's nice to have a bit more room at home for your wine rack or record collection! **DP**

#### DETAILS

**PRICE**  
£298

**CONTACT**  
0845 6443537

**WEBSITE**  
dali-uk.co.uk

#### OUR VERDICT





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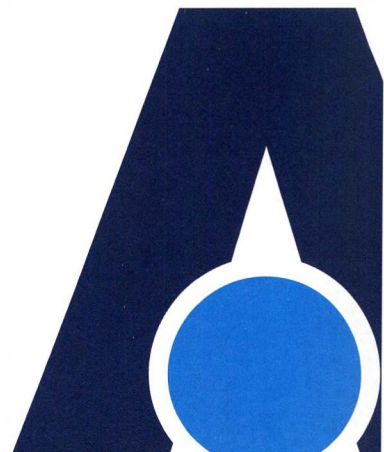


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# Russ Andrews

## PowerKord 100, 300 & 500

**THERE ARE A** lot of cable naysayers, folks who have difficulty accepting that analogue signal cables can make a difference let alone digital ones. For them the idea that a mains cable can have an impact on the performance of an audio component must be tantamount to heresy.

Whether you need to spend up to the highest price asked for Russ Andrews' latest range of PowerKords is really the only thing that requires debate here. There are three new models with the following prices for a metre: PowerKord 100/£150, 300/£230 and 500/£440. They come with a UK 13A mains plug and an IEC, or 16A IEC at extra cost. So not cheap, but if you want to spend less or even more, options exist in RA's extensive catalogue. These three replace the previous PowerKord range with a "geometrical matrix enhancement", possibly that means a change of weave in the Kimber Kable used and larger gauge earth conductors. The latter has long been a Russ Andrews theme so its logical to emphasise it in these cables, the difference between models basically comes down to the number of conductors. The PowerKord 100 has eight, 300 uses 16 and the fat 500 has 24. They have a braided sleeving said to be noise reducing, which I take to mean able to damp vibration in the cable beneath.

### Pull the plug

The 100 and 300 have a Wattgate 320i IEC plug while the top model has the silver version; 350i Ag. The 13A plug on the more affordable models is an MK with a Russ Andrews fuse, while the 500 has an inline mains plug with RA fuse.

I set out to establish the capabilities of the cables by warming up a Naim UnitiLite with the standard Naim mains cable. Changing to a PowerKord 100 brings a considerable increase in three dimensionality, the sound of Gregory Porter and his band expands into the room in quite palpable fashion. The noise floor



seems to drop and the instruments and voices became more lifelike. By way of contrast I put on Isotek's EVO3 Premier (£80/1m), which brings out greater openness and has a similar standard of timing, but doesn't match the dynamic impact and pace of the PowerKord (at nearly twice the price). The RA cable delivers a more definite sense of timing from Antonio Forcione's guitar on *Take Five*, this also has good three dimensionality if perhaps not quite as much 'air' as the Isotek. It manages to combine a polished presentation with the dynamics that give the music life. It also works well with older recordings, which can show their age in revealing systems. The PowerKord 100 lets the body of the music through along with its dynamic potential.

The PowerKord 300 adds punch and greater dynamic capability to the picture created by the 100, it also has more low-end welly and adds vibrancy to brass instruments in rather appealing fashion. I next move over to an MSB Platinum IV Signature transport and DAC, a single power supply pairing that warrants the sort of expenditure required for the top two PowerKords if not more. This revealing player lets the 300 strut its stuff, delivering an extremely lifelike, well separated and low noise result compared to the Isotek. It produces real light and shade in the music with

power and pace also well served. Even next to the PowerKord 100 the 300 produces a greater sense of realism, vitality and pace, delivering an extremely coherent result.

### Moving on up

Moving up to the 500 makes for a more subtle, but no less marked change with the most expensive model digging out the subtleties of instrument level within a group, revelling in the micro dynamics. Get these right and you hear more of the tension within the music. Out of interest I try a Naim Powerline lead in place of the 500 to see if this similarly priced, but differently constructed cable offers anything extra. It turns out not to be the case unless pace is your main concern and going back to the PowerKord ushers back a fuller picture with a lot more instrument tone and dynamic detail. All of which come together to produce a really propulsive sense of pace when the music needs it.

The PowerKords are expensive mains cables, but they let equipment both realistic and high end deliver more of the musical detail, and that in turn means more rewards for your listening efforts. It would save a lot of trouble if these things made no difference, but we didn't get into this pursuit for the easy ride, did we? **JK**

#### DETAILS

**PRICE**  
100: £150/1m  
300: £230/1m  
500: £440/1m

**WEBSITE**  
russandrews.com

#### OUR VERDICT





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# Musical Fidelity

## M1 LPS phono stage

**ABOUT SIX YEARS** ago, Musical Fidelity's Antony Michaelson began to get a profound sense of the economic abyss that we were soon to enter, and began to rethink his product range. The recession that followed has duly caused much grief, especially to those making expensive luxury goods like hi-fi equipment. And that's why he launched the M1 series, to give people the chance to buy well engineered separates in smaller (220x100x300mm) boxes, but still promising grown-up performance.

Generally, things have gone very well for the series; it has its strong performers and its less dazzling ones. The M1 CLiC streamer is superb, and the M1 DAC digital-to-analogue convertor and M1 HFA headphone amp are both really strong in their respective market segments. Until now, the only phono stage in the range has been the M1 ViNL, but this has been less of a star. It's not bad, it's just I feel it doesn't quite nail what M1 buyers want. It's almost like an AMS series product in a small box, by which I mean it is relatively expensive and is complicated to use thanks to its wide range of switching options and fancy display. Surely most budget buyers just don't need or want these sort of features? What the M1 series needed then, was a more affordable phono stage, stripped of all these unnecessary fripperies.

### Is this the answer?

Enter the M1 LPS you see here. It costs £300 and is basically the ViNL sans all the fancy bits. This means the cartridge loading and gain switching facilities are gone, along with that fancy alphanumeric backlit dot-matrix display; in its place is a simple MM/MC selector. The new LPS offers fairly standard cartridge loading and gain settings; our measurements show the former to be 47 kohm and 100 ohm for MM and MC respectively. Our measured input sensitivity is a catholic 8.41mV for MM and 1.0mV for MC. So the Musical Fidelity box will work with most modern moving magnets or



coils; only if you have a vintage MC such as a Supex SD900 (with an output of 0.2mV, for example) will you get a bit more noise. The M1 LPS produces extremely low distortion figures of 0.0035 and 0.00025% respectively for MM and MC.

In the highly flawed world of budget phono stages, here's a no-nonsense performer that sounds great, works well with a vast range of cartridges and doesn't have any of the issues that some price rivals have – limited headroom, hum pickup and residual noise. This is because there is much of the sound of the M1 ViNL in the LPS, which shouldn't come as a complete surprise as it is basically the former with the swish user interface and configurability taken out.

The LPS sounds oh-so-clean – as clean as Switzerland after a tidy-up, in fact. There's vanishingly low noise, no audible hum (and you'd be surprised that some rivals do still offer this feature free of charge, even if you didn't order it in the first place!) and a lovely open soundstage, which is allowed to come out and show itself the second you drop the needle on the record.

Daft Punk's *Get Lucky* is a joy, with the M1 LPS setting up a decently wide and open sound. Bass is taut and lithe, although you'd never call it generous, midband is nicely detailed and intricately etched and treble is

crisp and open – albeit just a little less sparkly than some rivals.

The tonal balance is pretty even, with everything well proportioned, but it veers ever so slightly to the smooth side – which is absolutely as it should be with a phono stage of this price. That means you can spin up some pretty forward discs, such as Deodato's *Night Cruiser*, and not be assaulted by the large amounts of treble energy from those immaculately played brass stabs. The LPS keeps things together nicely, while letting the music flow. It separates out all the performers well, rendering all strands of the mix skillfully and showering the listener with detail. Soundstaging is impressive, with better depth perspective than some price rivals.

### Musical youth

In absolute terms, the Musical M1 LPS isn't the most riveting listen around; it has a slightly processed and mechanical quality compared to the best £1,000 phono stages, for example. But at the price, its range of competencies is practically unsurpassed and it falls into none of the traps its rivals get caught up in – it has low noise and no funny technical issues. If you're after a well made, user-friendly, fine-sounding budget phono stage for these cash-strapped times, this is it! **DP**

#### DETAILS

PRICE  
£300

CONTACT  
0208 9002866

WEBSITE  
musicalfidelity.com

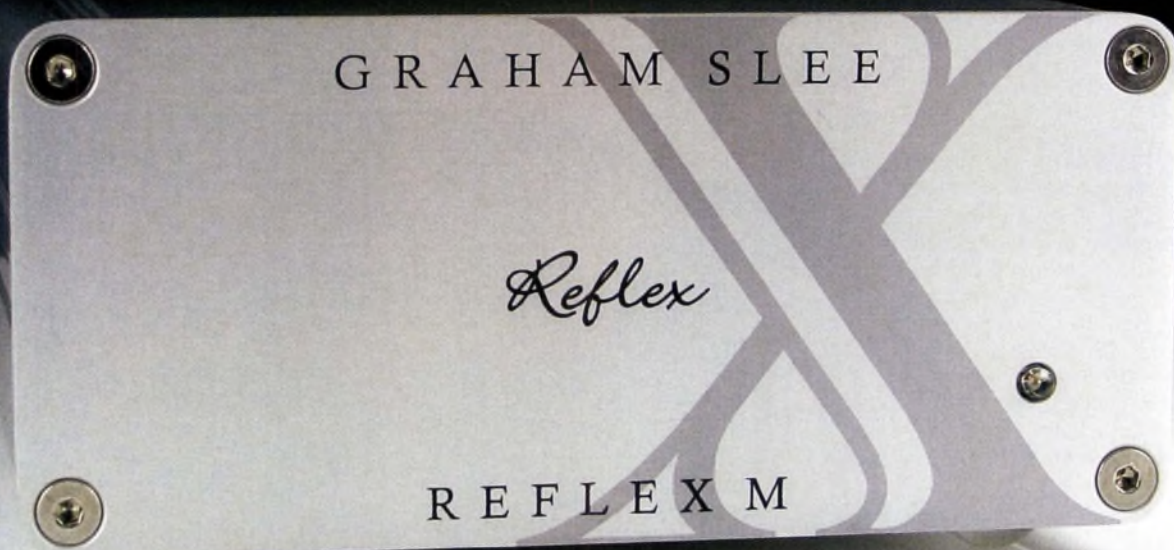
#### OUR VERDICT





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# ISOkinetik

## Silver Melody Two Tonearm Cable

**A NEW ADDITION** to the ISOkinetik Silver Melody range of cables is the ISOtone Silver Melody Two Tonearm Cable. The cables use the same conductors as the Silver Melody Two interconnects, but are terminated with Cardas-based tonearm connectors at the tonearm end and Eichmann Silver Bullets on the amplifier end.

As with the Silver Melody One cables, the main conductors use 99.99% silver, housed in ISOkinetik's own dielectric material, but even more silver is used in the construction of the Silver Melody Twos. Each 1.2m-long cable is screened using the company's own silver-plated copper material and finished off with a purple flexible sleeving. The first 20cm of the cable that is connected to the tonearm connector is a single lead, which then splits into two signal cables

plus the separate earth wire. Each of these signal cables is terminated with an Eichmann Silver Bullet RCA plug for connecting to the amplifier and the earth wire is terminated with an insulated crocodile clip.

### Silver surfer

The Silver Bullet plugs have a contact element machined from 99.99% pure silver. They also have a hollow signal pin of a thickness and mass specifically designed to support current flow and to minimise skin effect problems. In addition, the plugs use a patented single-point ground pin to eliminate eddy-current turbulences, capacitive reactance and micro-arcing.

It goes without saying that all cables must be properly run in before assessment – especially silver interconnects which, in my experience can sound a little harsh



when new. Having run in the Silver Melody Twos, I test them out with a wide variety of vinyl music on my turntable and it soon becomes very evident that this is no ordinary cable. This cable delivers superb dynamics coupled with stunning detail and first-rate imaging. One thing that really hits me is the emotion that is conveyed with the cable.

The Silver Melody Two is certainly a high specification cable that punches way above its price point. It is worthy of being fitted to the very best tonearms and will be a delight to music lovers everywhere! **NR**

#### DETAILS

**PRICE**  
£325

**CONTACT**  
0208 241 8890

**WEBSITE**  
isokinetik.co.uk

#### OUR VERDICT



# Epiphany Acoustics

## Atratus RCA digital interconnect



**DIGITAL CABLES ARE** required to have a 75 ohms characteristic impedance and can work well as analogue audio and video interconnects, but analogue cables are not really suitable for use as digital interconnects as their bandwidth is not great enough. If a cable with a poor high frequency characteristic is used as a digital interconnect, this can result in timing errors in the digital signal, which manifests itself as the dreaded jitter.

Furthermore, a cable with the wrong characteristic impedance will result in unwanted reflections of the digital signal and this can potentially cause more errors. The digital processor in the audio equipment

then has to manage these errors and this can all result in a degraded audio signal. Epiphany Acoustics has, therefore, added an RCA digital interconnect cable to its Atratus range, which is optimised for digital signals and, therefore, specifically designed for connecting digital equipment together, such as a CD player or streamer to a DAC.

### Built for business

The Epiphany Acoustics Atratus Coaxial Cable is a 75 ohm, heavy-duty digital cable with a large-sized solid copper central conductor and a low-loss foam PE (polyethylene) dielectric, which is stated as offering a higher level of performance over

standard dielectrics as well as a greater signal integrity. The cable uses high-quality crimped connectors, which are themselves gold plated to ensure excellent mechanical contact in your system. Crimped connectors also offer a gas-tight and robust connection, which is often considered better than a soldered connection. This coaxial cable also benefits from dual shielding, utilising both a 100% coverage foil shield as well as a very dense copper braid. The low capacitance and low resistance design makes it ideal as a digital interconnect and also as a composite video cable.

I have to admit that the Atratus RCA digital interconnect is a high-quality cable that works beautifully and is great value for money. I therefore find no reason not to award it a full five-stars. **NR**

#### DETAILS

**PRICE**  
£28 for 0.5m cable,  
£32 for 1m cable

**WEBSITE**  
epiphany-acoustics.  
co.uk

#### OUR VERDICT





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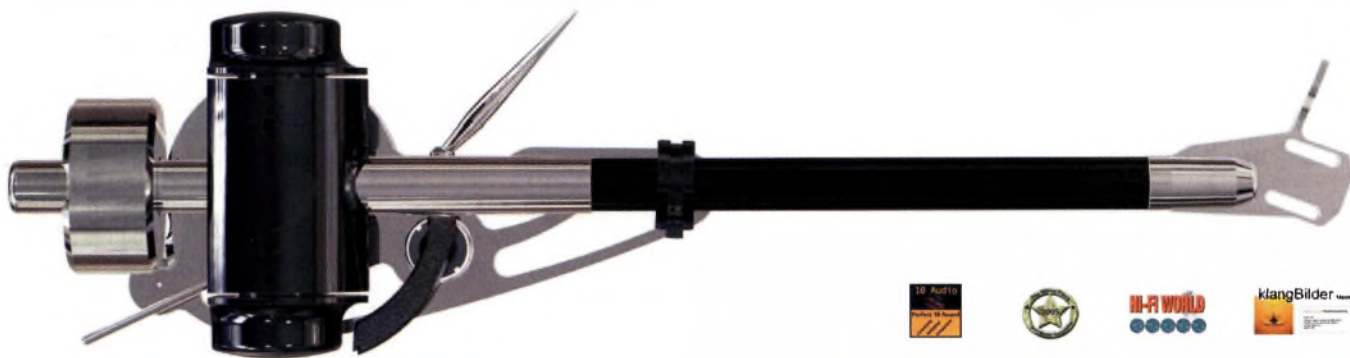
PURIST AUDIO DESIGN CABLES

"These are good cables. So good in fact, I started this review thinking they were the Proteus Provectus that cost ten times as much as the Genesis cables." Alan Sircom.

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## Q Acoustics Q-BT3 speakers

**THE Q-BT3, FEATURES** genuine stereo sound, built-in amplification and compatibility with a range of digital and analogue sources, plus it supports Bluetooth's apt-X codec – good news for hi-res audio fans.

As well as regular music use, Q Acoustics is pitching the Q-BT3 at TV viewers by providing a digital optical input and a subwoofer line out. Using the optical input puts the Q-BT3's internal DAC to work so it can be used with a CD deck, Apple TV or Blu-ray player, which is handy for enjoying hi-res Blu-ray. Analogue inputs on the Q-BT3 (stereo phono and a 3.5mm level-line in) feed directly to the 2x 50W amplifier. Analogue cables are supplied, including a 4m cable for hooking up the passive speaker.

### So solid crew

The 240mm-high cabinets are rock solid and come in three attractive matt finishes: white, black and red. The grille is stiffer than a cheese grater and the Q badge can be rotated for aesthetic reasons if using the speakers in horizontal orientation. Each two-way reflex speaker contains a 10cm coated paper cone woofer and 25mm silk dome tweeter. Acoustic performance has been optimised by using a Linkwitz-Riley fourth order crossover and high-precision digital filters to fine tune the frequency response, which Q Acoustics quotes as 20Hz to 20kHz  $\pm 0.5$ dB.

An on/off mains switch is provided on the rear of the active speaker (which houses the amp and connections). The unit claims to consume less than 0.5W in standby and can be activated by pressing the power button on the top of the active cabinet, which doubles up as the input selector. This is flanked by volume controls and a single LED light, which changes colour according to the input and status. All controls are duplicated on a five-button credit card-sized remote, which works over IR and requires line of sight to the middle of the active speaker. Handily the unit automatically switches from one



source to another. Also useful is that certain remote controls including the Sky remote can easily be programmed to control the Q-BT3. Bluetooth is simple enough to set up and the Q-BT3 can have up to eight Bluetooth devices in its pairing list. Pairing with a ninth device overrides the first one.

When used as a soundbar the concern is that the Q-BT3 has no centre channel and no decoders for Dolby Digital or DTS signals. In practice this proves insignificant for the vast majority of TV viewing since all screens can output two-channel PCM signals via the optical audio output, which the Q-BT3 adeptly handles. If it were possible to quantify the difference you'd say the sound quality is at least five or six times better than that produced by a flatscreen TV (in this case a Samsung 46F8000). Dialogue from daytime shows such as *The Chase* or *Sky News* is so much clearer while more complex soundtracks such as live cycling on ITV 4 delivers commentary that is more lively with the switch from helicopters to motorbikes being more defined, and the sounds of spectators' cheering coming clearly through. Muted dialogue in dramas such as *Veep* benefits hugely from the extra clarity while Blu-ray and DVD is punchy and dynamic.

The Q-BT3 can be used for streaming music from iTunes on a

networked computer either by Bluetooth from a smartphone, or if using an Apple TV, via its HDMI connection into the screen and on to the speakers via the optical audio. Either way, the results are highly satisfying with a powerful sound that fills a medium-sized room with ease. The bass in Public Service Broadcasting's *Spitfire* gallops around the room with authority and assurance. The bass from Talking Heads' *Life During Wartime* (Blu-ray routed via analogue stereo phonos) is possibly a tad too enthusiastic, and the lack of bass management here is frustrating. Mids and trebles shine through, vocals are polished and while not exactly warm, the sound never feels harsh or sibilant.

### Here's to Blue

Where the Q-BT3 really shines musically is with high quality audio material, streamed via Bluetooth (from a MacBook Pro). It won't deliver hi-res audio, but a FLAC download of Haydn's *String Quartet in D* has greater detail in the violins, thanks to the higher levels of information contained within the hi-res file. Similarly, a version of Claire Martin's *I'm Gonna Laugh You Right Out of My Life* is dynamic with more subtleties and nuances in her voice. And the Q-BT3 serves it up masterfully. **AJ**

#### DETAILS

PRICE  
£400  
WEBSITE  
[qacoustics.co.uk](http://qacoustics.co.uk)

#### OUR VERDICT





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# Tivoli Audio Albergo+

## DAB radio

**THE ALBERGO+ WAS** initially conceived as a radio for the hotel sector where the alarm function is paramount and operational simplicity is a prerequisite. But Tivoli Audio's chief designer Tom DeVesto decided that the Albergo+ was also suitable for the general domestic market since it looks so neat and has some customisation (EQ settings and such like) that many hotel users would probably fail to take full advantage of. A reasonable enough assessment, but the fact that the alarm only works with a buzzer and not the radio tuner could be a significant disincentive to some.

The radio is equipped with DAB, DAB+ and FM tuners, plus it can stream wirelessly using Bluetooth, which meets the A2DP standard, but sadly doesn't offer support for the apt-X codec. Next to the driver grille on the front is a 3in LCD display, which looks delightful in standby where it shows the time and date in white letters and numerals on a classy blue background. Below this is a sleep timer, independent dual alarms, tuning buttons, source select and a separate Bluetooth button. The top features the standby/snooze button, which rotates to control the volume. All functions are duplicated on a thin white plastic remote, which also has five station presets and the menu button for adjusting backlight brightness, scanning the radio and for accessing features such as the various EQ options. It is only available in white or graphite grey, which is a shame as Tivoli Audio offers more lively colours for several of its other radios.

### Rear of the year?

To the rear is a bass port and sockets for headphones, a 3.5mm line-level aux input and a phono socket for hooking up to an optional second speaker. Connecting the left speaker (not shown) automatically sets the Albergo+ to output stereo. Each speaker has the same 3in full range, long-throw driver used in Tivoli Audio's acclaimed Model One radio. Like the bodywork of the radio, the



11-segment telescopic aerial is reassuringly sturdy but a black mark goes against Tivoli Audio for only supplying a Euro two-pin plug rather than British three-pin.

Setting up the Albergo+ is a doddle if you simply want to tune in the DAB radio and use its two alarms. One nice touch is that if you scroll through the list of scanned stations and linger while a station's name is displayed the radio will automatically re-tune without the need to press select.

Because of the single line on the display, accessing and altering the brightness and EQ settings is a convoluted process of pressing up, down, across and select on the remote. Unavoidable I guess, but it makes it less likely anyone will bother to change the EQ or DRC options with any great frequency.

Changing sources is a process of scrolling through the options, which means you can't go from DAB to Bluetooth without briefly hearing the FM tuner. Bluetooth pairing is simple enough in theory, but I find the connection unreliable, often taking over a minute to re-connect a previously paired iPhone 5, and worse, suffering from dropouts, requiring a restart of the radio. This is a shame because the sound quality is more than decent using the stereo configuration. Inevitably for their size, bass response from the speakers

is limited, with Tina Turner's husky vocals in *Private Dancer* suppressed towards dullness. Detail retrieval in the middle and upper registers is much better, with the nasal quality of Antony Hegarty's exquisite vocals clearly rendered on *Twilight*. Jeff Buckley's vocals in *So Real* have an edge of shrillness and again the bass is light, but the guitar has energy and plenty of breathing room.

Pleasingly, there's no distortion at high volumes, but – sufficient maybe for use in a hotel – the power output is a little underwhelming and there's never any danger of waking the neighbours or damaging the speakers when listening to music at maximum volume.

Despite the inherent low bit rate, Haydn's *Clock Symphony* on Classic FM's DAB station is lively and engaging, especially with the wide soundstage provided by the stereo arrangement, which compensates for any opaqueness.

### Clock 'n' roll

Overall, the Tivoli Audio Albergo+ is a nice little alarm clock radio, simple yet classy looking and built to a high standard. Its sonic performance is good for its diminutive size, especially from its radio tuners, which are more reliable than the Bluetooth wireless streaming option. **AJ**

#### DETAILS

**PRICE**  
Albergo+ £199  
Speaker £79

**CONTACT**  
0800 0470487

**WEBSITE**  
tivoli-audio.co.uk

#### OUR VERDICT







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# Chord Company

## Crimson VEE 3, Cobra VEE 3 and Chameleon VEE 3 interconnects

### MANY CHORD COMPANY

employees play an instrument and are members of bands – the website says – and so have an appreciation of the importance of timing, rhythm, musicality and dynamics – and this is something that drives much of its cable development.

The VEE 3 (Vibration Eliminating Enclosure) RCA phono plugs that are fitted to these cables are made from precision-machined medical-grade acrylic, the design of which has been influenced by Chord's flagship cables. The contact areas are silver or gold-plated to improve signal transfer and the internal design provides a superior contact for the critical earth path. Every interconnect features new conductors or conductor configurations, improved shielding and better mechanical damping.

### King Crimson

The Crimson VEE 3 is the entry-level interconnect and utilises multi-strand oxygen-free copper conductors. The twisted pair configuration conductors are insulated with a low-density polyethylene. Cotton thread cable spacers run alongside the insulated conductors providing mechanical damping and the conductors and spacers are wrapped with a layer of natural fibre. The outer conductor is also new and features a high coverage 90% braided shield and a 25% overlapped foil shield, which is claimed to improve signal protection across a wider frequency range, when compared with the previous model. Soft PVC internal shielding and conductor surround adds further mechanical damping and avoids microphony, while a hard PVC outer jacket protects the overall cable and prevents changes to cable impedance. The Crimsons are fitted with gold-plated VEE 3 RCA Plugs.

The Cobra features a revised strand count of the silver-plated oxygen-free copper multi-strand conductors. The twisted pair



configuration conductors are insulated with FEP (a form of PTFE). Cotton thread cable spacers provide mechanical damping and the conductors and spacers are wrapped with a layer of natural fibre. A higher-density 90% coverage woven braid combined with over-wrapped foil shield is employed, together with soft PVC internal shield and conductor surround and a hard PVC outer jacket. They are fitted with silver-plated VEE 3 RCA Plugs.

The Chameleon interconnect is made from 26 AWG silver-plated multi-strand oxygen-free copper conductors in a single signal and twin return semi-floating conductor configuration. The conductors are insulated with FEP and cotton fibre. Chord's special high-density 93% coverage woven braid is combined with heavy gauge over-wrapped foil shield in a fully floating dual-shield configuration. The conductor and shield surrounding jacket is built from selected PVC to minimise mechanical induced noise from external sources and a hard PVC outer jacket offers a high degree of protection. They have silver-plated VEE 3 RCA Plugs.

After an appropriate period of running in all of the cables, I connect them between my phono preamp and my main preamp to see how they perform. With the Crimsons fitted, I am immediately taken by the clear

and open performance. In particular, the top end is crisp, but with no tendency for strings to sound harsh. Triangles and xylophones positively sparkle. The bass is full and lively, which is evident with the double basses and kettle drums.

### Wired for sound

Swapping to the Cobras results in a general improvement in the dynamics and imagery. Instrument locations seem more precise and in focus. In my opinion, this is a result of the silver-plating on the conductors, which I consider to be one of the hallmark characteristics of silver wire. Vocal soloists sound excellent and perfectly positioned in front of the backing music.

The Chameleons seem to fill out the soundstage even more. It is as though more musicians have been sneaked into the orchestra! The timing of high-hats seems perfect and the bass sounds richer than the Cobras. Vocals are superb and loud choral passages sound effortless and not at all constrained, unlike the other cables.

In summary, they really are superb value for money. Don't be deterred from trying the Crimsons because of the low price. However, the Cobra and Chameleon are well worth the extra investment if they are within the range of your wallet. **NR**

### DETAILS

**PRICE**  
Crimson 1m: £55 +  
£12 per extra metre,  
Cobra 1m: £95  
+ £22 per extra  
metre, Chameleon  
1m: £135 + £34 per  
extra metre

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## Andrew Simpson casts his expert eye over his pick of the best hi-fi websites and online content



### ONE FOR THE WIRE BUYER

While what to spend on hi-fi cables and their effect on sound quality continues to be one of the most hotly contested subjects in audio land, we all agree that decent wires and good connections are vital to getting the best out of our systems. Since the late seventies when armed with its bell-wire-beating 79 strand, QED has been flying the flag for hi-fi cables that need not cost a king's ransom



### VIRTUAL VINYL

The LP owes its long-standing success to more than just its renowned sound quality, for some its appeal is based more on its style than its sonics. Kontor Records recently exploited this thinking by blurring the idea of LP playback to market a Boris Dlugosch dance track. Its gimmick involved distributing the track via an LP and accompanying flat-pack cardboard turntable. 'Playing' the LP is even more eccentric, and is permitted via an app that turns your smartphone's screen into a virtual stylus, which hovers over the record and can be moved to different grooves by moving your phone.

The Office Turntable' may have won a Cannes Lion award for best use of audio in a media product, but I'd wager its sound falls well short of a far more prestigious *Hi-Fi Choice* moniker!

and its recently re-built website is all about showcasing its products and design philosophy.

It has sections for different types of cable application with descriptions, data specs and prices per metre (I'm still amazed by how many hi-fi sites don't have price lists). But the site is more than just a product list, explains QED/Armour Home Electronics Marketing Manager Nick Thornton: "Our site explains the science that goes into making QED products. We do this by letting our R&D team add features and in-depth

info to the site about the products they feel so passionate about. Our Academy Genesis reports, for example, contain extensive scientific investigations into the effects of speaker cables on hi-fi system performance."

The site is designed to work on desktops, laptops and tablets. A mobile version is also in the pipeline, along with innovative online plans to share the company's uPlay tech via its website and social media channels.



### LOTUS HI-FI

A devout audiophile with a hand in the high-end audio trade since the eighties, Richard Morris knows a thing or two about hi-fi. Southwest-based Lotus Hi-fi is the culmination of Richard's audio expertise, offering products and services across a range of online channels. The site is mostly focused around company news, new products, reviews and a carefully selected pre-loved list. It's refreshingly image driven and its Flickr channel boasts some stunning shots of hi-end audio at its best.

"We also use Twitter and Facebook for relaxed discussions with our community, with content ranging from music selections and other topical interests," says Richard. "Our next step is to launch an image gallery for customers' hi-fi. People love looking at real systems in real homes."

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#### CHOICE TWEETS



#### NORDOST CABLES (@NORDOSTCABLES)

Have you checked out the new company blog? Stop on in for news and upcoming events! <http://t.co/45FeRcUjSg>



#### VINY LHUNT.COM (@VINY LHUNT)

The higher the #turntable price, the better the sound. Yay or nay? [bit.ly/1bsgU2R](http://bit.ly/1bsgU2R) #vinyl



#### HERETIC AUDIO (@HERETICAUDIO)

The heretic audio website has just gone live at <http://www.hereticaudio.com>



#### ARTCOUSTIC UK (@ARTCOUSTICUK)

Watch out for the new @circle\_AV showroom opening very soon in Sevenoaks. It's going to be superb. The very best in home technology.



#### EDEN AUDIO (@EDENAUDIO SPAIN)

Do all media players sound the same? The new cable debate.



#### SONY UK (@SONYUK)

RT if you also remember Mega Bass on your old Walkman! Thanks for sharing @Joseba. A.) [pic.twitter.com/QjZRkwkDLA](http://pic.twitter.com/QjZRkwkDLA)



#### MERIDIAN AUDIO (@MERIDIANAUDIO)

Some beautiful photographs of HMV in the sixties <http://ow.ly/pPGWI> or [pic.twitter.com/2dF3YooHQI](http://pic.twitter.com/2dF3YooHQI)



#### DENON NORTH AMERICA (@DENONAMERICA)

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### CHATTER



McIntosh has recently posted some great short videos on its YouTube channel. My favourite has to be how the company helped save a 1973 Grateful Dead gig in New York for a crowd of 600,000 fans using some amps and a chopper [bit.ly/190ZEjh](http://bit.ly/190ZEjh).



Remember when cars came equipped with LP players? Neither do I. But for the lucky few they did,

apparently, and to prove it The Vinyl Factory has published some amazing snaps including sixties icons George Harrison and Muhammad Ali cueing up 45s in their luxury dashboards [bit.ly/17SpEYY](http://bit.ly/17SpEYY).



GRAAF audio posted some tantalising pics of customers' systems on its Flickr group throughout October [flickr.com/groups/graaf](http://flickr.com/groups/graaf).



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## Your listening room and a jet engine – what problem do they share?

“Wow” and “That’s amazing” LISTENERS’ REACTIONS AT RECENT SHOWS TO THE PANEL DEMONSTRATIONS

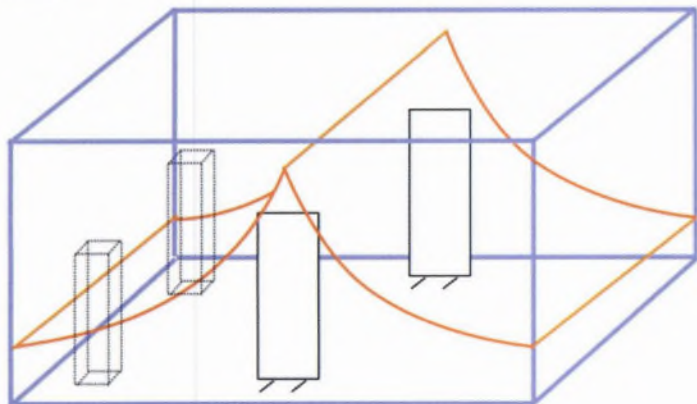
**Both cause a lot of unwanted noise – but they’re treatable with thousands of carefully calculated holes.**

In the Airbus jet engine the front compressor noise is cut down with a special micro-perforated lining for the air intake.

In your listening room “old” **sound waves** that slop from end to end, and side to side – like water in a fish tank that’s moved – can be *quietened* in a similar way.

All the time you are listening the speakers project “new” sound into a space still filled with music from a few milliseconds before. New and old **intermodulate** and *your room destroys an amazing amount of fine detail.*

You are propagating “new” music signals into “old” air. Think of the interference between fresh waves that break on a beach and meet the previous retreating wave.



Air movement reaches peak **velocity** in the middle of the room (only end-to-end shown here) where the panels are most effective

**The solution** – When you energise the room with a music signal thousands of carefully-calculated micro-perforations in the **LeadingEdge** panels create turbulence as the air, slopping to and fro between walls, passes over their surfaces. We hear air *pressure* changes as excess bass at the room boundaries, where the air is at zero *particle velocity* and maximum pressure change. It reaches maximum velocity (and zero pressure change!) in the centre of the room where the perforations create **aerodynamic drag** and the panels absorb this velocity energy into an internal honeycomb.

**This principle of creating aerodynamic drag**, that removes unwanted energy *across the spectrum*, is far more effective than using conventional foam-filled panels that work only at narrow frequency bands.

Significantly, *drag increases with the square of the velocity – when the velocity doubles, the drag increases four times!*

In this way, the LeadingEdge panels are “reactive” – the more unwanted energy bouncing round the room, the more effective they become.

Visitors to our rooms at shows this year were truly astonished as we played music and first covered then uncovered the panels.

There were spontaneous reactions like “Wow” and “That’s amazing!”

Panels are available in different sizes and three standard finishes: Cherry, White, and Light Oak though almost any finish can be ordered to match décor.

But you say, “I couldn’t possibly fit those into my living room.” Perhaps not free-standing ones but had you considered they can be wall-mounted and become part of the room design, even a feature with a beautiful, rich veneer finish?

An ideal solution is to place panels on the ceiling, where they absorb energy from all directions. In this room with 60% glass windows and hardwood floors the panels are a feature, with recessed lighting. The result is a quiet, comfortable room despite all those hard surfaces.



Thousands of micro-perforations create “aerodynamic drag” to absorb energy



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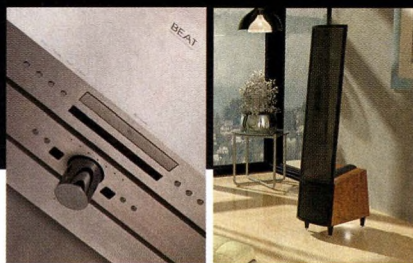
# HIFI CHOICE ADVERTISERS INDEX

ABSOLUTE SOUNDS	15
ARMOUR HOME	2
ATLAS CABLES	108
AUDIO EMOTION	131
AVID HIFI	9
BILLY VEE	80
BOWERS AND WILKINS	55
CLARITY ALLIANCE	34
COHERENT SYSTEMS	32
CREEK	106
DEBUT CARBON	36
DOUG BRADY	76
EXPOSURE ELECTRONICS	68
FOCAL	26
FURUTECH	116
GSP AUDIO	112, 114, 118
HIFI SOUND	120
IAG INTERNATIONAL	132
INSPIRE HIFI	112,118
LENBROOK INTERNATIONAL	65
MACKENZIE HIFI	114
MAINS CABLES R US	108
MONITOR AUDIO	78
MUSIC MATTERS	28
MUSICAL FIDELITY	82
OPPO	11
ORIGIN LIVE	114
PJ HIFI	104
PMC	98
PRIMARE	61
PRO-JECT	30
RAIDHO	97
ROKSAN	23
RUSS ANDREWS	70
SEVENOAKS SOUND & VISION	39,40,41
T+A	45
TALK ELECTRONICS	75
TANNOY	49
TELLURIUM Q	112
THE RIGHT NOTE	123
UKD	86,87
XPRESSION CARBON	73
XTENSION 10	32

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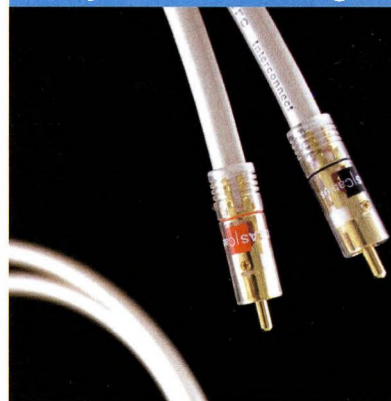
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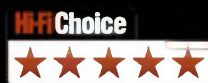
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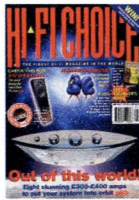
## WE HEAR...

EVER MORE MANUFACTURERS ARE DESIGNING products that flatter domestic living environments, rather than flatten them! Cyrus has always had an eye on style and ergonomics, and so it's interesting to hear of its radical new Lyric range. Said to have a completely different glass and aluminium chassis to existing Cyrus components, the beautiful boxes boast built-in CD, radio (internet, FM and DAB), Bluetooth, USB, iDevice and streamer sources, plus analogue line-in and digital inputs as well as an amplifier. The entry-level 05 model costs £2,499 and has 80W RMS per channel, the 09 puts out 170W and has an upgraded 32-bit DAC. Both work with the company's Cadence iDevice app. A sophisticated user interface is provided with a touch-sensitive front panel, colour display and proximity sensors – all powered by a fast ARM CORTEX M3 processor. Cyrus says this is: "Both the most advanced audio products possible today, and the most user-friendly, too". This looks like one of the most significant products of the new year – watch this space for a full review soon!

HAVING GOT ON SO WELL WITH SPENDOR'S superb D7 high-end floorstanding speaker last year, we hear murmurings that the company is about to launch a new small standmount version, with the same excellent drive units and cabinet technology inside. If its fine provenance is anything to go by, the D1 could be one of the best mini-monitors around. Look out for it in the shops, in a month or two...

TAPE HEADS WILL LOVE THE NEW MOLESKINE notebook just out, complete with a cassette design on the front cover. Great for your Christmas stocking. See moleskine.com

## THROUGH THE PAST, SMARTLY...



### HI-FI CHOICE ISSUE 138 JANUARY 1995

Back in 1995, roving reporter Barry Fox was looking into his crystal ball in an effort to predict how the newly announced Digital Audio Broadcasting (or DAB) would work. At this point in time, the BBC were yet to make any announcements about which of its radio stations would be onboard, although Barry sagely opined that Radios 1, 2, 3, 4 and 5, along with the World Service and some London and Southern local stations would most likely be candidates, while Richard Branson's Virgin 1215 AM would almost certainly be an early adopter. Barry went on to add that digital recorders would be the next logical progression and that DVC (Digital Video Cassette) would be the format of choice to make this happen. You win some, you lose some...

Meanwhile World War III is narrowly avoided after a rocket launched from the space exploration centre at Andøya, Norway, is interpreted by the Russians as an incoming attack. However, the news that Celine Dion's *Think Twice*, has reached the top of the UK charts leads many to wish the Russians had gone through with their threat.



### HI-FI CHOICE ISSUE 302 JANUARY 2008

This being the first issue of the year, then editor Dan George decided to treat readers by bundling the magazine with a free *Hi-Fi Choice* calendar. Much as we'd like to pretend that the pictures for every month consisted of the likes of Jason Kennedy, Alvin Gold, Jimmy Hughes and Alan Sircom staring at the camera with sultry pouts and their tops off showing off their sixpacks, the reality is that the real stars of the hi-fi world appeared. So, we were treated to gorgeous shots of the Naim CD555, Krell Evolution 222 and 302, Wilson Audio System 8, Monitor Audio Platinum PL300, Chord Electronics Red Reference CD, Grado GS1000, a Funk Firm turntable, Cambridge Audio 840C, KEF Reference 201/2, NAD T585, Atacama Audio Aurora 6, Rega Saturn CD player and Dan George recreating the famous Athena poster of the tennis player scratching her bum...

Meanwhile George W Bush delivered his final State of the Union Address as President of the US of A, while a young Irish upstart by the name of Barack Obama won the South Carolina Democratic primary. Wonder what ever happened to him...



## DESERT ISLAND DISCS

This month **Nigel Finn** from Chord Company chooses four of his favourite long players...



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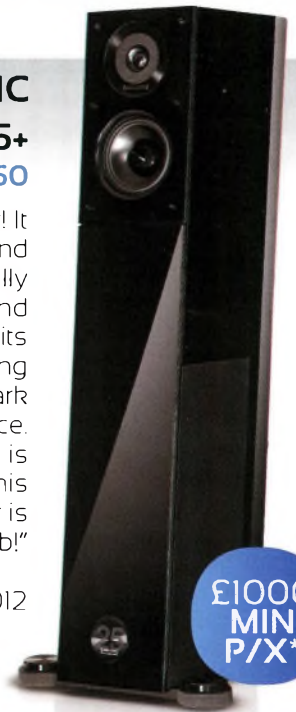
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