

Our SuperUniti all-in-one player will unleash your digital music, from high-resolution audio files to Spotify playlists. Its analogue heart is an integrated amplifier backed by 40 years of engineering knowledge to offer countless years of musical enjoyment. Just add speakers.



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HI-FICHOICE PASSION FOR SOUND

Welcome

www.hifichoice.co.uk Issue No. **395** March 2015

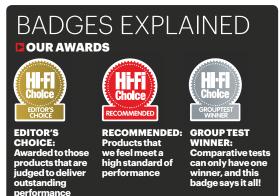


58 Novafidelity X12



exaSound e22







Try to imagine for a moment a world without wires connecting your speakers and hi-fi components. It's a pretty impossible thought for a serious hi-fi fan, right? Most of us see wires like the veins of our hi-fi systems that carry the signal between vital components

enabling the music to flow to our speakers, delivering soundwaves to ears, bringing the music to life and feeding our souls. OK, I may be overstating it, but I'm sure you agree that a world free from cables seems like the impossible dream for hi-fi fans. Despite regular readers knowing that there are hi-fi companies already making moves towards this goal, a stable universal high-resolution wireless solution for home hi-fi appears to still be a little way off just yet. Or is it?

Most of us already have access to an almost universal wireless audio option incorporated into practically every smart device that's used to access cloud-based and wi-fi-networked music. I talk, of course, of the ubiquitous short-range cable-free connection called Bluetooth. Alongside the aptX codec this wireless tech is also appearing on home hi-fi and can deliver near-CD quality levels. But it really comes into its own on the move, and I can't think of a greater desire to be wire free than when wearing headphones. With this in mind we have picked six Bluetooth models to see how they live up to the wireless hype. To find out which models will convince you to go wire free, turn to page 24.

Lee Dunkley Editor

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Hi-FiChoice

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We're off to Vegas to see the hi-fi highlights of the Consumer Electronics Show







Audiofile: Cambridge's new CX Series



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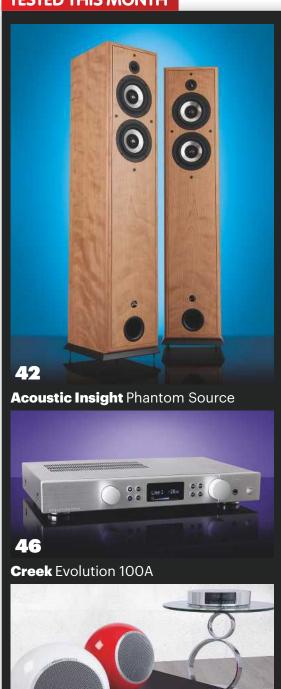


Lindy Audio DAC combo

"The 8-track player could be considered as one of the first portable personal music players"

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TESTED THIS MONTH



Beautiful System Elipson



103 String Suspension Concept Record Point 420 Evolution 100A integrated amplifier

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OICE EXTRAS Lindy

Audio DAC Combo **Quadraspire** QAVX Rack

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Mamba interconnects



TCI Cables Mamba

PL-600 turntable (Retro) **GROUP TEST**

Creek

Denon

HEOS multi-room system **Pioneer**

exaSound

e22 DAC/headphone amp Wharfedale

Diamond 230 floorstanding loudspeaker

Novafidelity

X12 HDD/CD/network music system

Bluetooth headphones £130-£250

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



CXappeal

Cambridge Audio unveils a new logo and launches all-new CX Series



PRICE: £300 - £2,000 AVAILABLE: SPRING WEB: CAMBRIDGEAUDIO.CO.UK

THE FAMILIAR CAMBRIDGE Audio logo has been appearing on hi-fi and home cinema components since the brand's introduction in the late sixties. But the distinctive branding is about to get a new look with a bolder logo as the company is now simply known as Cambridge. The first products to sport the updated logo are the all-new CX Series hi-fi and home theatre components, which were unveiled at CES 2015 in Las Vegas last month – see our show highlights starting on page 120.

The new series looks set to be more sophisticated in its design aesthetic too, with a 'floating' front panel, bevelled base and low-resonance chassis. The range comprises six new products in all, with four two-channel hi-fi products covered here along with two multi-channel CXR120 and CXR200 AV receivers.

As *HFC* is all about two-channel we are concentrating on the CXN network music player, CXA60 and CX80 integrated amplifiers and CXC CD transport.

First up is the CXN, which builds on the talents of the Stream Magic networked streamer/DAC preamp (*HFC* 393) and is described as an 'upsampling network music player' with the ability to upsample music output to 24-bit/384kHz using two Wolfson WM8740 DACs. It can be connected either wired or wirelessly via UPnP over a home network and also supports AirPlay – the BT100 Bluetooth aptX receiver is optional. There are two USB ports as well as optical, coaxial and asynchronous USB digital inputs



handle digital-to-analogue conversion,

and the CXA80 allows streaming of

24-bit/192kHz music files from a



COMMENT

REASONS TO BE CHEERFUL

Think back to 2014 and there was one tune that really stood out above all the others when it came to popularity. We speak, of course, of Happy by Pharrell Williams. Originally written for the movie Despicable Me 2, the catchy earworm was unavoidable and was nominated for just about every award going, from the Oscars to the Grammys. So you'd think that the man that gave us the unforgettable line "Clap along if you feel like a wall without a roof" would be financially set up for life. Apparently not...

According to a leaked email from Sony's music publisher/ATV CEO Mart Bandier, the song made just \$2,700 (£1,788) in royalties from what is widely regarded as the biggest streaming service in the US, Pandora. Consider that this paltry sum was for the 43 million streams the song enjoyed in the first quarter of the year and you begin to understand why musicians have been rather touchy of late about how much money they get for their music. In the email Bandier goes on to explain that Pandora pays out approximately \$60 (£39.75) per 1 million streams, which leaves us wondering: if someone as successful and globally recognised as Pharrell can't make decent money from streaming, then how are struggling newcomers supposed to survive?

As ever there are two sides to the story and closer inspection seems to suggest that it's not entirely the streaming service that's at fault. Pandora's director of public affairs, Dave Grimaldi, told website Business Insider UK: "Pandora is already the highest paying form of radio to both performers and songwriters. We have paid more than \$1 billion to rights holders since our inception, which amounts to over half of all revenue we have generated". He goes on to point out that in actual fact \$150,000 was paid out for Happy, suggesting that the issue is not how much royalties are paid out, but how they are distributed by the record label to publishers and artists. One thing's for sure Pharrell's happier than he was, but could probably be happier still...

analogue conversion built-in, the CXC passes a pure digital signal to an integrated amplifier or dedicated DAC. Specific component prices are yet to be confirmed.

Dashing Devialet

French high-class hi-fi brand develops speaker system that looks like no other

PRICE: £1,390 & £1,690 AVAILABLE: ONLINE NOW CONTACT: 0208 9713909 WEB: EN.DEVIALET.COM

AUDIO INNOVATOR DEVIALET announced the launch of its Phantom speaker system to the world at CES in Las Vegas at the beginning of the year - see the highlights in our Show Report on page 120. The unique design of the Phantom and Silver Phantom enclosures look like no other speaker system we have ever seen. The miniaturisation of Devialet's proprietary ADH (Analog/Digital/Hybrid) enables it to power the aluminium dual-concentric midrange speaker with inset treble dome along with two synchronised bass drivers, and claims 750W output power for the Phantom and 3,000W for the Silver Phantom. Network connectable via dual-band wi-fi and Ethernet for music streaming, it has an optical digital input for legacy sources and can be stereo-linked to another or linked to upto 24 Phantoms around the home via a wireless hi-res audio peripheral called Dialog. SAM (Speaker Active Matching) tech that we first saw in the Ensemble system (HFC 386) is also onboard. See our review coming soon.



IN BRIEF

NEW SPECTRUM LOUDSPEAKERS



With a choice of black and white satin finishes, Tangent Audio's new Spectrum BT5 has all the design chic you'd expect from a loudspeaker coming from Denmark, but it has a surprise trick up its sleeve - wireless connectivity. With aptX Bluetooth compatibility, the sleek active speaker can stream music direct from your smartphone, tablet or computer without needing any cables. The £299 compact standmount boasts 50W of power via its 25mm soft fabric tweeter and 130mm paper coned bass driver and has analogue and digital optical ins, a sub output and USB for charging. TANGENT-AUDIO.COM

Optoma unveils NuForce

PRICE: £99-£649 AVAILABLE: NOW CONTACT: 01923 691800 WEB: OPTOMA.CO.UK

Traditionally a manufacturer of projectors, Optoma's recent acquisition of American audio specialist NuForce has seen the company make the move into hi-fi. Consequently Optoma is unveiling a raft of new home cinema and hi-fi products including an integrated amplifier, headphone amp, preamp with built-in DAC and portable DAC.

The DDA120 digital integrated boasts a claimed 75W (into a 4ohm load) per channel and can stream music wirelessly via Bluetooth. For those that like to listen to music via their headphones, the HA200 is a Class A design headphone amplifier with a claimed frequency response of 10Hz-20kHz. It's designed to be used with headphones with a impedance between 32 and 600ohm and boasts XLR and a 6.5mm headphone outputs along with RCA and XLR inputs.

The DAC80 is a preamp with digital-to-analogue converter built in. It can handle resolutions up to 24-bit/192kHz and is able to convert hi-res DSD files too. It boasts a USB-B input alongside a pair of

coaxial and optical inputs, while outputs include analogue RCAs. Last but by no means least comes the portable uDAC3, which connects to a computer's USB port to improve sound. In addition to

to improve sound. In addition to having a headphone output, it also has RCA and coaxial outputs for hooking up to your hi-fi.

The DDA120 and HA200 are available in black or silver finishes, the DAC80 preamp/DAC is black and the portable uDAC3 comes in a choice of red, silver or black. Prices are expected to be around £99 for the uDAC3, £549 for the DDA120, £299 for the HA200 and £649 for the DAC80. Optoma tells us that it plans to release a new range of headphones – called Primo8 – in the spring. Watch this space for further information.









DALI RUBICON Series

- Innovation in Audio



True music-lovers want their listening experience to come to life every time! The DALI RUBICON range is the perfect union of striking design and sound engineering expertise – two strands that run deep in both DALI's and Denmark's DNA. The result is a musical experience beyond expectation, reproduction as close to the artist's original intention as possible, and an overall aural experience that will elate.



Exposure 3010S2-D

Fourth-generation version of the popular integrated amp is coming your way

PRICE: FROM £1,700 AVAILABLE: NOW CONTACT: 01273 423877 WEB: EXPOSUREHIFI.COM

TESTED BACK IN issue 373, Exposure's 3010S2 impressed us so much that it walked away with the spoils as top dog in our integrated amplifier *Group Test*, so you'll understand our excitement concerning this latest update. Key among the new improvements to the award-winning integrated is the possibility to fit an optional MM or MC phono stage, either of which will set you back an extra £240. Additionally, buyers can opt to have a plug-in DAC board added for £325. Capable of handling files up to 24-bit/192kHz PCM and DSD64, it also sports USB and BNC inputs, with auto-switching between them.

The preamp now has a new circuit board with all discrete components rather than integrated circuits, while the power amp claims a fast bipolar transistor output stage for dynamic and vivid performance. Finally, a new power supply adds extra stages of regulation for improved performance, according to Exposure. The 3010S2-D is available silver or black finishes. See our review next issue.



IN BRIEF AUDIOLAB NEW LAB SERIES CD

 The latest addition to Audiolab's compact, stackable LAB Series, the M-CDT is a space-saving CD transport measuring just 247mm in width. Boasting a frequency response of 20Hz-20kHz, the transport features a slot-loading CD mechanism and has a sophisticated digital decoder, feeding digital coaxial and optical outputs to deliver maximum versatility, claims Audiolab. Thanks to additional trigger in and outputs, it can be operated by remote control when attached to other components aside from its siblings in the LAB series family (including the M-DAC and M-PWR, tested in HFC 359 & 374 respectively). Available now for £399, the M-CDT comes in a choice of silver (natural aluminium) or classic Audiolab black finishes.

Monitor Audio Gold

PRICE: £325-£3,600 AVAILABLE: NOW CONTACT: 01268 740580 WEB: MONITORAUDIO.CO.UK

Monitor Audio's Gold GX range has been updated with a series of new enhancements including optimised tweeters, an evolved RST bass driver and new magnetically fixed 'floating' cloth grille in place of the previous metal version. With the new 'Gold' monicker, the range consists of two standmount

loudspeakers, two floorstanders, a brace of centres, a sub and surround for home cinema use.

The Gold 50 standmount houses a 5.5in RST bass driver and C-CAM ribbon, claimed to reach 60kHz. The larger Gold 100 increases its bass driver size to 6.5in, that MA claims performs like an 8in driver.

The Gold 200 is the more compact of the three-way floorstanders. It comprises an improved pair-matched ribbon, twin 5.5in bass drivers and a midrange 4in driver. Standing over a metre tall, the Gold 300 three-way floorstander has twin 6.5in bass drivers, a 4in midrange driver and a high-frequency ribbon transducer. It's claimed to offer a frequency response from 30Hz to over 60kHz. All speakers come with a choice of finishes including dark walnut, high gloss white and piano black gloss, while piano ebony is also available at an additional cost.



AUDIOLAB.CO.UK



GT40 a master of all trades.

phono stage • 24/192 USB DAC • 24/192 USB ADC • headphone amplifier















Blue Aura debuts x40

UK company unveils Bluetooth stereo floorstanding loudspeakers

PRICE: £599 AVAILABLE: NOW

CONTACT: 01480 477738 WEB: BLUEAURA.CO.UK

CLAIMING TO BE the first UK brand to develop and sell wireless loudspeakers utilising the 2.4GHz platform on these shores, Blue Aura probably knows more than most about cable-free audio. And now the Cambridge-based company is laying claim to another UK milestone, the first ever pair of stereo Bluetooth tower speakers.

Designed and engineered in the UK and manufactured in China, the x40 boasts 35W of integrated amplification and a claimed 10m Bluetooth range for streaming music using aptX. Alternatively NFC (Near Field Communication) is on hand for compatible devices. The loudspeakers lay claim to a pair of 4.5in drive units alongside a "high-quality" tweeter according to the manufacturer. Connectivity includes a sub out and a USB port for hooking up to the WAS1 Transmitter and Receiver, which extends the signal range and provides more source device connection options.



IN BRIEF

UK LAUNCH FOR CLINT DIGITAL



Danish lifestyle audio brand Clint Digital has landed on these shores with its new Asgard series of wi-fi and Bluetooth speakers. The range consists of the portable Freya, which is designed for use out and about and the more robust flagship Odin for long-term use at home.

Driven by a Class D amplifier, Freya is available in Bluetooth (£144) and wi-fi (£190) variants with DLNA streaming up to 24/192. Odin is a full-size speaker (above) with 2x 25W. It is also Class D, offers the same 24/192 streaming and costs £320. **CLINTDIGITAL.COM**

Cabasse StreamAmp

PRICE: £449 AVAILABLE: NOW WEB: CABASSE.COM

With dimensions that have more in common with a jewellery box, the StreamAMP from Cabasse is the latest addition to the growing number of plug-and-play streaming products currently available. The French company cites simplicity and flexibility as the cornerstones of the StreamAmp, and so it has been designed to stream centrally stored music files including downloads and CD rips from a

NAS with ease via wi-fi or Ethernet. Meanwhile, locally stored music from a tablet, smartphone or computer can be accessed via Bluetooth or NFC, while a high-definition connection can be quickly made using wi-fi direct. The box can be controlled using the new StreamCONTROL app for iOS and Android devices and it also provides control of both Deezer and Spotify, which are built in to the system.

The StreamAMP is home to four loudspeaker outputs, enabling stereo use with one or two pairs of speakers and there's a USB port for attaching storage sticks or hard drives. The preamplifier section includes RCA and optical S/PDIF inputs plus a preamp and subwoofer out. It's compatible with WAV, FLAC, WMA, AIFF, AAC, ALAC and MP3 files up to a maximum resolution of 24-bit/96kHz.

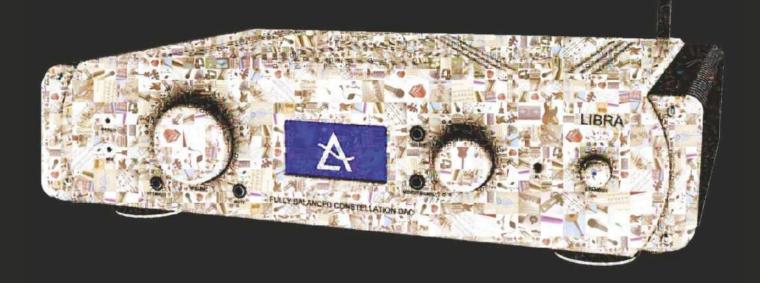


HEAR IT AT SOUND & VISION, BRISTOL



New Leema Libra

Made in Wales...



...from music!

Leema Acoustics Libra Reference DAC, Features:-

Dual I2S interfaces, one port features fully user assignable pin allocation . BlueTooth Field upgradeable DAC modules . Asynchronous USB via Leema M1 isolated interface SPdif via three optical and three coaxial connections. Fully balanced circuit topology User adjustable filter points . Three user selectable balanced or unbalanced inputs Balanced or unbalanced outputs . Front mount 3.5mm jack input . AES/EBU inputs PCM 24 bit 384kHz . DSD 64/128 . DXD 384kHz via Leema M1 USB computer interface



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Watching Polly perform

In support of PJ Harvey's live Recording in Progress at London's Somerset House which kicked off in mid January, each week Bowers & Wilkins has been giving away tickets through Twitter (@BowersWilkins) to its lucky followers: bit.ly/15svoOl



What's your Naim?

Owners of Naim hi-fi kit don't need much prompting to proudly show off their rather beautiful systems. @NaimAudio has been encouraging its followers to do just that via the #YourNaim hashtag, revealing a range of classic kit from back in the glory days to the very latest ranges.



Guess the KEF

Think you know your KEF speakers? Then make sure you follow @KEFAudio on Twitter to put your knowledge to the test via its **#guessthespeaker** teaser pics. We've spotted Reference classics and models sporting early generation Uni-Q drivers. Trv it out at: twitter.com/KEFAudio



Vine fun

That moment when you're lost in your music and forget what your headphones are connected to as you make a move, causing untold embarrassment as they're yanked off your bonce or worse. Cue JBL's hilarious

#CORDFAIL Vines: vine.co/jblaudio



Cut your own LPs

Fancy pressing your own vinyl? Then keep your eyes on the DRC (Desktop Record Cutter) project by Machina. Pro, which recently exceeded its \$10k Kickstarter goal when 106 backers pledged a whopping \$33k. Read the full story and tech spec at: http://kck.st/1ziHHZK



Noble art

Noble Audio's in-ear monitors represent some of the most refined headphones on the market, and it's not just their sound that sets them apart. Its Instagram wall is packed with product pics in some seriously stunning finishes that are pure hi-fi art: instagram.com/nobleaudio

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CHOICE TWEETS



uk/7-today_topic2425.html #AllAboutTheMusic GSP Audio Online Owner's Club - free to join!



TRANSCRIPTORS (@TRANSCRIPTORS)

ARC Turntable. Coming 2015.



ONE LITTLE INDIAN (@OLIRECORDS)

NEWS: We are reissuing the @bjork back catalogue on coloured vinyl for an exclusive period! http://bit.ly/1EuDWDi



MCINTOSH LABORATORY (@MCINTOSHLABS)

With its multi-chassis design, C1000 **#preamp** achieves absolute isolation of control & sound. http://bit.ly/15J7tdA



WILSON BENESCH (@WILSON_BENESCH)

Wilson Benesch announce Endeavour -CH Precision demonstration at the @SvBristolShow. Live demonstrations will take place daily between 2-3pm. #HIFI



HIFIX (@FRANKHARVEYHIFI)

"Why can't we let go of our old tech? - BBC News" #technology #news #trends

http://m.bbc.co.uk/news/technology-30879638



THE VINYL FACTORY

(@THEVINYLFACTORY)
Here are 15 new vinyl releases to look out for in early 2015: http://www.thevinylfactory.com/ vinyl-factory-releases/15-vinyl-releases-to-lookout-for-in-early-2015/



JAMES PALMER (@HIFIWIGWAM)

Hifi Wigwam Show 2015 aka Scalford http:// www.hifiwigwam.com/hifi-wigwam-

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HIGH FIDELITY CABLES (@HFCABLES)

Reading @HiFiChoiceMag bit on @PieandVinyl in SouthSea, UK. Jealously wishing #PiFi catches on in US #brilliantideas

http://tinyurl.com/pieFi



PMC SPEAKERS (@PMCSPEAKERS)

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the headphones combine insight and intimacy.

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standards this is a very special pair of headphones.

JANUARY 2015 | Hi-Fi News, UK



oppodigital.co.uk

Binary finery

When is a DAC not a DAC? When it's a fully functioning digital preamp. **Ed Selley** discards his analogue to listen in





IN-DEPTH



s a category, digital-toanalogue converters were on the verge of extinction only a few short years ago. Compact Disc ruled the roost and issues such as jitter gave technical

issues such as jitter gave technical credence to sticking with just a single box. Now, with CD in decline and a variety of methods of listening to digital taking its place, DACs are a big deal again. Not content with staving off extinction, digital-to-analogue converters now have other product categories in their sights.

The C 510 you see here would be notable enough as a DAC given that it includes some connectivity I've not encountered before, but that is only half the story. It also has full volume control and has it sights set firmly on your preamp.

To do this with any degree of transparency, the C 510 has to ensure that the level of the digital signal can be adjusted without affecting the content itself. Adjusting the level of digital by removing bits of it (literally bit reduction) is easy enough, but isn't a solution that will sound much good unless the volume is wide open. To get around this, the C 510 takes all

The clarity of the performance assists the sense of timing and agility

signals and upsamples them to 35-bits. This additional information is passed through a CSRA6601 8-channel digital modulator, which sacrifices this additional information to provide level adjustment without the original content of the file – even up to 24-bit/192kHz sample rates – being affected.

The advantage of this (allowing for an equally talented amplifier and infinitely sensitive speakers) is that the C 510 should sound the same at any of its 100 separate volume increments - no 'sweet spot', wonky volume ramping and no recessed performance or channel imbalance at low levels, just the signal as it is supposed to be. This is not the first time a product has used this process. Cambridge Audio and Chord Electronics - to say nothing of NAD itself (see In Sight) - have both used a similar volume control in their products, but in credit to NAD the C 510 really does feel like a preamp. Volume adjustment is swift and the large number of increments means you can set the level you actually want and not one you nearly want.



To make full use of this volume control, it has a useful collection of inputs. Most notable of these is a pair of HDMIs. These are capable of receiving a stereo 24/192 signal and decoding it before passing the video to an HDMI output. With Blu-ray audio always threatening to be another means of listening to hi-res, this is an interesting idea, although the omission of DSD support is a bit of a shame. These connections are joined by an asynchronous USB and a trio of conventional digital inputs, one coax, one S/PDIF and one optical. The C 510 then communicates to a matching amp via XLR or RCA connections. These have no switch between them suggesting they run simultaneously, which would allow for a sub to be connected as well as a power amplifier.

Coming up short

This looks like a good spread of connections but there is a lack of strength in depth. The AES input looks great but isn't that much use at this price point, while a single optical and coaxial connection is rather less than some of the competition, and leaves you a little short on 'normal' inputs. There is also no digital output, which again is usually fitted by the competition. The lack of analogue connections is more understandable as NAD makes great play of the 'purity' of the C 510 being unaffected by analogue connections, but it does mean that turntable users will have to get creative to get a deck working.

Visually, the C 510 looks like a NAD and not a new-fangled Master series one, either. I think that the grey has got a shade or two darker over the years, but it is still grey and the C 510 is unlikely to be a product you buy for the looks. This being said, the uncluttered lines and clear, easy to read display are welcome and the C 510 feels well assembled and well thought out to use. As already

mentioned, the volume control feels entirely 'normal' with good weighting and ramp. The feelings of normality are aided by a full function remote which while also not a thing of beauty, is easy to use and fairly well laid out.

Sound quality

Connected to a Cambridge Audio 651W power amp via XLR interconnects and running into Neat Momentum 4i speakers, the NAD makes a swift and compelling case that an entirely digital preamp need not be less characterful than an analogue one. With a laptop

The closest parallel that can be drawn is with a well-designed valve preamplifier

running Foobar connected via USB, the first and potentially most important part of the NAD's performance is that all of this upsampling and adjustment to fit the volume required at the time is inaudible. Not only does it make no impression on the sonic properties of the C 510, those properties are still within what might be seen as the NAD house sound.

Kicking off with the ripped CD of Gary Jules' Trading Snakeoil For Wolftickets, the C 510 has an effortless and almost liquid quality to it. At times, the closest parallel that can be drawn is with a well-designed valve preamp. There is something about the space afforded to voices and instruments that is more reminiscent of tubes than serious digital processing. Vocals in particular are rich, weighty and effortlessly convincing. The accompanying guitar is tangibly real too, with a marvellous sense of decay to notes. This is also



As the NAD is unique. direct competition is hard to establish but the Cambridge Audio Stream Magic 6 V2 (HFC 393) is about the closest rival. Like the NAD, it is a digital preamp with an entirely digital volume control. While the NAD is a multi-input DAC, the Cambridge is a **UPnP** streamer with additional inputs. Both offer excellent performance, but the volume control of the NAD is smoother and much more pleasant to live with than the Cambridge. The Stream Magic retaliates with app control and internet radio, which makes it potentially more flexible. In either instance, both make a convincing case for the all digital preamp.

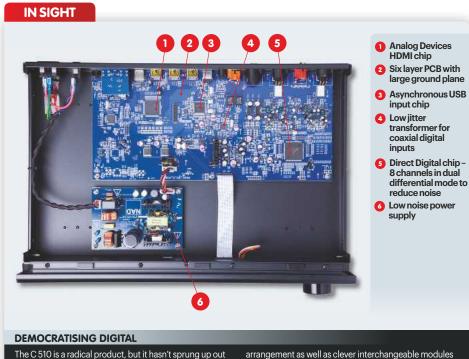
entirely consistent. Importantly, the C 510 lives up to NAD's promise of linear volume and fixed behaviour at all levels – well, almost. While it could just as easily be another component in the audio chain, the NAD undoubtedly has a point on the volume at which there is a jump in the energy and life to the performance. Happily this is a point easily reached in normal listening.

The spaciousness of the performance allows for the C 510 to show off another attribute to great effect. The detail retrieval is truly exceptional and it is able to find incidental moments in recordings that even very capable and more costly rivals can miss. The clever part of this is that due to the refinement and control, it never comes across as analytical or ruthless. There is plenty of information available all the time, but all the NAD does is present it for your consideration, not ram it down your throat.

This refinement is not achieved at the expense of drive and impact, though. Switching to Regina Spektor's Far, it takes on Dance Anthem Of The 80s with speed, deftness and a genuine sense of fun. And 'fun' is a word that crops up in my notes repeatedly during testing.

NAD has achieved its design brief with the C 510 – it genuinely is an excellent preamp that happens to be digital, but none of this sheer ability has come at the expense of ironing the joy out of music. The clarity of the performance assists the sense of timing and agility and the accuracy of the tonality is enough to ensure that the original emotion of the music is maintained throughout.

Moving to high-resolution files, in this case, the 24-bit/96kHz version of Paul Simon's *So Beautiful or So What*, sees the NAD make fine use of the extra information available. The almost analogue quality that good hi-res can possess is shown to good



of nowhere. NAD has been experimenting with digital preamps and what it refers to as 'Direct Digital' amplifiers for a number of years and what is notable about the development is that it has been accompanied by falls in price. Its original product was the enormous and rather pricey M2 integrated in the Masters series. This introduced the idea of the all-digital front end to an ampeven the analogue input is converted to digital, but does without the C 510's clever volume control.

This first effort was followed by the 390DD integrated amp, which features a version of the 35-bit volume control

arrangement as well as clever interchangeable modules to decide on the inputs that will work best for you. This step forwards was accompanied by a 50% reduction in the asking price of the M2. With the design premise now a firm part of NAD's product lineup, the first all-digital preamp was the M51, which like the M2 is part of the Masters series. This features an identical spec and connections to the C 510, which makes the latter something of a bargain if you don't mind the slightly more prosaic appearance. NAD has also used the 35-bit preamp technology in the M12, which offers greater input flexibility thanks to the modular board slots on its rear.

effect here. The DAC also seems fairly unconcerned about how these files reach it. Running the same files through the coax via an Arcam airDAC and then through HDMI from a Cambridge Audio 752BD reveals no perceptible differences to the way it goes about decoding them. Given how many Blu-ray players have halfway decent UPnP renderers built into them, the HDMI connections begin to make a great deal of sense. Provided, of course, that you aren't planning to use the audio output from the player anywhere else as that HDMI output is video only.

Conclusion

The C 510 is an unusual product. The intended role is bold and in an industry that tends towards the conservative, I can see it meeting a little resistance from some quarters. The analogue preamp has become an area where systems have fine tuning applied to their performance, and to simply knock it out of your system and entrust the task to your digital front end will take a little getting used to. There are also unanswered questions about what exactly the vinyl fraternity is supposed do in these circumstances.

The only way that the NAD can go any way towards addressing these concerns is to be extremely good, and this is exactly what it manages to be. In control terms it behaves like a preamp and while I'm not completely convinced the balance of inputs is exactly right, the ones that are fitted work well and offer very consistent performance. And it's the performance that makes this product truly special. The NAD C 510 is a clear indicator that combining your decoding and your volume control isn't simply convenient, it can also be sonically excellent too

Choice **OUR VERDICT** SOUND QUALITY LIKE: Exceptional, very consistent performer: **** inputs; good value VALUE FOR MONEY **DISLIKE:** Limited **** coaxial and optical inputs; no DSD; looks **BUILD QUALITY** WESAY: Accomplished **** product that simplifies a digital system and FEATURES boosts performance **** at the same time **OVERALL** * * * *

Q&A Greg StidsenDirector, NAD Electronics



ES: HDMI is still a fairly unusual fitment on stereo products, is its presence here covering the bases or a belief it has more to offer as a stereo connection?

GS: HDMI has very wide bandwidth and transmits PCM's native I2S format. The fact that it is an encrypted link – we believe – gives it universality for any copyrighted material that might come along. All the digital formats the C 510 supports are properly engineered and should give good results with audio signals. With HDMI there is the added benefit of stripping the audio and passing through the video of Blu-ray discs for a compelling two-channel experience, particularly with live music discs.

At the moment, the C 510 can interact with most source equipment in the NAD range, bar the phono stages. Is an analogue-to-digital phono stage under consideration?

We do make a digital phono stage module that is part of our more expensive Modular Design Construction models (C 390 and M12), but the C 510 unfortunately does not include the MDC feature. We think vinyl aficionados will typically look to a more traditional analogue preamp.

Does NAD feel that the analogue preamp has much of a future outside of dedicated analogue applications or is it the shape of things to come?

By performing all preamp functions in the digital domain we can offer superb dynamic range and audio precision that would be very expensive to achieve using analogue circuits. Further, with the growing popularity of high-resolution audio, we feel that inserting the multiple analogue stages of a traditional preamp only adds noise and distortion that can obscure the musical detail available with the best 24-bit Masters. We think the architecture of the C 510 is the shape of things to come.

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French fancy NAD C 510 Beautiful System from style-maker Elipson p90 24/192 DAC/preamp that's a music master Why Wharfedale's 230 floorstander is such a gem Bose, Eclipse, JBL, Philips, Sennheiser & Sony SHOP PRICE & **'5%** on digital **DENON HEOS** Multi-room setup to challenge Sonos Six Bluetooth cans for music on the go Stunning 100A integrated

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How we te

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

Unique group tests

Our Group Tests are supported by rigorous and exhaustive listening tests carried out by experts

BLUETOOTH HEADPHONES GROUP TEST

THIS TEST IS carried out in three distinct phases. First, the headphones are wired to a Lenovo T530 ThinkPad running Foobar via a Cambridge Audio DACMagic XS headphone DAC. Levels are set by placing both earpads over a SPL meter while a pink noise test signal is generated. The background noise levels of the room are also checked for consistency. This done, the listening test program is carried out.

Wireless testing is undertaken with a Motorola Moto X 2014 mobile phone - a Bluetooth aptX and NFC-capable Android device. This is linked to each headphone and levels matched as before. The test material is then replayed via the Tidal streaming service and the headphones

are run through the same test program as when wired – with the obvious change being that the hi-res Pink Floyd recording is now played back at 44.1kHz resolution.

Having completed the listening program, each headphone is put through a two hour test that features music playback, some podcast listening and a 10 minute phone call to ensure that none are sufficiently bereft of battery life to be unable to manage this fairly mundane usage.

A final test concerns the maximum range of the Bluetooth connection in real-world domestic conditions – this may differ from the claimed figures that are likely to have been undertaken in the best range conditions.



BLIND LISTENING TESTS

This crucial process is very carefully controlled so that we get reliable and consistent results in a relaxed and friendly atmosphere. Our listeners must not feel that they're being tested, despite being unaware of the brand or price of the products they are auditioning.

The session begins by setting the volume level to an agreed point, one that all three panellists feel comfortable with, yet that is

high enough to make differences easily discernible. Then the choice of music is agreed - it needs to be familiar, but also well recorded and of sufficient variety to give meaningful listening comparisons. The chosen selection of music is played, and the panellists are encouraged to discuss their impressions of the sound of the product. This is then repeated, and periodically the panel listens to earlier products for reference purposes. The

consensus, or otherwise then forms the basis of our sound quality section.

At the end of the session, there's a final debrief when panellists discuss their findings. It's an exhaustive process, but carried out in this way is free from prejudices based on brand, price or appearance, while the different sensitivities of the listeners help to round out the analysis in order to make it more widely applicable.

☑ REFERENCE SYSTEM

Lenovo T530 ThinkPad Motorola Moto X 2014

HEADPHONE AMPLIFIER/DAC Cambridge Audio DACMagic XS

TEST MUSIC

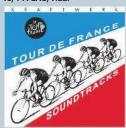
PINK FLOYD
The Division Bell Keep Talking 24/96 FLAC/Tidal



Head Down, All The Way 16/44 FLAC/Tidal



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Grouptest

Smart move

Ed Selley checks out six of the latest Bluetooth headphones

TAKE A LOOK around at passers-by when you're out and about in any town or city and it's clear to see that the humble headphone has become the must-have audio accessory for any music lover on the move. There's has grown massively over recent years, with more models from serious hi-fi brands being launched than any other product line, giving music fans lots of great-sounding choices.

As the way we listen to music is more increasingly accessed via portable smart devices that connect to cloud-based storage or music streaming services, we are able to enjoy our music in a much more intimate and personal way on the move from just about anywhere with a wi-fi signal and a decent set of cans.

Sound of silence

Wireless headphones have come a long way since the hissy days of FM-based models offering a range of typically 25m, which made them a favourite with users that wanted to listen to their tunes played out from a hi-fi system located in the house while being sat in the potting shed at the end of the garden.

DECT models helped to significantly reduced background hiss that plagued FM-based units by utilising the open 2.4GHz radio frequency band, but this was also used by other devices in the home such as cordless phones, and became prone to interference from other transmissions sharing the same frequency range.

Today wireless connectivity may not have the range of FM-based models, but Bluetooth is secure and has grown into the favoured wireless connection found on pretty much every smart device around - simply pair up your device to compatible speakers or headphones, and away you go. It's stable over short distances and audio quality has improved significantly in recent years to deliver near-CD quality. To find out which of these six Bluetooth headphones give the best wireless performance for beats on the streets, read on.







Bose SoundLink On-Ear £220 p27 The bold colour

scheme may not be the easiest on the eve or the most stylish, but this compact Bluetooth model is among the lightest in the group, has decent comfort levels and uses voice prompts to give useful pairing and battery charge status.



Synchros S400BT £200 p29 Hailing from the

Harman group of brands, JBL is able to draw on the expertise of dedicated headphone specialist AKG. It's the weightiest model in the test, but comfort isn't compromised and it has all the hallmarks of a capable performer.



RP-BTD10

RP-BTD10 £130 p31 This bargain-priced model offers outstanding battery life and is simplicity itself in terms of the rather straightforward design and ease of wireless connectivity. **But have crucial** corners been cut elsewhere in a bid to keep the price low?



Philips Fidelio M2BT £250 p33 The Fidelio range has

grown considerably over the last few years, with several models of headphone joining the acclaimed sub-brand. This is the only Bluetooth option in the range, but does it live up to expectations or is its sound as sober as its black finish?



Sennheiser MM 400-X

£180 p35 As the most compact model in this test, the Sennheiser has its work cut out to compete with the larger competition. But its portability and the dedicated headphone brand's considerable sonic talents look to ensure that it's a very worthy contender



Sony MDR-10RBT £170 p37 Sony has recently

returned to stereo, and with renewed interest in its Walkman audio products, it has a growing headphone range to rival more dedicated brands. This mid-price model has all the style we expect from the brand, but how does it sound?





Derby: Musicraft

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Bose

SoundLink On-Ear £220

The colour scheme might be something of an acquired taste, but the performance is a lot more reassuring

DETAILS

PRODUCT Bose SoundLink On-Ear

ORIGIN US/China

Bluetooth supraaural, closed-back headphone

WEIGHT 152g

FEATURES

- Voice prompt Bluetooth
- Proprietary Tri-
- Port technology

 Carrying case

DISTRIBUTOR Bose UK Ltd

TELEPHONE 0808 1688572

WEBSITE bose.co.uk oise cancelling technology is the area that Bose is perhaps best associated with in headphone design, but the king of convenience has now moved into Bluetooth and the SoundLink On-Ear is the smaller (although curiously also pricier) of two models the company offers. In size terms, this puts the Bose in roughly the middle of the pack with the Philips being the closest match in size terms.

Bose has never been the most revealing of companies when it comes to design and specification of its products, and the exact spec of the SoundLink On-Ear is bit of a mystery. It makes use of what Bose refers to as 'Tri-Port technology', but this doesn't do much to describe what is actually producing sound. Bose is also not being drawn on whether the SoundLink is aptX-capable and only goes so far as to say that it will work with version 2.1 and later. A 120cm



conventional cable is supplied for wired listening and like many of the models in the test, this terminates in a 2.5mm jack at the headphone end, which limits use of a longer cable.

As a more 'lifestyle' category than dedicated home headphones, there was always going to be a reasonable chance that one or more of the headphones on test might sport a finish a little bolder than usual, but the Bose still manages to cause more than a moment's pause. The blue, white and tan colour scheme is a little on the garish side and the tan bit in

The performance is very well integrated and there is plenty of detail on offer

particular is not exactly to my taste, but a black version is available and looks more restrained. This being said, the build quality is good and the SoundLink is comfortable to wear as it has excellent weight distribution and a pleasant resistance against the head.

As befits the most expensive model in the test, it has decent supplied accessories. As well as the wired cord, there's a USB cable for charging and a compact carry case. Another welcome bonus is that replacement cables, earpads and cases can all be ordered off the Bose website, which augers well for a long life.

Sound quality

The SoundLink is one of the more sensitive designs in the test and needs very little output from the DacMagic XS to reach the test listening level. The overriding quality that it demonstrates across all the test material is a smoothness and refinement that seems to elude some of the other models here. The sumptuously mastered 24-bit/96kHz FLAC of Pink Floyd's *Keep Talking* is well presented and there is plenty of fine detail in the performance. With the more rough and ready Rival Sons' *All The Way*, where some other models can be a

ON THE MOVE

The Bose is unique in that it uses voice prompts to give information on pairing and battery status. While this sounds a little gimmicky, it is simplicity itself to pair with both test phones. Once paired, the sound quality is very similar to the performance when wired. The SoundLink stays smooth and refined and there is no audible change to the noise floor. There is no evidence of dropouts or interference when running on Bluetooth and while the claimed 9m range is not met with either phone, the Bose does manage to produce a stable signal at 8m. which is far from unimpressive. Track skip and stop commands are easy to perform from the switch type control and work every time. The claimed battery life of up to 15 hours is possibly a little optimistic, but the Bose manages the two-hour test run without a hitch and recharge is commendably quick, too.

touch on the strident side, it is extremely easy to listen to.

In a test of headphones where there is some decidedly overpowering bass on offer, it is slightly hard to tell whether the Bose is a little bass light or actually producing something nearer reality, but there isn't the low-end shove that some other models can generate with Kraftwerk's *Vitamin*. Where the Bose manages to hit back is that the performance is very well integrated from top to bottom and there is plenty of detail on offer.

The SoundLink looks and performs in a way that suggests that a great deal of time and thought has been spent ensuring that it is easy to use and live with and this has resulted in a headphone that manages to get much more right than it does wrong. The asking price is a little high, but there is much to like here •

HHI Choice

OUR VERDICT



LIKE: Good build; easy to use; refined and detailed sound

DISLIKE: Slightly soft bass response; high price; vivid colour scheme won't suit all

WESAY: A well-designed headphone that is suited to use on the move



FEATURES



Spendor D7 Technology or Music?











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However it's been achieved, we can't help but marvel at the sound. Spendor D7's set the standard for speakers at this price What HI-FI Oct 2013

Among the finest speakers I've heard at any price Sam Tellig, Stereophile Nov 2014







The A6Rs truly are a stunning achievement What Hi-Fi Awards 2014



Let the Technology work Hear the music



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JBL

Synchros \$400BT £200



One of the bigger designs in this roundup, the bold styling conceals a rather capable all rounder

DETAILS

PRODUCT JBL Synchros S400BT

ORIGIN US/China

Bluetooth supraaural, closed-back headphone

WEIGHT 275g

FEATURES

- 40mm dynamic drive
- AptX and NFC
- Bluetooth Touchpad control

DISTRIBUTOR Harman UK

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uk.jbl.com

s a member of the Harmann International Group, JBL is able to call on the considerable resources of the company - including dedicated headphone brand AKG for technical knowhow. The Synchros S400BT is the most upmarket of three Bluetooth-equipped models and also the largest. This means that it vies with the Panasonic offering to be the biggest of the designs in the test.

The large dimensions mean that the S400BT is still a folding on-ear design, but the earpad covers the entire ear and offers a useful degree of isolation from the outside world. Each enclosure houses a single 40mm driver and like a number of other designs in the test, the wired connection terminates in a 2.5mm jack connection. The S400BT is well specified in Bluetooth terms offering both aptX support and NFC 'touch to pair' functionality.



Aesthetically, the JBL has some styling touches that might exasperate those of us settling into middle age - like the detailing to make the driver enclosures look like speaker baskets - but in a field of models that glow and make bold use of some unexpected colours, the black finish of the review pair is fairly restrained. A white version is available for those that want to make more of a statement. This is not to say that there aren't some bold flourishes. The large JBL logo on each side lights up depending on what the S400BT is doing at any

It manages to use its powerful sound to come across as refined but fun

one time. This also acts as a touchpad for volume, track skip and play/pause and it works better than expected, but not as effectively as the buttons on the Panasonic or Sony models.

The fit and finish is solid and the choice of materials is generally good. The large earpads make the S400BT comfortable to wear for long periods, even if the 275g weight is towards the higher end. A good quality - if rather large - carry case is supplied along with a 1m audio cable and USB lead.

Sound quality

The JBL is a little less sensitive than the group average, but still proves an easy enough load for the DacMagic XS to reach the test level. Connected via cable, it manages to do a great deal of things right. JBL makes no secret that its models are voiced for use on the move and this generally results in there being more bass than a conventional home headphone, but the S400BT integrates the hefty low end into the rest of the frequency response commendably well. This allows it to sound big and in control with the 24/96 Floyd track. The performance stays civilised even at high levels and is not easily provoked into harshness or aggression.

LET THERE BE LIGHT

The light up logo of the S400BT is undoubtedly very smart, but not actually that much use as an indicator when it comes to pairing it with devices. The NFC 'touch to pair' function does function with the Nexus 5, but not the Moto X and the latter puts up quite a fight to pair at all. Once connected, the JBL performs well with low noise levels and the same big, powerful but fun sound that it shows when wired. Once you are used to the touchpad, stop and skip commands can be done fairly smoothly, but volume is not as good as a standard button arrangement. JBL makes no claims for maximum range, but it comfortably manages 7m before interference on test and at distances closer than this there is no sign of dropout or interference. There are also no published figures for battery life, but the \$400BT manages the two-hour test program without a hitch.

What really gives the JBL an edge over many of the rival designs is that it manages to use this powerful sound to come across as refined but fun at the same time. The Rival Sons are delivered with assurance and drive while Kraftwerk and the final Mazzv Star test piece show the S400BT to be capable of both large scale and inviting tonality at the same time. Only a very slight thickness to the lower midrange that seems to mask some finer details in this area really marks them down against dedicated home headphones.

It might be a touch gimmicky in part - I imagine a fair amount of effort went into making that touch panel control almost but not quite as good as using buttons – but this doesn't interfere with what is a very refined and capable headphone that has the comfort and capability to work as well at home as it does on the move •



OUR VERDICT



LIKE: Powerful and assured sound: comfortable to wear

DISLIKE: Can be hard to pair; gimmicky touchpad; slight midrange thickness

WESAY: A good all-rounder albeit at a slightly high price that's bettered elsewhere







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Panasonic

RP-BTD10 £130

User friendly to a fault, unfortunately the Panasonic isn't quite as assured when it comes to sonics

DETAILS

PRODUCT Panasonic RP-BTD10

ORIGIN Japan/China

TYPE

TYPE
Bluetooth supraaural, closed-back

WEIGHT 270g

FEATURES

headphone

- 40mm dynamic driver
- AptX and NFC
 Bluetooth
- 30 hours claimed battery life

DISTRIBUTOR

Panasonic UK

TELEPHONE 0844 8443899

WEBSITE panasonic.co.uk

aving recently reinstated the Technics brand, Panasonic has been rediscovering its hi-fi mojo of late but considering that it makes almost everything else with a plug, it hasn't been building headphones with the same enthusiasm as some rivals and the RP-BTD10 is the only Bluetooth model in its rather meagre range. As well as being the cheapest model in the test, it is also available substantially discounted.

Nothing in the spec suggests that any significant corners have been cut in building the Panasonic to this price, though. The RP-BTD10 is built around a pair of 40mm dynamic drivers meaning that it is roughly the same size as the JBL and Sony and is one of the larger models in the test. The Bluetooth implementation includes aptX support and NFC 'touch to pair'. The wired connection is a 3.5mm socket, which means that a longer



cable could be used if you wanted to. The website photos of the Panasonic rather accentuate the shine on the trim ring of the earpads and I think that the photograph below is a fairer representation of its true appearance. The overall effect is good, but not great. The design is fine as far as it goes, but the materials don't feel as good as the JBL and Sony in particular and some aspects like the curious extra sections of the headband look awkward. The way that it is bolted together is perfectly acceptable, though. The weight isn't quoted, but

The Bluetooth implementation and control interface are extremely good

comes in near the JVC at 270g. This is well distributed, but the high sprung headband and rather limited padding on the earpads mean that it is not especially comfortable when worn for longer periods of time.

This is the only headphone in the test that doesn't come with a carry case, which is strange considering it's designed for use on the move. It also doesn't fold down in any way other than the earpads rotating to flat. The expected audio and USB charging cables are supplied, however.

Sound quality

This is a reasonably sensitive headphone and does not need a huge amount of the DacMagic XS's output to reach the test level. It becomes clear fairly quickly during listening that although it is one of the larger models, it is the headphone that struggles the most with deep bass. Both the Pink Floyd and Kraftwerk test tracks lack the drive and power that some other designs bring to the performance and while the bass is better integrated with the rest of the frequency response than some, it robs the Panasonic of a degree of authority and also means that despite the reasonable isolation, it can struggle in noisy environments.

GETTING CONNECTED

The Panasonic is simplicity itself to connect to other devices over Bluetooth and pairs to both test phones quickly and effectively with NFC working well on both. The 'ready to pair' and 'paired' indicators are simple to understand making the whole process completely painless. Once connected, it proves stable and free of dropouts up to a maximum range of over 7m. The controls on the side of the earpad are well arranged, extremely simple to use and work reliably with both devices. AptX or not, the Panasonic doesn't alter the sonic performance over Bluetooth and the same raggedness at the frequency extremes is present over the wireless connection - in the interests of fairness, it must be said that performance is certainly not any worse when used in this manner. With a claimed 30 hour battery life, the BDT10 has no trouble completing the two-hour test program.

This lack of low-end urge is also joined by the brightest top end here and this means that with the brash Rival Sons piece, the RP-BTD10 can sound a little edgy and forward. This is a shame because between these two frequency extremes is a detailed and tonally accurate midrange that renders voices in a believable and involving way. There is also a pleasing sense of rhythm and timing.

As the least expensive headphone here, it offers a convincing spec for the money but compared with slightly more expensive designs it reveals some rough edges and limitations sonically. This is a shame because the Bluetooth implementation and control interface are extremely good, suggesting Panasonic understands the fundamentals of the category. A little more polish to the sonics is needed to challenge the best in the group •

HHIChoice

OUR VERDICT

SOUND QUALITY

A A A A

VALUE FOR MONEY

A A A

BUILD QUALITY

A A A A

LIKE: Excellent BT implementation; price; smooth midrange

DISLIKE: Less accomplished at frequency extremes; doesn't fold; no case

WESAY: Low cost comes at the expense of a limited sonic performance

OVERALL

FEATURES





ROKSAN

K3 Integrated Amplifier & CD Player

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The K3 Integrated Amplifier has been built with today's discerning audiophile in mind. Boasting five Line Level inputs, an exceptional Moving Magnet phono stage and superior aptX® Bluetooth technology; it is an ideal hub for all manner of audio sources. There is power and bass drive in abundance, with superb sound staging and engaging detail that is both refined and enjoyable.

The K3 CD Player is a high-quality source component that delivers a rich, almost analogue, sound performance that perfectly matches the Integrated Amplifier's delivery. When using these products together, you have a package that is truly unrivalled for the price.



Philips

Fidelio M2BT £250

It might look rather restrained, but the Philips is a bit of a monster, especially when it comes to low-end rumble

DETAILS

PRODUCT Philips Fidelio M2BT

ORIGIN

Netherlands/China

Bluetooth supraaural, closed-back headphone

WEIGHT 190g

FEATURES

- 40mm dynamic drive
- AptX and NFC
- Bluetooth Memory foam
- earpads DISTRIBUTOR

Philips UK

TELEPHONE 0207 9490241

WEBSITE philips.co.uk

he Fidelio range has been growing steadily and there is now a significant choice of on-ear, over-ear and in-ear models on offer. Like the Panasonic, the M2BT is the only model in the range to feature Bluetooth. This is an on-ear design and is fractionally smaller than the 'big three' models in the test and is roughly comparable sizewise with the Bose offering.

Although it is slightly smaller than some of the other models here, the M2BT manages to fit a 40mm driver into each housing. This sits on the ear rather than partially enclosing it. AptX support is included as is NFC 'touch to pair'. The wired connection terminates in a 3.5mm jack at the headphone end, which allows for the use of a longer cable although the cable that comes supplied has a curious looking three-point plug, which appears to be to beef the connection up rather than add functionality.



The M2BT is perhaps the most sober looking of all the headphones on the test. Some members of the Fidelio range have coloured trim or other bright work, but this one is entirely black and while this isn't terribly exciting, it does mean you won't attract very much attention using it out and about. Using the Philips on the move should be no problem either as it's a comfortable device to wear. Thanks to memory foam pads, the headband is able to exert a fair amount of pressure on the head to stav in place, but avoids squashing your ears at the same time.

For a relatively compact 'phone, it has truly prodigious low-end extension

The build and finish might be sober, but it has been done to a high standard using some good-quality materials. There are some curiosities, though. This is another non-folding design and combined with the rather shapeless carrying bag supplied, it isn't the easiest of the headphones to stow away. Philips supplies a 1.1m audio cable and USB charging chord.

Sound quality

The performance of the M2BT is dominated by the bass response. For a relatively compact headphone, it has truly prodigious low-end extension and for good and bad reasons, this dictates how the Fidelio performs. With the Floyd track, the bass just about stays on the well behaved side and adds a welcome sense of power and scale to the presentation. With both the Rival Sons and Kraftwerk pieces though, the bass output tends to dominate the whole performance.

This is a shame because what is happening above this Herculean low end is rather good. The M2BT is impressively refined even at high listening levels and the handling of vocals in particular is convincing and lifelike. An area where it is also

ACE OF BASS

With only three small status lights to indicate its paired status, the Philips Fidelio M2BT is not quite as self-explanatory as some of the rival models on test here and unusually in the group has more issues pairing with the Nexus than the Motorola. Once paired, the M2BT doesn't reach the claimed range of up to 15m but still manages over 8m, which is more than acceptable. The Bluetooth stability is very good too with no crackles, drop outs or other interference and the performance is no different to how it is with the wired connection. This means, of course, that there is still that rather dominating low end, but when used in noisy environments this bass heft is able to keep some external noise at bay and this does mean that it is an effective device when used out and about. Philips claims a life of up to 10 hours and the two-hour test is completed without incident.

particularly strong is presenting material with a sense of soundstage, which is always a challenge for headphones. It also manages to sound fun with the upbeat Rival Sons track, but then avoids going on to force the Mazzy Star piece. The latter also manages to sound rather more natural as there is fairly limited bass on it.

This is a very assured headphone, but one that is constantly trying to restrain that huge bass shove. The thinking behind this voicing is the increased resistance to the outside world that it is likely to have and this does partially work, but this does limit its value as an all rounder. The M2BT simply doesn't sound right when used as a home headphone when compared with some rivals here and unless you live for some serious bass in your life it is unlikely to be a truly satisfying long-term listen •

Choice

OUR VERDICT



LIKE: Comfortable, well built with smooth and refined top-end performance

DISLIKE: Overblown bass dominates; poor travel bag

WESAY: Does a lot right, but the bass response isn't great for home use



FEATURES



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Sennheiser

MM 400-X £180

They say that size matters, but as the smallest model on test the MM 400-X still packs a punch

DETAILS

PRODUCT Sennhesier MM 400-X

ORIGIN

Germany/China

TYPE

Bluetooth supraaural, closed-back headphone

WEIGHT 105g

FEATURES

- AptX BluetoothCompact folding
- 20 hours talk time claimed

DISTRIBUTOR Somboisor III

WEBSITE

en-uk.sennheiser.

he in a

s the only dedicated headphone manufacturer in the test, Sennheiser has a range that is vastly larger

than any other company here, but still doesn't have that much in the way of Bluetooth models. The MM 400-X is one of three models and is designed with portable use in mind.

Though comfortably the smallest of the models on test, the MM 400-X is the most 'on-ear' of all the designs, leaving a considerable amount of ear uncovered. Sennheiser is almost as secretive as Bose in terms of what makes the MM 400-X tick, but given the enclosure is barely 40mm across, the driver might be smaller than the other designs here. The spec is competitive though. It omits NFC pairing, but uses the aptX codec as part of the Bluetooth implementation. The wired connection is via a 2.5mm socket, which unusually enters the right hand side of the headphone. The small earpads and the wide



headband combine to make it look a bit unfortunate. There is a definite method to the madness, though. The MM 400-X folds down to the smallest form factor of all the models here and when unfolded it manages to exert enough pressure on the head to stay where it needs to but manages to be fairly comfortable, thanks to decent padding and the curious 'horseshoe' shape of the headband.

The Sennheiser feels solid despite the spindly appearance and is supplied with a case that manages to make full use of the compact size it becomes

The most significant attribute is excellent balance across the frequency range

when folded. Sennheiser supplies a slightly thin and fragile 1m cable for wired listening and an obligatory USB charging lead.

Sound quality

The MM 400-X might be the smallest headphone here, but it also requires the most power from the DacMagic XS to reach the test level. The trade off to this stiff power requirement is that it gives little away in terms of power or scale to the larger models on test. The most significant attribute that the Sennheiser shows across all the test material – but most of all with the pounding low-end drive of the Kraftwerk track – is an excellent balance across the entire frequency range. The performance lacks some of the outright excitement that some other models have, but perhaps more than any other headphone here there is a sense that the MM 400-X is giving you a fairly accurate and unembellished performance.

Compared with the Sony and JBL in particular, the smaller size means that it can't rival their absolute low-end extension but it has a tonal sweetness and realism that is very likeable and easy to listen to. The rough and ready Rival Sons piece is

NO NFC, NO PROBLEM

The lack of NFC pairing on the MM 400-X isn't too onerous and it pairs with both devices with a minimum of fuss. The controls on the side of the earpad are logical once you get used to them and Sennheiser's decision to use separate buttons rather than the multiple taps of the same one is beneficial. Once paired, the MM 400-X puts in a generally solid performance, but is the only headphone that suffers a random dropout and also has the shortest range - although at over 6m you can still be a fair distance away from the connected device if you need to be. The strong sonic performance of the MM 400-X is maintained over Bluetooth and it has enough power on board to reach good listening levels despite the low sensitivity. Sennheiser claims up to 10 hours of listening time and the MM 400-X doesn't have any problems with the two-hour test cycle.

handled with enthusiasm and drive, but without showing up the slightly brittle nature of the recording. With better recorded material like the Kraftwerk track, it is enjoyably even handed. There are limitations, though. The MM 400-X struggles to create a presentation that is quite as large or spacious as the bigger designs and once you pass a certain volume level it starts to lose some of this smoothness and control.

There is much to like about the way the MM 400-X makes music and this is the most portable and practical of the designs here and that curious appearance makes more sense when you use it. Depending on whether you are intending to strike a balance between home and mobile listening, the small size and limited sensitivity means there are some slightly more talented all-rounders on offer ●



OUR VERDICT



LIKE: Smooth, refined sound; solid build and excellent portability

DISLIKE: Low sensitivity; slight lack of bass weight; ungainly appearance

WE SAY: An effective portable option, but it is not the best allrounder here



FEATURES



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Sony MDR-10RBT £170



The Japanese giant has been getting back into hi-fi in a big way of late, but has it still got what it takes?

DETAILS

PRODUCT Sony MDR-10RBT

ORIGIN Japan/China

Bluetooth circumaural, closedback headphones

WEIGHT 210g

- FEATURES

 40mm dome dynamic driver
 • AptX and NFC
- Bluetooth Bass enhancing vent system

DISTRIBUTOR Sony UK

TELEPHONE 0207 3652413

WEBSITE sony.co.uk

fter treating two-channel products as a rather poor relation of more dynamic categories for some years,

Sony has recently returned to stereo in a big way, which means that it now has a headphone range that is getting close to the size of Sennheiser's. Bluetooth is featured on a few models and the MDR-10RBT sits in the middle of this lineup at its relatively competitive £170 price point.

This is one of the trio of full-size headphones with the JBL and Panasonic, which means it covers and partially encloses the ear. It makes use of a pair of 40mm neodymium drivers and Sony has apparently deemed them compatible with HD material. The MDR-10RBT is aptX-capable and offers NFC pairing to boot. The wired connection is a 3.5mm socket allowing for use with longer cables if needed.

Sony has historically been adept at designing a little visual flair into

products while avoiding them looking like a mass of flashing lights and gaudy colours and the MDR-10RBT is in keeping with this aesthetic. The gunmetal housings and red trim look smart without being brash and the design is clean and elegant. This is another model that doesn't fold, apart from the earpads laying flat and it is reasonably compact if you do so. It is also extremely comfortable with a pleasant combination of headband springing and padding making for a design that is easy to wear for longer periods of time.

It's able to go suitably loud without tipping over into harshness or aggression

As well as looking reasonably good, it's well assembled and feels solid and a little more expensive than it costs. The accessories that are supplied are in keeping with the group and you get a carrying bag (not as nice as the JBL, Bose or Sennhesier), a 1.2m audio cable and a USB charging lead.

Sound quality

Slightly more sensitive than the group average, the Sony doesn't strain the DacMagic XS to reach the test level and once there, it proceeds to do a great many things right. Like the Sennheiser, it does a passable job of neutrality. It sounds very even and consistent from the top to the bottom of the frequency response and manages to possess an impressive amount of bass extension without the bass itself dominating the whole performance or masking higher frequencies. It is also able to go suitably loud without tipping over into harshness or aggression and can do so on fairly low-powered headphone outputs. With both Pink Floyd and Mazzy Star, the MDR-10RBT sounds extremely convincing.

It isn't perfect, though. With the Rival Sons test track and other listening carried out outside of the fixed pieces,

WELL CONNECTED

The MDR-10RBT is reasonably easy to pair. After a bit of resistance, it makes an NFC connection with both test phones that is entirely stable once established. A range of just over 7m is achieved before any dropout is suffered. The controls on the earpad are based around buttons and are certainly up with the Panasonic as the best of the bunch being well laid out, easy to understand and completely effective. The MDR-10RBT is the only headphone here with different quoted performance figures for Bluetooth and wired connection, but the positive traits established when listening to wired are still present and correct over Bluetooth, and the Sony manages the same appealing balance of believable tonality and an entertaining presentation. There are no claimed battery life figures on the Sony website, but the MDR-10RBT manages the two-hour test program without any problems.

there is a slight thickness to the lower midrange that can rob the Sony of a little fine detail in this area and there isn't the sense of space and positioning that the Philips is capable of. These foibles don't take away from its ability to be both usefully accurate and entertaining at the same time. With voices and instruments, it manages to sound believably real and possessed of genuine scale. With the potent Kraftwerk piece there is a very happy balance of power and entertainment.

Like the JBL, the MBR-10RBT is well adapted for use on the move but is also able to pass muster as a home headphone with satisfying results. When you consider the grown up but still rather smart aesthetic, the solid build quality, decent comfort levels and appealing price, you have a headphone that manages to be the best all-rounder here

Cholce

OUR VERDICT



LIKE: Refined but entertaining and convincing sound; good build; good price

DISLIKE: Slight lower midrange thickness; doesn't fold

WESAY: A very convincing performer that works well in BT and as a home design



FEATURES



Group test verdict

He's given this month's contenders a thorough listen to both with and without wires, so it's over to **Ed Selley** for the final scores on the doors

ALL OF THESE headphones have something to offer and for the most part were pretty decent performancewise, but the Panasonic is the model with the most limited appeal. The excellent control interface, low asking price and solid Bluetooth implementation can't mask the slightly limited sonic performance compared with the competition here. The Philips by comparison is a strong performer in many areas and promises much, but the unruly bass tends to dominate the performance and unless you plan to use it exclusively on the move, it is likely

to frustrate at times. The Bose and Sennheiser are also well designed for portable use, but offer a more flexible and appealing performance in many areas. The SoundLink is a very well thought-out headphone with excellent accessories, solid build and exceptional sensitivity, but the slightly thin bass response can count against it and I'd suggest going for the black finish if you are over the age of 20. The MM 400-X, meanwhile, is not the most attractive headphone going but it is well built and well adapted for use on the move and it manages to sound accurate and detailed at the

same time. The limited sensitivity and the slight lack of scale compared with some of the larger models means that it has to make do with third place.

The JBL takes the runner-up spot as a very impressive all-round headphone. It is comfortable, well built and well equipped and it is able to perform in a powerful and entertaining way both at home and on the move. I'm not totally convinced by the touchpad controls and it isn't the easiest device to pair, but there is much to like about the design and performance.



The Sony looks smarter, performs extremely well and has a very good Bluetooth implementation that features the best controls of any of the headphones. Having eked out these detail advantages, it comes with a useful £30 saving over the JBL.



Make/model Bose



JBL Synchros S



RP-RTD10



Fidelio M2B



MM 400-X



Sony

	SoundLink On-Ear	Synchros 5400B1	RP-BIDIO	FIGEIIO WIZBT	IVIIVI 400-X	WIDK-TURBT
Price	£220	£200	£130	£250	£180	£170
Sound	****	****	****	****	****	****
Value	****	****	****	****	****	****
Build	****	****	****	****	****	****
Features	****	****	****	****	****	****
Overall	****	****	****	****	****	****
	Well designed headphone despite soft bass response and colour scheme	A decent all rounder that's only bettered by the slightly cheaper Sony	Solid performer with friendly price tag that's lacking at the frequency extremes	Smooth refined top end is let down by disappointingly over blown bass	An effective portable option that is let down by the lack of bass weight	A very convincing performer that works well both home and away

Key features

aptX version	Not specified	3.0	3.0	4.0	2.1	3.0
Wireless range	9m	Not specified	Not specified	Up to 15m	Not specified	Not specified
Playback time	Up to 15 hours	Up to 15 hours	Up to 30 hours	Up to 10 hours	Up to 20 hours	Up to 17 hours
Recharge time	1.5 hours	Not specified	Not specified	Not specified	3 hours	Not specified
Carrying case	Yes	Yes	No	Yes	Yes	Yes

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ANDROID PHONE:

From free

As a consequence of its preference for AirPlay, Apple doesn't fit aptX to its mobile devices whereas most premium Android phones now make use of it. This means best results are likely to be achieved with an Android device.





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Phantom spirit

Chris Ward discovers the joy of full-range drivers as he puts these uniquely named and sounding floorstanders to the test

t first glance the evocatively named Phantom Source speakers may sound like something from Scooby Doo and look like a whole host of quality floorstanders, but beyond their regular proportions, solid enclosures and choice of real wood veneers or piano black finish, their design is far more radical. Removing the black mesh driver grille reveals an uncontroversial polymer/ silk dome tweeter, but more unusually two full-range, metal cone Jordan drivers. For those unfamiliar with the drivers, they are an innovative Danish design that sets out to reproduce the majority of audible frequencies from just a single driver. So, while most

The speakers can dig surprisingly deep into the lowest registers

floorstanders will generally divide treble, mid and bass reproduction between two, three or more drivers dedicated to specific frequency ranges, a full-range driver can in theory deliver all the musical information, perfectly in phase and without the need for sophisticated but intrusive electronic crossover circuits. The downside of full-range drivers is they are often reported to sound too restrained at both high and low frequency extremes.

So, why is a tweeter included and why two Jordan drivers? Acoustic Insight says the tweeter has been added to effectively top up treble intensity, widen high-frequency dispersion and enable the musical performance to be perfectly fine tuned for acoustically duller listening rooms. What makes it smarter still is the tweeter output is fully adjustable from a rotary control (placed above

the speaker terminals) so in practice the speaker can be balanced for your room characteristics, personal listening preferences and even each track, if you are really picky.

By doubling up the Jordan drivers, Acoustic Insight claims to improve imaging and increase the effective bass weight - in simple terms, shifting twice as much air at low frequencies. What makes this design more complex and more radical is how two identical drivers, driven in unison are combined with a front-ported, transmission-line cabinet design that seeks to fold some very deep bass notes inside the unassuming dimensions of a regular floorstander. On paper, this appears to be a smart solution that could address the light bass criticism commonly levelled at full-range drivers.

Setting up the Phantom Source is a mysterious process. Place it too far from a wall and it loses some bass reinforcement. Too close and the bass can become flabby. Acoustic Insight recommends aiming the speakers to cross a metre or so in front of your listening position, and sure enough this yields the strongest results.

Sound quality

Playing Jean Knight's Mr Big Stuff on CD is the perfect calibration track for positioning the Phantom Source. The constant tambourine enables me to dial in the perfect tweeter energy to suit my listening room and speaker toe-in (I end up at 50% tweeter gain). The track's glorious walking bass line also enables me to shift the speakers towards and away from the back wall until the bass balance feels correct with the mid and treble energy. I'm left with a highly focused, rich and wide soundstage, and all my efforts appear to have paid off. Jean's vocals are reproduced with sumptuous realism. It's as though the tiny micro-dynamic inflections in the

DETAILS

PRODUCT
Acoustic Insight
Phantom Source

ORIGIN UK

TYPE

1.5-way, port-loaded transmission-line floorstander

WEIGHT 22kg

DIMENSIONS (WxHxD) 215 x 1,075 x 268mm

FEATURES

- 19mm polymer/ silk dome tweeter • 2x 100mm Jordan
- full-range drivers
 Quoted sensitivity:
 89dB/1W/1m

DISTRIBUTORAcoustic Insight

TELEPHONE 07837 956069

WEBSITE acousticinsight. co.uk

Those Jordan drivers at the heart of the Phantom Source's sound essential midband and treble detail of her recorded voice are fully intact and are being rendered in a far more coherent way than I'm used to. Here is a very real benefit of this application of full-range drivers. Many traditional speaker designs need to cross over midband and treble drivers in the exact frequency region where the brain is very sensitive to phase issues. With no crossover, I am getting a new positive take on a favourite track.

Switching to alt-J's Left Hand Free and the depiction of vocals and electric guitar is similarly seamless, however as the track takes off with drums and thunderous bass lines it seems clear that while the speakers can dig surprisingly deep into the lowest registers, the rendition of that bass doesn't sound as fast, nor does it seem to have the detailed leading edges that dedicated woofer designs can deliver. I adjust the speaker position a little away from the wall and experiment with granite isolation platforms under the speaker spikes. Bass rendition improves, but it still seems to lack some ability to press deep notes into the room in a detailed way that matches the high-quality midband and treble.

This slightly masked bass quality is underlined with major orchestral works. Playing the *Maestoso (iv)*



Q&A Kevin WarneLead designer, Acoustic Insight



CW: What are the virtues in avoiding crossover components?

KW: A crossover, by definition, completely splits the frequency input to feed disparate drivers. This can be relatively seamless with a pure sine wave, but real music is of an incredibly complex harmonic structure. Indeed, it is this complexity that gives music its organic life, beauty and character. Splitting music up into harmonic components, sending them to disparate drivers, then trying to reintegrate them can destroy the true essence of music. Crossovers feeding different drivers inevitably introduce phase, timing and coherence issues, let alone a degree of distortion from the introduction of electronic components.

Can you elaborate on how you have applied transmission line thinking?

A transmission line has the capacity to produce greater bass quality and performance than a bass reflex, but you have to be careful that the length of the line can be accommodated. The use of a true full-range design, particularly a semi-line source is eminently suitable as you can place the drivers more effectively without needing to split the cavity, as you would need to for the drivers in a three-way design, for example. We then fine tune our line using a port, which both allows lower tuning frequency as well as reducing unwanted resonances.

Can you describe how the Phantom Source images so well?

Strong imaging comes from combining a number of qualities in our design. Firstly, these new Jordan drivers are extremely revealing in their own right, enabling the tiny, vital, background detail of music to be heard at both high and low volumes. The full-range output from the Jordan drivers is also extremely phase coherent over a very wide frequency bandwidth. Add to this the ability to fine tune treble energy for your room and our use of a semi-line array to reduce unwanted room reflections and imaging improves considerably.





Magneplanar's MG 1.7 electrostatics can create a truly vivid soundstage, but lack some bass depth and are less room friendly than the Phantom Source. MartinLogan Electromotion ESLs provide high transparency with well-judged bass in a smallish hybrid floorstander. PMC's twenty.24 or Sonus faber's Venere 3.0 are far less radical designs, but both image well and provide convincing bass from stylish cabinets. Spendor's D7 and ATC's SCM40 are also contenders with the D7 probably stronger on musicality and the ATC's more analytical in outlook. As always, an audition is essential to decide what's best for you.

movement from Saint-Saëns' Organ Symphony No3 on CD feels like a game of two halves. The lighter sections reveal real insight into the virtuosity of soloists and the acoustic of the concert hall, but when the full orchestra kicks in, the complex layering of intense passages can become a little simplistic and lack real soundstage height. Add the full power of the organ to the orchestra and while the speaker does an admirable job of reaching deep down, it can't seem to capture the menacing timbre of these rich, dark tones. Furthermore, when bass duties get really tricky, this seems to undo some of the magical midband quality the Acoustic Insight does so well.

Yet, playing a lossless rip of Frazy Ford's superb new album *Indian Ocean* and the Phantom Source shakes off any reserve and delivers a near faultless rendition of the track *Three Golden Trees*. Frazy's rich, sultry vocals just ooze emotional detail as the Hammond organ warbles warmly underneath the smoky voice and relaxed drumming. The layers of this understated track are made utterly transparent and build on each other beautifully to give a near holographic

depiction of this intimate performance. This is where the Phantom Source excels. Feed it well-recorded content, especially with expressive vocals and richly textured acoustic instruments and you will be rewarded with a truly coherent soundstage that is full of tiny, subtle nuances that fully reproduces the artist's emotional intent and the believable 'air' that defines the recording environment.

Conclusion

This is a beguiling speaker. Set up correctly and fed the right content, it can reward with spellbinding realism and near faultless imaging. It may fall a little short when the recording asks something difficult of it, especially around bass agility and detail, but this criticism must be put in context. Loudspeaker design is all about compromise and balancing musical outcomes, especially when building to a budget. In the Phantom Source, Acoustic Insight has created a truly innovative design that can do things many other speakers can't. These latest Jordan drivers appear to be able to vanish entirely when given the right material and the speakers do create deep bass from a very lounge-friendly enclosure. The adjustable tweeter works just brilliantly and the absence of electronic crossover in this design can deliver mesmerising vocals and truly convincing performances across a whole host of music. Yet the bass might not feel as authentic and of the same high quality as the rest of its musical abilities. An audition of these novel speakers in your own listening room is essential to be fully sure of how they perform with your musical tastes. If you love stripped-out acoustic music, wide soundstages and hearing expressive vocals in a new light, you could be utterly transfixed by what you hear •









Pure Valve Phono Pre-Amplifiers

If you are serious about vinyl you should read this:

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it be Vivaldi or the Verve. Whilst the Compact Disc is stuck with its dated 1977 software, Vinyl technology continues to advance. Improved stylus shapes and tone arms keep pushing the technical boundary on what can be recovered from an LP groove and with an Icon Audio phono stage can reveal simply astonishing results, even from 1950's recordings. As the definition of equipment improves we have refined our designs to maintain the focus and presentation to be without any "mechanical" or contrived quality.

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MK I version awarded 5 Globes "Exceptional Valve phono stage of fantastic ability" - NK HiFi World 2008.11. "OUTSTANDING PRODUCT" - Hi Fi News 2010.07



The PS1 MK II.

Our original design updated with improved separate power supply both valve and "choke" regulation. This may also be fitted with our high quality "in house" made moving coil transformers suited to the finest moving coil pick up cartridges.

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A for effort

David Price inspects Creek's very latest, multi-talented, user-friendly integrated amplifier, the Evolution 100A

ichael Creek first made a name for himself back in the early eighties, with the CAS4040 integrated amplifier. It cost around £100 and shook the British hi-fi world to its very foundations, because it sounded far better than anyone could have expected given its modest price. A compact, slimline design housed in a hand-painted wooden sleeve, this little amp wasn't as well presented as the rival Japanese products of the day, but one listen soon won you over.

It went on to sell, in Mike's rough estimation, around 30,000 units, which was amazing for a start-up company of the time. The CAS4040 also set the blueprint to which Creek has worked ever since; you might say the company is slightly tweaky, obviously specialist, but not too 'far out' to have mainstream appeal. It has walked the same line for many years,

making affordable, high performance products with an emphasis on sonics.

The Evolution series is appropriately named. Here we are seeing the company take small steps towards broader, mass appeal in an attempt to offer traditional Creek values in a more modern setting. Which is to say that the amps feel sleeker and better finished, as well as having a good deal more facilities. The obvious question then is does the sound suffer? But more on this later...

The Evolution 100A looks just like its 50A sibling first reviewed in *HFC* 370. It uses a pressed steel case with brushed aluminium fascia, and two largish metal knobs providing source selection and volume control. In the middle is a crisp, fine-pitch white-on-black OLED display that can be dimmed or turned off if required. The overall feel is of a classy product, befitting its not inconsiderable £1,500

DETAILS

PRODUCT Creek Evolution 100A

ORIGIN UK/China

Integrated amplifier

WEIGHT 9kg

DIMENSIONS (WxHxD) 430 x 60 x 280mm

FEATURES

- Quoted power:110W into 8ohm
- 4x RCA phono line inputs; 1x balanced XLR
 Dedicated

headphone

amplifier stage

DISTRIBUTOR

Creek Audio Ltd.
TELEPHONE
01442 260146

01442 260146
WEBSITE
creekaudio.com

price tag – although it's perhaps not as lavishly finished as more expensive equipment from home and away.

One reason for this is the Creek's potential FM tuner functionality. This doesn't come as standard, owners will have to buy the optional Ambit plug-in radio module (£125). It fits into the rear panel's 'Smart-Slot' and replaces line input 5; when installed, effectively turning the amplifier into a receiver. There's also another plug-in module in the pipeline called Ruby; it's a (£400) DAC with twin 24/192-capable S/PDIF inputs, two optical ins, USB, Bluetooth and FM radio inputs, as well as keeping four of the existing line inputs. The optional Sequel 2 module (£120) is a vinyl phono stage that is plugged into a dedicated connector on the preamplifier's printed circuit board. It comes in a choice of 40 MM, 48 MM and 54 MC to match your cartridge. As standard, the 100A's preamp section offers balanced or unbalanced inputs, and has electronic volume. balance and tone controls.

There's a special low impedance headphone amplifier section built in to the preamp circuit board, rather than the usual expedient of taking the signal direct from the power amplifier. The 300W toroidal mains transformer (with multiple windings for high and low voltages and current) has separate feeds for the



power amp, preamp and digital circuitry. Multiple small capacitors are paralleled for low inductance and ultra low impedance. Four Sanken STD03 complementary power Darlington transistors per channel do the heavy lifting, delivering a claimed 110W RMS per channel into 80hm. Interestingly, the Class G circuit normally runs at a lower voltage up to 25W (into 8ohm), but automatically swings to a higher secondary voltage to increase output power to over 100W (into 8ohm) when needed, says Creek. This helps the amplifier to run cooler and use less power. Two sets of loudspeaker outputs are fitted.

The pressed steel case is available in a choice of black or silver finishes With twice the rated power output, plus a mains transformer that's a third bigger, it comes as no surprise that the 100A sounds more punchy and dynamic than its little brother. It's not that the 50A is anaemic sounding; it compares very well to its Arcam FMJ A19 (HFC 394) price rival in this respect; it's just that the 100A seems a lot less constrained when asked to drive difficult speakers to high levels.

Sound quality

This is one of the most powerful amplifiers I have heard at the price. It doesn't out-punch the gutsiest high-end integrateds, but certainly doesn't sound like a budget product.

It's not just a bruiser, though. It's actually a highly finessed performer, with a very attractive nature that doesn't draw attention to any single part of the frequency band. Tonally it is clean and open but nicely rounded. Cue up Kate Bush's *Wow*, and you're greeted with a smooth and warm sound, just as it should be. Her voice is carried beautifully, with real delicacy and intimacy. So many solid-state amplifiers just cannot do this, managing to lose the sense of closeness that the recording offers, as well as freezing out the emotion too.

Another way the 100A betters its sibling is its ability to convey multiple strands in the mix. For example, spin up The Teardrop Explodes' Treason, and it seems better able to cut through the densely layered and highly compressed recording, to reveal individual instruments playing. There's a superior sense of the space around those instruments too: they don't seem to be packed together like sardines. It has a commendably wide soundstage that stretches well from left to right. Within this, instruments are tightly located; I'm also impressed by the power of the vocal line. Julian Cope's voice is carried in a confident yet lucid way, just as Kate Bush's is.

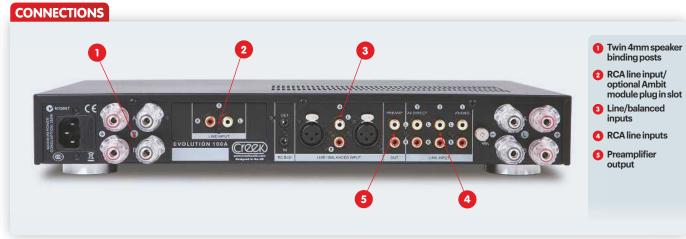
Behind this, towards the back of the recorded acoustic, there's a good deal of subtle, low-level detailing.

Give the Creek some powerful electronic music in the shape of Kraftwerk's *Musique Non Stop* and it's in its element. This wonderfully clean recording showcases the innate transparency of the design. Although lacking the out-and-out clarity of a cost-no-object integrated, it still does a very good job conveying the music

An extremely versatile yet highly accomplished sounding product

in its entirety. The swinging bass transients do nothing to upset the Creek; it doesn't deflect the overall rhythmic flow one jot. I have heard lesser amplifiers get blown off course by the powerful drum work, but it keeps a grip of it all, as you'd expect from a top integrated at this price. Rhythmically it's very good indeed, giving an authoritative sound that always seems in control. It ties this in well with its fine command of dynamics too; going loud very fast when required, and this doesn't just mean when building up to a big crescendo. It also tracks micro dynamics well, thanks to its lithe and sprightly nature. Creek solid-state amplifiers have never not sounded musical, so it's good to see that all the additional operational sophistication hasn't robbed it of its birthright.

The only real criticism you can level at it is that it always puts on a sophisticated face, even when the music doesn't quite demand it. Move over to a similarly priced, tube amp for example, and you're going to get a more louche, emotional sound. The 100A, by contrast, keeps everything so well controlled that it just can't



REVIEWS CREEK EVOLUTION 100A INTEGRATED AMPLIFIER £1,500

Q&AMike Creek MD Creek Audio Ltd



DP: What type of customer will this new amplifier appeal to?

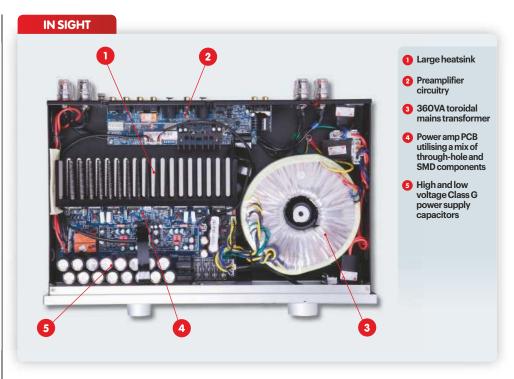
MC: It is increasingly hard to imagine what customers want these days. However, in keeping with Creek philosophy, if technology allows it and consumers ask for it, we will try to provide it, within reason. That doesn't mean we follow every trend.

How does it differ, in design terms, to the Evolution 50A?

There is no reason to reinvent the wheel if it already exists, so the Evolution 100A is, as the name suggests, an evolutionary product. The case and external appearance is the same, the option for speaker selection is an obvious change from the outside and from the first revision of the 50A, we fitted a removable plate to the rear (normally carrying Line 5 input) that can be swapped for the Ambit tuner input or the Ruby module. The preamp is similar to the 50A, but has improved circuitry for external and internal balanced inputs. Without compromising its performance, the preamp can select a large number of inputs, including power amp direct. The power amplifier uses a bipolar power output stage, similar to the 50A, but with twice as many power devices. For the first time in Creek history, the Evolution 100A uses a Class G technique to achieve its high power output capability; it's considerably more efficient than regular Class AB or Class A. The net result is a very high performance amp with very low distortion; in fact, the distortion performance is more than five times lower than the 50A.

Is this a serious change of direction?

Our aim is to simplify hi-fi systems to make them more user friendly, without compromising performance. Circuit miniaturisation has enabled us to do that now. I'm sure that if we made a minimalist amp now it would sell to some consumers who still believe that is the best way to achieve high performance, but those consumers are in a minority. Creek has always tried to use cutting-edge techniques, so it's not really a change of direction from our perspective.



HOW IT COMPARES

Selling for £1,495 and offering 110W RMS per channel into 80hm, the Exposure 3010S2 shares the same vital stats as the Creek. But the Exposure has no fancy plug-in cards, nor does it even have a display. The 100A appears far more sleek and sophisticated than the 3010S2 and offers

more upgradeability. The Exposure is, however, a superb sonic performer. That's why it won our integrated amp Group Test back in HFC 373. It gives slightly better depth perspective, letting instruments hang back further than the 100A. Although about the same in terms of detail retrieval, the Creek doesn't quite match the Exposure in rhythmic fluency. They are both very classy packages and worth an audition.

quite undo its top button completely. This is most obvious on jazz music; for example, the slippery rhythms of Lou Donaldson's *Alligator Boogaloo* show the Creek to be a great performer, but it doesn't quite get into the groove in the way that say a good tube amp can. Powerful, punchy, clean and enjoyably expressive, it isn't quite ready to let its hair down. In this respect a tube amp may sound better, despite lacking the Creek's power, tonal unevenness, bass grip, *etc*.

Creek's last top-end integrated the Destiny 2 – was a wonderfully beguiling listen that was a little soft with some types of music. The 100A seems more deliberately voiced to do extremely well across the board; a sort of jack of all trades and master of some, compared with the Destiny's flawed genius. It's a subtly different approach, but ultimately more successful for today's buyer, I suspect. The acid test of this is, of course, classical music, and my Deutsche Grammophon recording of Beethoven's Pastoral Symphony duly serves up a wonderfully capacious acoustic, stretching far left to right, and falling back respectably too. Within this, instrument placement is excellent, and individual sections of the orchestra seem able to play completely independently of whatever else is going on. Massed strings have a warm and full bodied tone, with real vibrancy, yet don't sound dull or opaque in any way. The amplifier tracks the song's dynamic swings convincingly, and the overall effect is a highly enjoyable rendition.

The Creek has few failings then, and what weaknesses it has, it hides well.

Conclusion

They say it's hard to buy a bad car these days. That's as maybe, but it's products like the Evolution 100A that make you think the same might be happening with hi-fi! It's certainly not an inexpensive amplifier, but it is genuinely multi-talented and gives an excellent performance across the board. The idea of the new Evolution series is to offer greater flexibility and operational refinement, while retaining serious sound quality. A year or so ago, the 50A succeeded in this, and now the 100A goes further still. Here is an extremely versatile yet highly accomplished sounding product; factor in the good standard of build and finish, and it is hard not to recommend. It's an essential audition for those looking for a superb sub-£2,000 integrated •





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Dig the new breed

With its e22 DAC, exaSound is pushing the digital converter numbers game ever further. **David Price** listens in

- some good, some bad and many just plain baffling. Hi-fi is no different, with change happening at a glacial pace for decades, and then dramatic transformations of the natural order. Digital audio is a case in point; it took a generation for it to progress beyond Compact Disc, then when it did, no one wanted to buy it. Then, just when we least expected, computer audio caught on and became many people's way of playing those same high-resolution music recordings that we had all spurned on DVD-Audio and SACD.

e live in a life of surprises

At the same time, we saw the resurgence of the humble DAC. In 2005, I could have counted the

number of such products on sale on the fingers of a pirate's hand. Now, a decade later there are more digital converters around than any other type of hi-fi electronics – a remarkable turn of events. Computers have become both digital transports and music 'jukeboxes'; all you now need to do is add a hi-res capable DAC.

The exaSound e22 has been made precisely for this purpose. Although it has conventional S/PDIF digital inputs (optical and coaxial), its highest performance is achieved via the USB – where it gives up to 32/384 PCM decoding and DSD at up to a giddy 12.228MHz (DSD256). Indeed the company says it was the first to bring a DSD256 DAC to the consumer market, two years ago.

DETAILS

PRODUCT exaSound e22

ORIGIN Canada

USB & S/PDIF DAC/ headphone amp

WEIGHT 1.2kg

DIMENSIONS (WxHxD) 165 x 56 x 235mm

- FEATURES
 32-bit/384kHz
 PCM & DSD256capable ESS Sabre **ES9018 DAC**
- inputs: optical; coaxial; USB
- Outputs: RCA phono; XLR; 6.3mm headphone jack

DISTRIBUTOR Sound Setup Ltd.

TELEPHONE 01242 506446

WEBSITE soundsetup.co.uk

The e22 is the latest of a whole wave of digital converters based on the ESS Technologies ES9018 Sabre32 DAC chip, which offers very low distortion and noise. A reliable industry source tells me it's simple to implement too, although getting it to sound good is another challenge altogether. For this reason exaSound designed all the hardware around the DAC. The chip is partnered with three precision quartz oscillators, rather than the usual single phase-locked loop affair. The first two work at multiples of 44.1kHz and 48kHz up to 352.8kHz and 384kHz respectively, while the third provides reference master clock with 0.082ps (82 femtoseconds) precision for digital-toanalogue conversion. The unit has a bespoke asynchronous streaming USB interface, and you'll have to download a driver for it (both PC and Mac). Galvanic isolation is used for the USB ground, stopping almost all noise getting to the DAC and the analogue circuits, and the e22 has 11 internal power cleaning stages.

The unit itself is well finished, but purposeful rather than luxurious. Built into a compact, half-width silver aluminium case, it is decently finished, although it does not feel as expensive as the considerably cheaper Audiolab M-DAC (HFC 368), for example. Inside you'll find good quality components, low-noise



The half-width e22 can playback all digital formats Give the e22 a few hours to warm through, then cue up a well-recorded piece of modern music, and it very quickly becomes obvious that it is an excellent performer.

Sound quality

This is a DAC for which no excuses need to be made, it gives an extremely polished sound the likes of which money simply could not buy a decade ago. In so many respects it is absolutely first class. For example, Robert Michell Trio's cover of 4hero's Third Stream sounds spectacular. The first thing that strikes you is its excellent tonality; not too thin or too full, the exaSound has a perfect balance. Acoustic instruments sound impressively clean, yet have a wonderfully natural texture. I am charmed by the beautiful way the piano is carried for example, and the closely recorded snare drum is taut but fulsome, letting you really listen in to the timbre of the instrument.

The next most obvious aspect of the performance is the soundstaging. It offers up an exceptionally wide recorded acoustic from left to right, and also falls back surprisingly far. The result is that the aforementioned snare is reproduced complete with all its many reverberations around the booth in which it was recorded; you can place it in space with ease, and it never comes out and bites you. This is an interesting point because too many DACs, even at this price, can sound quite two dimensional and force themselves out on the listener. This is a classic sign of digital not quite getting things right, but the e22 never falls into this trap. Music is always reproduced with excellent spatial accuracy, instruments located with precision left and right, front to back.

Another key characteristic leads on from this last observation; it has ability to let instruments within the mix play independently of one another. There's no sense that they are squashed in together like sardines in a tin; they are able to breathe, to sit in their own space and for that not to be invaded by other elements. This means that even in quite dense recordings such as Kraftwerk's *The Robots*, there's a sense that you can hear every layer of the recording playing independently of one another. For example, the powerful electronic percussion doesn't breach the backing synthesiser line at the rear of the mix. Everything is allowed to do its own thing without interference. Without

You get the sense of real people in a studio playing real acoustic instruments

wishing to get too heavily into stereotypes, all the aforementioned characteristics are those typical of good analogue equipment!

So it does grace and space brilliantly, but what about pace? Here the exaSound is good, but not exceptional; it has a very fine rhythmic flow, but there's no sense that it's as remarkable at this aspect of the musical performance as it is the others. The Kraftwerk track, for example, is lovely to listen to, but the e22 works by charming the listener rather than pinning him or her down to their seat. It carries the electronic percussion deftly and knits all the various strands of the mix together in a most satisfying way, but I find myself enjoying the deep, spacious soundstage and the lovely textures of the various synthesisers, drum machines and vocoded vocals, rather than tapping my feet uncontrollably. Here a Chord Hugo (HFC 386) does better, but then again it simply cannot match the spaciousness of the exaSound nor its timbral accuracy.

Part of the reason for this is that the e22 doesn't catch the leading edges of notes quite as dextrously as the Chord, and another is that it doesn't track the tiny dynamic changes quite so well. The result is a fuller, wider but slightly flatter sound; it gives a solid nine tenths of the music's accenting, but the last tenth somehow seems a little subdued. You don't have to listen to thumping disco music to notice this; Julian Cope's vocals on The Teardrop Explodes' beautifully plaintive The Great Dominions comes over arrestingly; in many ways much better than the Hugo I have to hand for reference. His voice is richer, deeper, fuller and more natural and,

voltage regulators, 0.1% thin film resistors and tantalum polymer capacitors. The fascia display isn't much to write home about; it's a simple two-line alphanumeric dot matrix affair, showing volume, source selected and sampling frequency. The rest of the tiny front panel is taken up by a headphone socket, and five buttons. In addition to power on and off, there's volume up and down, input selection and setup.

Round the back you get a single optical digital input, plus coaxial and USB. RCA and balanced XLR outputs are also present and correct. Finally, a small offboard power supply converts the mains down to 12V.



Q&A George Klissarov

President exaSound Audio Design



DP: What prompted you to start exaSound?

GK: I started the company in 2010 with a team of audio enthusiasts who also happen to be electronics engineers, software developers and musicians. We were inspired by the 2L downloads recorded in DXD 352.8kHz. At that time we couldn't find a device that could play them, so we decided to build one! The idea to build DACs to play any studio master file without down-sampling or down-conversion became our mission.

What's so special about the e22?

In the initial development stages we assumed that since modern recording studios use computers, the best way to reproduce a recording is to use the original master file, a computer and DAC. This configuration implements the shortest signal path. We quickly discovered that there are technological obstacles. Personal computers, including Macs are not created to be audiophile-grade gear. There are two approaches to fix these obstacles - make a better computer or eliminate the issues of computer noise and jitter outside the computer in the DAC. In our view the first approach is like taking painkillers - it doesn't solve the root cause. The e22 DAC practically eliminates the issues of computer noise and jitter and brings extremely low noise and distortion levels.

Why did you choose to use the popular ESS Sabre DAC?

It brings the best overall balance of technical capabilities and it was developed with input from experienced listeners. Mature audio design is a matter of balance and graceful integration. There is no point to pursue perfection in one area while leaving unsolved issues in another. It gave us the features we needed to make a well-balanced design. Other designs, like FPGA-based D/A stages and discrete component implementations have a hard time to match the measurements that we've published on our website. We design our devices from scratch, from a blank piece of paper to bring the best of the ESS chip.

It might not be the prettiest DAC ever, but boy can it sing



of course, better placed in space; you can hear it bouncing around the vocal booth in the studio. Yet somehow his intonation doesn't quite match that of the Hugo. The latter gives more of a sense of him using his voice as a rhythmic device; it is better syncopated with the backing keyboard work for example. The exaSound is so much better in many ways and yet it still can't quite capture the passion inside the man.

No DAC is perfect, but what it does for the money is undeniably impressive; that's not just a shallow, insincere pat on the back, it really is a cracking performer in so many ways. The trick is to match it with the right music, and/or the best system for it, one that really exploits its strengths but doesn't dwell on its less strong areas. I find it sounds really nice with

All of the exaSound's characteristics are those typical of good analogue equipment

jazz music especially some classic Blue Note tunes; again this is really rather remarkable because digital audio seems to do worst of all with this type of music - it's another area where vinyl reigns supreme. Yet the very analogue sounding e22 does a great job, bringing Herbie Hancock's I Have A Dream from his classic late sixties album The Prisoner to life in full Technicolor. It sounds remarkably sophisticated, with a wonderfully tangible feel; you get the sense of real people in a recording studio playing real acoustic instruments. Once again, you wouldn't say this DAC has a strong bass, but neither does it have an especially weak one; it's absolutely right in proportion. Similarly the treble is superb; spacious and atmospheric yet delicately resolved, the ride cymbal sounds divine.

Another great quality of the e22 is its sheer consistency across formats. Whether it's playing an MP3 of Daft

Punk's Get Lucky, REM's Texarkana at 24/192 PCM or Alex de Grassi's stunning DSD recording of The Water Garden, it remains itself - giving an eniovably balanced vet insightful performance into the music. In human terms it's rather like the friend everyone likes; it's able to get on with everything it is introduced to, somehow managing to show its natural, affable charm. Music is not something that is there to be dissected; instead it just wants to play it back in a satisfyingly natural way, with no particular emphasis on any one aspect of the performance. In this way, it shows itself to be an extremely mature and sophisticated performer at the price.

Conclusion

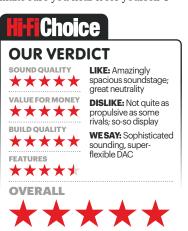
Physically small, not especially impressive to look at, and hardly the cheapest DSD-capable DAC on sale, superficially at least the exaSound e22 doesn't appear to be exceptional value for money. But when you realise that it will play back practically every digital music format in existence, now and indeed for some considerable time into the future, it begins to look better. And then listen to it - it's at this point that you see it is special. Extremely accomplished across a range of fields, and still strong in areas where it is not absolutely dominant, this small box does an awful lot. Highly commended then, make sure you hear it for yourself •



Chord's £1,400 Hugo (HFC 386) is one of the best sounding DACs under £3,000 – in the way it recreates the timing of the music with great authenticity.

Tonally it's not the richest sounding and has a slight lightness in the bass, but it's very smooth and silky and is excellent at carrying the natural dynamic inflections of the music.

In a way, the exaSound is the polar opposite; the Hugo's tonality is decent while the e22's is superb. The Canadian DAC has a nice, well upholstered bass but is never boomy; the Brit's is a little tauter, tighter and leaner - and just a bit more lithe. Both are highly musical and a joy to listen to, but for subtly different reasons. That's why an audition is a must!



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Shine on you crazy...

The latest in a long line of budget Wharfedale boxes is now in the shops. **David Price** take a listen to a gem

any people started their hi-fi journeys in the sixties, seventies or eighties with a pair of Wharfedale loudspeakers, and this counts for something that no amount of advertising can buy.

Back when The Beatles were the biggest band in the world, the company's speakers were largish, wood veneered affairs often with multiple drive units and wide front baffles. But by the time Duran Duran was blaring from teenage bedrooms the world over, the company was making very different designs. The most famous Wharfedale speaker from that era was the Diamond. Rather like the Mini car with which it shared many values, it started off as one product and grew into a whole family. Not long after its launch in the early eighties, you could buy an active version and a fancier Pro variant with real wood veneer. Like the aforementioned car, it was packed with charm and performed far better than you would expect for its size.

Wharfedale has evolved the Diamond through many incarnations; more recently it has grown to include floorstanding versions when the original was barely taller than a VHS video cassette. The 230 you see here is the third model in the latest Diamond 200 series, and the smallest floorstander. Replacing the Diamond 100 Series, the new range has a number of significant improvements, including new cabinet construction using a sandwich of MDF and particleboard, a new lacquered baffle design, improved bass/mid drivers with better motor system with larger magnets and an enhanced 'Slot-Loaded Distributed Port' for better airflow. Upgraded bi-wireable crossover networks are also fitted.

Wharfedale has elected to use a more affordable version of its Crystalam material for the Diamond's cabinet, which is a matrix of materials with different acoustic characteristics, that reduces vibration 'hot spots'. The one-piece front baffle is lacquered to a polished finish with silver-coloured, diamond-cut drive unit trim rings.

As with its 100-series predecessor, the 200s retain the woven Kevlar bass/midband drivers with semielliptical 'break-up' areas, visible as raised 'V shapes' on the cone's surface. The motor system has been further refined, with increased magnet size for better efficiency and power handling, it is claimed. The tweeter incorporates an advanced ferrite magnet system and a special waveguide around the fabric dome



DETAILS

PRODUCT Wharfedale Diamond 230

ORIGIN UK/China

TYPE

2.5-way floorstanding loudspeaker WEIGHT

17.8kg

(WxHxD) 196 x 963 x 306mm

FEATURES

- 1x 25mm soft dome tweeter • 2x 165mm mid/
- 2x 165mm mid/ bass drivers
- Quoted sensitivity:
 88dB/1W/1m

 DISTRIBUTOR

Wharfedale TELEPHONE

01480 447700 WEBSITE wharfedale.co.uk

If black isn't to your liking there's also, white, walnut for optimal dispersion. The slot loaded port is designed to give well-integrated bass, without the chuffing often associated with front or rear-mounted ports. It has another useful benefit, which is that you can place the speakers a little closer to the rear wall than you would normally. I find that the Diamond works well slightly toed in, just over 30cm from my rear boundary wall when the supplied plinths and spikes are fitted.

Sound quality

From new, the Diamond takes a good few days to run in properly. This done, it proves a redoubtable design with a character in keeping with previous recent Wharfedale products. This means a clean, precise and dry sound with surprising amounts of detail, and a fine sense of the music's rhythmic flow.

You would almost think Blur's For Tomorrow was written for these loudspeakers, such is the fun to be had. Powerful, punchy, rhythmic, bouncy and propulsive, the Diamond relishes the dynamic accents. You hear the crash of the snare drum and the strum of the steel string guitar conveyed at lightning speed, then the decay of the note and the gap before the next is struck. It is very good at carrying this, in marked contrast to many price rivals that simply slur one

A total foot tapper, it shows just how enjoyable a budget speaker can be

note into the next. Designs that fare less well with the spaces between the notes often give a fuller sound, but it is also flatter and more monotonous.

I hear the same thing on the Pet Shop Boys' I Wouldn't Normally Do This Kind of Thing. This is a very dense piece of electronic dance music, full of highly compressed synthesiser lines and drum machine work, overlaid by a thick vocal track. It's a great way to assess the speed and insight of a loudspeaker. Poor designs descend into muddle, blurring the sound so much that even the electronic hi-hat cymbal loops become indistinct. But the Diamond shines – bouncing along like a rubber ball, giving a wonderfully enjoyable rendition. Pacey and punchy, it plays to its strengths and sounds in its element. Indeed, through the entire frequency range, it is surprisingly devoid of overhang. The bass proves able to start and stop deftly, and this

Q&APeter Comeau Director of design, Wharfedale



DP: Where does the Diamond 230 fit into Wharfedale's range?

PC: It's the natural replacement for the previous Diamond 10 and 100 ranges in delivering the sonic performance that Wharfedale is renowned for at affordable prices. The aim was to meet the requirements for a slim floorstander that delivered the spacious sound of a classic bookshelf, but with extended bass. The new slot-loaded bass porting delivers low-frequency energy into the room with excellent efficiency.

Why is it a 2.5-way design?

Done this way, the midrange and bass units are effectively in parallel for the bass and combine to work with maximum effect and impact at low frequencies. The lower bass unit then rolls off leaving the upper bass/ midrange unit to do its work up to the crossover region with the treble. A simple two-way would mean that the two bass units would interfere in the midrange, reducing clarity, while a classic three-way would not make the most of the twin drivers at low frequencies. In every speaker there is a natural point at which the drivers stop behaving in a linear fashion and it is this that dictates the crossover frequency. It so happens that 2.3kHz gives a very smooth and coherent crossover between the midrange and treble units for the Diamond 230.

Why the new cabinet material?

Our research has uncovered acoustic problems with using 100% MDF cabinets, so in recent years we've been using combinations of materials, which give superior results. The Diamond 200 features a sandwich construction of MDF skins and a thick chipboard core, overall thickness 18mm, which controls panel resonance very well and reduces the bleed through of sound from inside the box. The overall result is lower coloration, especially in the sensitive midrange.



HOW IT COMPARES

Probably the closest competitor to the Diamond 230 in terms of price is Acoustic Energy's £550 AE103

(HFC 391) Instead of Keylar it runs anodised aluminium cones. which give a crisp, detailed and finely etched sound that's distinctly different. The Diamond feels a little bigger and more powerful, with a touch more midband clarity and definition, whereas the AE is a fraction more propulsive and musical with rock and dance music. The Wharfedale does best with classical music, but it's an accomplished performer right across the board, whereas the AE seems particularly adept at playing punchy rock and dance music.

extends up to the midband, which shows surprising clarity. Treble is crisp and detailed, again lacking any appreciable smear – and proves impressively smooth too.

Just as important as fine timing is the ability to signpost the music's subtle dynamic inflections. This is the other side of a speaker's character, one that determines its sense of music fluidity and flow. The ability to reproduce the huge crashing sound of an orchestra at full tilt is of limited use if it can't capture the gentle, nuanced accents of individual solo instruments. Again the Wharfedale does very well here, with Grant Green's Ease Back showing this facet in sharp relief. The Diamond 230 goes straight into the soul of the song, deftly imparting its rhythmic flow and emotional impact. A total foot tapper, it shows just how enjoyable a modern budget speaker can be. What also impresses is the excellent stereo imaging; it shows itself able to accurately recreate the spatial information that defines the boundaries of the studio. Indeed, if anything it moves the recorded acoustic a little forward relative to the plane of the speakers, giving an upfront and embracing sound, taking the listener right into the action.

Switching to a superlative Linn Recording of Handel's Concerto Grossi Opus 6 shows the Diamond to be surprisingly accomplished with orchestral material too. It's rare to find something at this price that can shine with electronic dance and classical, but the Diamond does. Its accurate, tidy sound is what gives it the edge; everything is well controlled, carefully ordered with luxuriant spaces between the notes. It delivers an excellent sense of musical flow, carrying the phrasing of the violinists and cellists with aplomb. The harpsichord sounds commendably crisp, sparkling with harmonics and blessed with a good deal of air around it. The relative proportion of the instruments is also well imparted, with a fine sense of atmosphere to the recording. Again, it presents the soundstage in a clear and upfront manner. Because the three drive units integrate so well, it sounds very sophisticated considering the price; there's no sense of anything untoward going on anywhere up or down the frequency scale.

Conclusion

It is this combination of couthness, insight and musicality that makes Wharfedale's new Diamond 230 such a strong all-round performer. Of course, if you spend twice the price you can do considerably better, but for £500 it is deeply impressive.

Easy to drive, unfussy about the amplifier or source it's used with, well put together and finished – it's an extremely capable package. Competition is fierce, however, with several other highly able speakers around with different sonic characters, so as ever you would do well to audition a range of boxes – preferably with your own amplifier and source – before you buy. Still, I'd wager this will come out top of many people's shopping lists ●





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Champagne Supernova

Combining a CD ripper, HDD and network streamer, Lee Dunkley discovers there's much to like about this flexible system

ll-in-one music systems haven't traditionally been the sort of components to get the hi-fi crowd buzzing with excitement, but there's no denying they have their place in our homes as compact and multifunctional systems become more desirable solutions for bedrooms and offices where space is tight.

With streaming and networked music growing at such a fast pace, the need for a component to satisfy our multi-format needs - offering a high degree of versatility and meeting all of our music demands – is becoming increasingly popular and models like the exceptionally petite Novafidelity X12 are rising to the challenge and changing our preconceptions of the 'one box does all' music system.

This isn't the first time we've seen this type of all-in-one setup from the maker, although you are unlikely to recognise the brand here. Novafidelity is the name given to new models to come from the Cocktail Audio stable, and regular readers will most likely remember our review of its X30 'music hub' back in HFC 383 last year.

The X12 is the first model on the scene from the rebranded Kent-based company, and is remarkable in that it manages to squeeze a CD ripper, HDD music server, network streaming from a UPnP/DLNA server (Ethernet and wi-fi) as well as streaming from any AirPlay device via something called Shareplay, internet radio and amplification duties into a compact and nicely constructed unit. It's built to roughly the same dimensions as its Cocktail Audio X10 sibling that we reviewed in HFC 353, yet adds more capacious storage, front USB port and can handle 24/192 music files from compatible formats. It also sports a

DETAILS

PRODUCT Novafidelity X12

ORIGIN

TYPE 1TB HDD/CD/ network music system

WEIGHT 1.6kg

DIMENSIONS (WxHxD) 180 x 100 x 150mm

FEATURES

● HDD storage: 1TB (256GB, 500GB, 2TB and 4TB options)
• Networking: Ethernet; wi-fi

4.3in colour LCD screen •2x 30W quoted power output **DISTRIBUTOR**

Sygnifi Ltd TELEPHONE 01732 765105

WEBSITE novafidelity.co.uk

larger front panel screen, improved navigational control and a drawloading disc mechanism rather than the X10's slot-loading one. Happily, it's significantly quieter in operation than the drone-plagued 500GB HDD fitted into its predecessor.

Our X12 review sample comes with a 1TB HDD, which is enough space to accommodate around 2,600 CDs ripped in FLAC or up to 6,000 CDs ripped in MP3 format at 320kbps quality according to Novafidelity. Of course the actual amount of discs will vary depending on their size, but greater numbers can be stored using increased compression rates, although I don't recommend going below 320kbps with MP3 rips. A non-HDD X12 version is available (£420) as well as 2TB (£569) and 4TB (£669) HDD storage options. SSD (Solid State Drive) silent storage options come in 256GB (£669), 500GB (£829) and 1TB (£1,299) flavours. Storage capacity is easily upgradeable at a later date should your music collection expand significantly, simply by backing up the original and replacing it with a larger HDD or SSD slotted into the side of the unit. It's compatible with 3.5in and 2.5in SATA HDDs as well as 2.5in SSDs.

Setting up the X12 is a piece of cake for me, as the operating system is similar to the version I got to grips with when I reviewed the X30. But for anyone new, it's likely to be the kind that requires some familiarisation time as there's plenty to get to grips with. Happily a comprehensive manual is provided.

Don't be fooled by the petite dimensions, the Novafidelity has plenty of tricks up its sleeve Ripping a CD to the HDD and building a music library is very straightforward – simply pop your chosen disc on the tray and load, then scroll through the menus to select the CD Play/Rip option. The Novafidelity grabs the album and track names from its FreeDB internal database, or you can select one of the online options if it doesn't recognise the one you've inserted – admittedly it struggles to find the correct artwork for some compilation albums I try, but these can be manually assigned easily enough later.

You can rip all or just selected tracks in formats including WAV, FLAC, ALAC, MP3 and OGG. Once you've set the format this is fixed for all new rips, and Novafidelity recommends using FLAC over WAV, pointing out that the lossless format takes up considerably less space.

As well as building a catalogue of your own music, the X12 also has radio streaming services onboard using Reciva i-Radio. Music streaming from Qobuz and Simfy are installed too – simply tap in your user name and password to access your account and then you can playback music and playlists in up-to CD quality – depending on your service.

Sound quality

The process of ripping and storing CDs onto the X12's hard drive is undeniably addictive, and there's nothing quite like the satisfaction of seeing your music library grow. Meanwhile, the ability to access albums and tracks instantaneously complete with track names and

artwork displayed on the screen and without any degradation in sound quality is immensely pleasing.

With the Novafidelity system connected to a pair of Monitor Audio Sliver 1 standmount loudspeakers, it's plain to see that this is a compact system to get excited about. The X12's 30W per channel into 80hms amplifier rating may not be the most powerful, but it has plenty of drive to handle the small yet perfectly formed Monitor Audios.

The pairing makes a fun sound that pushes out into the room and conveys the soundtrack from *The*

Novafidelity should be applauded for pulling off such versatility at the price

Theory Of Everything with the kind of elegance the movie score deserves. When I stream hi-res material from my networked music it's easy to appreciate the step up in resolution.

A 24/192 version of *In The Morning* by Norah Jones is superbly detailed with a glorious richness to the keyboard playing. There's plenty of air surrounding her vocals and the performance undoubtedly demonstrates that this little system is very capable of handling the hi-res ALAC format. But it's not all good news as the display doesn't provide any information about the format of the track or for that matter the bitrate or sampling frequency that it's being played at.

If you have an AirPlay source then you can select the X12 as the audio device to output to, and it handles streams from my MacBook up to 24/192, but once again there's no mention of the format or resolution of the stream being received.

Give the Novafidelity something to really get it's teeth into such as Paul Weller's *Sonic Kicks*, and it handles its complexities surprising well and is remarkably unfazed by the album's challenging recording.

Reciva i-Radio streams are respectable and broadcasts can even be recorded and stored in a folder on the HDD for playback later. There's no discernible degradation in audio terms, and you can even make timer recordings and timeshift your favourite radio shows.

The rear panel has two digital inputs and a line-level input as well as an output to allow you to connect the X12 to an external amplifier and use it as a source, where it puts in a respectable performance as a hi-fi component and runs quietly. Alongside the USB port on the front panel, the 3.5mm headphone output is another useful addition for those seeking more personal listening, but the soundstage seems confused and less engaging than via the speaker output. High frequencies appear hard and scratchy while vocals sound more sibilant and edgy.

Conclusion

The X12 is an extremely flexible component and has to be praised for the way it successfully brings together many different source elements and delivers music to a pair of speakers in such an enjoyable way. It's not trying to appeal to those seeking a main music system, but as a second-room setup there's plenty to enjoy, and Novafidelity should be applauded for pulling off such versatility in a compact and well-built system at the price ●









Room service

Is Denon's new HEOS multi-room system the challenger to Sonos that we've been waiting for? **Steve May** finds out

or many born again music enthusiasts, wireless multi-room has become the very definition of home audio. In this simplified connected world, it's functionality and ease of use, rather than a quest for infinitesimal nuance that appeals.

Illustrate this trend with The March of Progress, and it would be early iPod docks reaching from the primeval ooze (rather than conventional two-channel systems), eventually evolving into the market-share devouring Goliath that is Sonos. Inevitably the big hi-fi brands now want in, none more so than Denon. After years of development and tweaking, HEOS by Denon (to give it its official monicker) is ready to take centre stage.

The HEOS family lands with a trio of active speakers and a couple of powerful system accessories. The diminutive fit-anywhere HEOS 3 speaker, priced at £249, provides an obvious starting point. Cutely, two can be paired in the HEOS app and used as a stereo pair. However it's the lounge-room HEOS 5 (£349) where

the system starts to show some sonic character. Leading the pack is the HEOS 7 (£499), designed for larger living rooms and family spaces.

Like Sonos, Denon doesn't offer specifications for any of its kit. Instead it points to 'the experience'. While this is frustrating if you want to compare like with like, it's understandable in context. This is Minecraft audio – build it as you like it.

The HEOS system is configured and driven from the app, available for Android and iOS. Integrated music services comprise Spotify, Deezer, Tunein radio and Napster. Denon recently inked a deal with Google that will enable users to Google Cast content (music, radio stations and podcasts) directly. You can also stream from your mobile or networked sources, be they NAS or PC.

File support is 16-bit friendly, but 24-bit does not compute. For the most part, the speakers will be handling Spotify and MP3s, 320kbps or less. HEOS' ability to deliver musicality from such sources is a key part of its appeal. AAC, ALAC and FLAC files also play back.

DETAILS

PRODUCT Denon HEOS

ORIGIN China

China

Wi-fi enabled active speakers and multiroom audio system

WEIGHT

HEOS 3: 1.9kg HEOS 5: 3kg HEOS 7: 4.5kg HEOS Link: 1.3kg HEOS Amp: 2.8kg

DIMENSIONS (WxHxD)

HEOS 3: 130 x 272 x 165mm HEOS 5: 294 x 209 x 166mm HEOS 7: 479 x 203 x 164mm HEOS Link: 155 x 74 x 150mm HEOS Amp: 221 x 93 x 214 mm

FEATURES

Connections:
 Ethernet; 3.5mm
 minijack; USB
 Spotify, Deezer
 and Tunein radio
 streaming support

DISTRIBUTOR Denon UK TELEPHONE 02890 279830 WERSITE

denon.co.uk

The design may be a bit Marmite, but we love it. Neither the HEOS 5 or 7 are intended for wall or ceiling mounting. Their natural habitat is shelving, tables, work surfaces – everyday locales that might equally suit a weeping fig. In short, they're easy to accommodate.

Each speaker has a dedicated Ethernet connection if you don't want to go wireless, aux 3.5mm minijack for local devices and USB port. The only on-body controls are volume and mute; there's no Power Off button, the speakers simply go into standby when not in use.

Providing system support is the HEOS Link (£299) and Amp (£399). The former is used to integrate a standalone system, for example an AV receiver. Small and chunky, it features analogue and digital in/outs, plus USB and Ethernet. The HEOS Amp can be used with everyday speakers to create a standalone system that's also part of the HEOS network.

Key to any multi-room audio system is ease of use – and HEOS pretty much has this nailed. Initial setup takes but a few moments. The system uses a standard wi-fi 2.4GHz network, and happily there's no MESH infrastructure to contend with. The speaker grabs its network connection via WPS or from a hard-wired mobile device. Just connect the two via minijack and follow the prompts on the app. All units convey their status through a colour-coded LED. Once networked they glow a happy blue.

Sound quality

The standout speaker in the HEOS range is clearly the 7. Nothing quite prepares you for just how gargantuan a sound it can deliver. To say its output is prodigious is to call Godzilla a lizard. This isn't a bad thing.

With so many choices, there should be a **HEOS** to suit every room



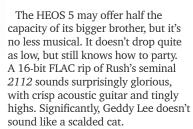
Meet the family (from left): the HEOS 7, HEOS 5, **HEOS 3. HEOS Amp** and HEOS Link

Multi-room audio shouldn't be about tea parties and polite society; it's far more gregarious than that.

The soundtrack for Wes Craven's eighties horror yarn Shocker (MP3 320kbps) is packed with hair metal covers of genre classics (Alice Cooper's No More Mr Nice Guy, Iggy Pop's Love Transfusion) and the HEOS 7 riffs along with energy to spare. Gun's cover of Word Up, on the similarly rocky Barb Wire soundtrack album (MP3 320kbps), is equally well served. It opens with that familiar hook delivered via potent Class D amplification, before letting Cameo's classic riff off the leash. The HEOS 7 sounds gleeful. It's instantly clear this is a fun speaker to live with.

The HEOS 7 is also capable of preternatural bass. Eurodance classic How Do You Do, by Cascada (horrible low bit-rate, don't ask), thumps like a Jägerbomb hangover, but it's a beat that the big 7 positively relishes. Similarly Ansell Collins' reggae classic Double Barrel (from a CD rip of Celebration: 25 years of Trojan Records) has enough volume and low frequency extension to warrant





Synchronicity between zones is superb. Differently zoned speakers

To say that the **HEOS 7's output is** prodigious is to call Godzilla a lizard

play out sans any discernible delay. Operational functionality is also good. Plugging a USB drive into any one of the speakers allows it to become a multi-room source. And, of course, you can stream disparate musical sources to multiple rooms simultaneously - Spotify to your den, MP3s from a NAS to the living room, local radio to the shed...

And if you suffer from any wi-fi



If ease of use, speaker design and musicality distinguish multi-room systems, then HEOS by Denon has set a refreshingly high benchmark. The HEOS 7 is an extraordinary hero product for the line, capable of room-filling energy. For most users though, the smaller HEOS 5 will hit the sweet spot. Beautifully designed, with moderated slam and a welljudged mid-range, it's a great fit for most average room sizes and popular music genres. The control app also serves the system well. In all, HEOS comes highly recommended •













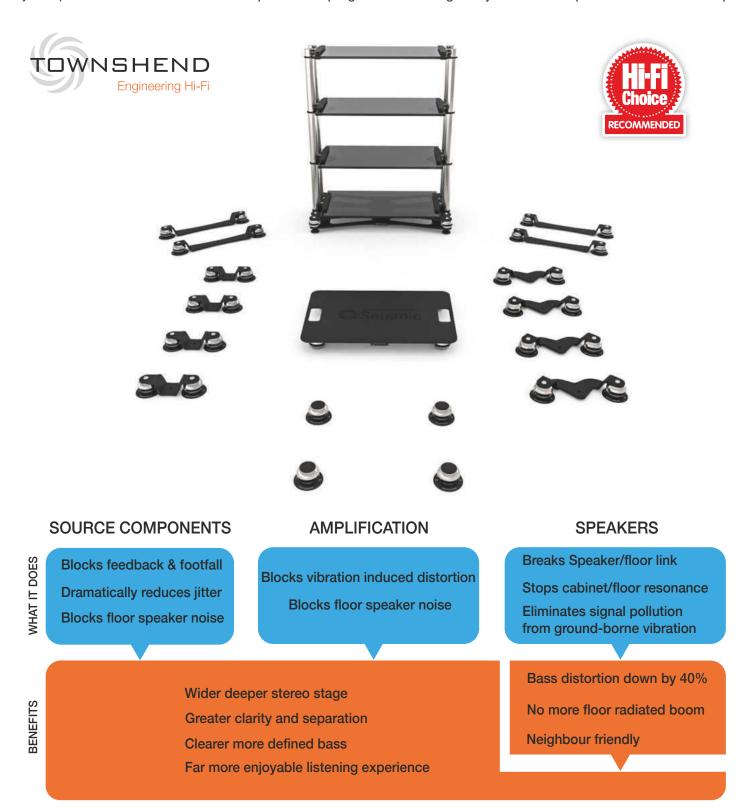






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INSIDER FEATURE

ECLIPSE TD

Spherical STYLE

David Price profiles Eclipse TD and interviews the designer of its most egg-cellent loudspeakers, Hiroshi Kowaki



Back at the beginning of the 21st century, the Eclipse TD 500-series was way ahead of its time. This was before Apple indelibly stamped Jonathan Ive's beautiful designs on the world's collective consciousness, and styling wasn't considered such a priority. Yet those first Eclipse TD eggs were gorgeous, despite the audiophile market of the time being unreceptive to things of beauty.

Aside from radical aesthetics, Eclipse TD speakers also went against the grain in terms of sound, too. They sounded strikingly different to what almost everyone was used to; they didn't sound 'good' so much as 'accurate'. Indeed, the whole concept was completely different to that of other loudspeakers, as Kowaki-san explains. "Music consists of tone (described by the frequency domain) and rhythm (which works in the time domain). Most audiophiles tend to focus on the former, while musicians include both, and many of the best of them are very interested in the latter. I believe that if people think that high fidelity is their priority, then the time domain has to be the priority because humans sense the sound by listening to the sound waveform which consisted by time domain." This view is not universally held, but explains perfectly why Eclipse TD loudspeakers sound as they do.

The company is a sub-brand of Fujitsu Ten, a vast Japanese manufacturer headquartered in Kobe whose core business is producing OEM car electronic components. Around 10,000 people work for it globally, and there are numerous offices around the world. In hi-fi terms, Fujitsu Ten is massive and has huge engineering resources, but hi-fi is not its core business. The Eclipse TD brand effectively came about when Kowaki-san pitched the idea of making a radical new loudspeaker to the company's top brass.

"I started at Fujitsu Ten as an electronics engineer working on Vehicle Engine Control, but kept telling my boss that I wanted to move to the Audio Development Division. So

It's fair to say that a number of British hi-fi journalists didn't quite get the speakers

I moved to work on digital signal processing in 1989; I specialised in DSP surround sound systems for consumer car audio. One of my jobs involved trying to reproduce concert hall acoustics with car loudspeakers. This was considered important because we are an innovating company; we were the first to develop car CD players, and also the first to produce DSP systems for cars, for example. Indeed, Fujitsu Ten's involvement in car audio started as far back as 1955".

The idea of Eclipse TD first came about after Kowaki-san visited eight famous European concert halls including the New Philharmonic Hall in Berlin and the



Birth of a legend

Given the accuracy of the algorithm, he concluded that the loudspeakers weren't giving a properly phase-coherent sound. "Signal processing engineers are always thinking about the sound in the time domain, but speaker designers think about the sound in the frequency domain. I realised that if the speaker doesn't work well then the signal processing can't compensate for it; if the speaker's time response isn't correct then it means nothing. I proposed to our president that we design speakers for the audiophile market, with the focus on time domain response. At that time, I didn't think there were any loudspeakers around that were accurate in the time domain." Thus was born Eclipse TD.



INSIDER FEATURE



Kowaki-san identified the problems of speed and clarity of Kowaki-san's designs, conventional loudspeakers as coming from but also can't help but notice the lack of four fundamental factors; cabinet resonance, extension at the frequency extremes. This the fitment of multiple drive units, the seems to put some off; others, however, hear resonance of the drive units themselves past this. "I recently went to AES in Los and the phase anomalies in the crossover Angeles and did a presentation to a number network. "Well it isn't impossible to get of Grammy Award-winning recording real musicality from a multi-drive unit engineers. I did my presentation using only loudspeaker, but it is very difficult", he tells MP3, but everyone else was using hi-res, yet me. "Transient speed and the frequency it sounded so convincing. One famous engineer really loved my loudspeakers!" response is a trade off in practical terms; it never comes as a perfect package. If we want Kowaki-san points out the logical to achieve a better frequency response, we must compromise the time response. We

He's right of course. There's no denying the purity of a single-driver speaker; everything arrives at you at the same time and there's no crossover to mess up the phase relationship between multiple drive units. Sadly though, the laws of physics dictate that there is no way a single drive unit can be flat from 20Hz to 20kHz, or indeed anywhere near it. Because of this, conventional speakers are forced to use at the very least separate mid/ bass and treble units; there's no other way to achieve their objective. In short they rob Peter to pay Paul; phase purity is sacrificed

If you listen to any Eclipse TD speaker, you can immediately hear the design priority; it sounds radically different in a good and a bad way. Or at least, many audiophiles used to conventional big boxes will regard it as bad. They instantly lock on to the wonderful

in the name of a wider frequency response.

must choose our priority; we can't have both."

Robbing Peter to pay Paul

inconsistencies of designing speakers around the frequency domain. He argues that this varies greatly from person to person and place to place, but the impulse response of music remains constant. "I have visited many of the top recording studios in the world, and most of the engineers do not choose the sound pressure levels; there is no standard volume that they monitor at. And also there's no one standard loudspeaker they use, either. So the result is that - as volume affects the ear's perception of frequencies there is no one standard frequency response. When the loudness level changes, so the human ear's frequency response will change, because of the way music is recorded, the notion of a flat frequency response means nothing. However, the touch of the pianist's finger on the piano key, or the pick of the guitarist's fingernail on the strings, that's transient information which is everywhere on the recording. Professional musicians have a special skill with transients, and if the speakers can't capture this, they can't reproduce their art."

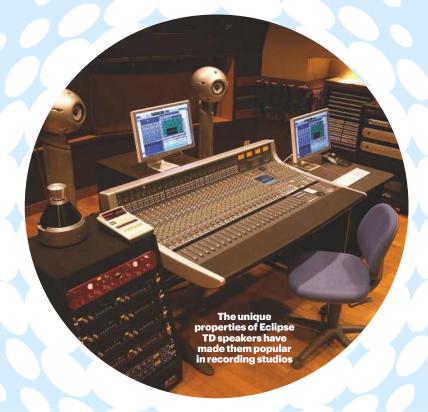
Starts supplying car radios for Toyota Motor Company 1959 Develops Japan's first all-transistor 1967 Markets Japan's first 8-track car stereo system 1973 Supplies Toyota with emissions control electronics Commences marketing component car stereos 1983 Develops world's first in-car CD player with Toyota 1990 Acoustics Development Centre opens in Japan 1995 Markets Eclipse aftermarket car audio 1996 Starts car audio system production in Europe Supplies Toyota with world's first 1-DIN six-disk CD changer 1988 Markets in-car DAT (Digital Audio Tape) 1989 Develops the world's first in-car DSP sound processo 2001 Launches Eclipse TD loudspeakers $20\overline{06}$ Jointly develops first car headliner speaker Develops Sugukuru Taxi ("Soon-Arriving Taxi") system 2013 Launches Japan's first wi-fi car nav system

FUJITSU TEN TIMELINE

The decision to use an egg shape for the speakers came from Kowaki-san's colleague, Mr. Yoshii, he tells me. "To produce an accurate impulse response sound, a single drive unit and an egg-shaped enclosure is the best way. Multiple drive units reproduce multiple sound waves, and that can never be a single sound wave; egg-shaped enclosures don't have edges so we can avoid diffractions. Most conventional speakers are designed around frequency response; but this alone can't tell the difference between the diffractions reverberations from the sound source; it can't discern between the driver sound and the diffraction reverberation sound. The frequency response is only one measurement, an average at a certain time, it doesn't include the transient.'

Inside the egg is a type of cotton to damp the enclosure, and this sits behind a custom-designed drive unit which is made to Kowaki-san's specifications by a specialist manufacturer, he explains. "Our speaker sound control point is only the drive unit; other companies can control the sound by many drive units, the network circuit and box resonance. We design and make many patterns of driver before we arrive at the final type. The smaller Eclipse TD models use paper cones, whereas the larger ones use glass fibre. With drive units, lighter is better, which is why we think it is right for smaller speakers, but it's not so strong; it's easy to bend; so when there is only limited cone excursion then paper is perfect for that

INSIDER FEATURE ECLIPSE TD



purpose, but when more air needs to be moved stiffer glass fibre cones work better".

Eclipse TD naturally experimented with many types of rubber cone surround before choosing "the one that works best", although the rubber itself isn't particularly special apparently. "We compared a large number of magnets too, including neodymium, but we think ferrite is best; it's not only the Gauss, but the physical mass which is important. We think the critical point here is getting the balance right between the two variables. The mounting which holds the drive unit into the cabinet is specially designed too. All of this means the speakers take a long time to do, between one and two years per speaker. The new TD-M1 took two years for example."

Launch time

In December 2001, Eclipse TD chose EMI's Abbey Road Studios to launch its first products, the TD512 Monitor System (including the A502 integrated amp) and the baby PA508PA. They came with a personal endorsement from Brian Eno, who used TD512s in his studio. Both were strikingly good at what they did – which was to give a blisteringly fast, detailed, focused sound, but it's fair to say that a number of British hi-fi journalists didn't quite get them. "I liken it to the Apple iPhone," he tells me, "it was an excellent product when originally launched, but only more recently has technology made it truly powerful and useful."

The 712 that followed in 2004 represented the purest expression of the concept, a high-end standmounted single-driver audiophile loudspeaker. It further polarised opinion, doing some things amazingly well; its timing and rhythmic fluency was almost supernatural. But again many were saddened by its lack of low bass, and to a

lesser extent the mediocre treble extension. Several iterations were produced, with small but effective tweaks. The TD712z mkII in 2009 made the speakers much more mainstream in their appeal, adding a little bass extension and sparkle up top. The world seems to have travelled in the direction of Eclipse TD too, with people now more likely to appreciate the radical styling.

The small TD307 has also helped; it's a tiny egg-shaped speaker with optional stands, and can be used as a surround rear or as a desktop speaker. The company also now has a range of subwoofers designed to

The idea of Eclipse TD first came about after Kowaki-san visited eight famous concert halls

partner 300, 500 and 700-series speakers, which dramatically widens their appeal; they're some of the best such products around, albeit very expensive. Last year, Eclipse TD released its £999 TD-M1 (HFC 390); the first active speaker system from the company with a built-in DAC. It's a TD508-sized design and so is even more suited to computer use.

"This is something I always wanted to create from the beginning, back in 2001", says Kowaki-san. "I have always been a music lover, and always wanted to make something for people who don't necessarily have to be an audiophile. Audiophiles of course love music, but also love equipment. The TD-M1 isn't made for these people, it has been designed

for the general market. Interestingly, the consumer market as a whole is moving to beautifully designed, highly performing but non-specialist products – you can see that in Apple's products, for example – and Eclipse TD sits comfortably here. Ultimately audiophiles are hobbyists; we're not denying this at all, but what we would like to focus on is to bring our specialist skills straight to the listeners. Our philosophy is to make speakers to do a job – to enjoy the music – rather than being a special gadget for hobbyists."

Future sounds

The TD-M1 is an interesting crossover product, and should win the brand friends in a market that is a little less wrapped up in tradition. Kowaki-san explains that, "Yes, in a way it has been quite a lonely path, but in the music industry I have many good recording engineers – such as Jim Anderson (Grammy Award winning engineer) and Akira Fukada (former Sony Music and NHK chief engineer) - who find it very easy to understand our concept and sound. So I really love to exhibit at the AES, rather than conventional hi-fi shows. People who really know what is a good sound don't find it difficult to understand what we do. If audiophiles have a realistic reference loudspeaker, then they will appreciate the beauty of the sound that we make. For example, when you listen to a Jennifer Warnes CD, many people have different speakers so their image of Jennifer Warnes is different. Many people can't separate what part of the sound of her voice is her voice and what is the speaker; everyone has a different understanding of it. Especially at the first encounter with Eclipse TD speakers, people often find it quite unusual. But if people are familiar with what real sound is, rather than their existing loudspeakers, they will understand Eclipse TD."

Time seems to be pulling the audiophile market – or certainly the high-end loudspeaker market (and there is a subtle distinction) – towards Eclipse TD products, not away. Gravity's pull is making them seem far less odd than they originally did. There will always be a number of specialist hi-fi buyers who insist on a box with multiple drivers inside, but more are interested in change now. Recording engineers seem to be showing more imagination too; Al Schmitt

(Paul McCartney, Quincy Jones, etc.), Jeff

Jones (Wynton Marsalis, Eric Clapton) and Oscar Deric Brown and Fernando Aponte (Jaques Morelenbaum, Madonna, Ryuichi Sakamoto, Herbie Hancock, etc.) have recently started using these speakers.

Whatever your sonic or aesthetic preferences, you owe it to yourself to hear the latest generation of exotic eggs •



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CD: Aurender, Bel Canto, dCS, Gamut, Vertex AQ DAC. Vinyl: Graham, Spiral Groove, Transfiguration.

Tuners: Magnum Dynalab. Amplifiers: Bel Canto, CAT, Gamut, Sonneteer, Storm Audio, VTL.

Loudspeakers: Avalon, Gamut, Kawero! – Vivace & Chiara, NEAT, Totem. Cables: Chord Co., DNM, Nordost, Siltech, Tellurium, VertexAQ.

Mains: Vertex AQ. Supports: Arcici, Black Ravioli, Hi-Fi Racks, Leading Edge, Stands Unique, Vertex AQ. Room Acoustics: Leading Edge.



ortofon



Since 1948 Ortofon have introduced nearly 100 different moving coil pick-up cartridges to the hi-fi market. Their latest models in this long and proud heritage are the Quintet Series.

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The Quintet Series also includes a true-mono cartridge, for accurate reproduction of older mono recordings.



Hi-fichoices



YOUR LETTERS & QUESTIONS ANSWERED

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 a serious vinyl junkie.



JASON KENNEDY

EXPERTISE: REVIEWER
Former HFC editor Jason loves
music so much that he has
dedicated his life to finding
the ultimate system. A
long-time vinyl nut, he also
enjoys a well-streamed file.



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.



CHRIS WARD

EXPERTISE: REVIEWER
When Chris isn't advising
businesses on strategy, he's
trying to squeeze more musical
qualities out of exotic
combinations of cutting-edge
tech and vintage hi-fi classics.

Email us at letters@hifichoice.co.uk **or write to:** *Hi-Fi Choice* Letters, AVTech Media Ltd, Enterprise House, Enterprise Way, Edenbridge, Kent, TN8 6HF **Your letters** may be edited before publication and we cannot enter into personal correspondence



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You can also send your questions to us via social media: twitter.com@HiFiChoiceMag facebook.com/hifichoice.co.uk

Keep it warm

Firstly I'd like to compliment you on your magazine. I particularly love the group tests and music reviews.

The problem I have is I would like some help in upgrading my CD player, which is currently a Marantz 6004CD. Since I upgraded my amplifier and loudspeakers I think that it is no longer up to the task.

My amplifier is a Unison Research S2 Anniversary and my loudspeakers are Tannoy DCT6SE with Tellurium Q Blue speaker cable and Ecosse Baton interconnects.

I was thinking either to replace the CD with the Rega Apollo R (although I'm open to other suggestions) or buying an external DAC – like Chord's QuteHD. I love the warm sound of my valve amp, but it is the way that it underlines weaknesses in the performance of the CD player that bothers me. What do you think would give me the best results and also not lose the lovely warmth of the sound? Hope you can help, many thanks.

Ged Argenio

DP: Hi Ged, you are absolutely right to identify your CD player as the main weakness in your system. The Marantz is not a bad one, but it is a little out classed by the amplifier; the speakers are not brilliant, but do work well with the amp, and this is a very important point that you don't want to lose. So, I would suggest buying a Chord QuteHD – because it is the cheapest way to get the biggest improvement in

sound. There are other excellent DACs at the price, but you quite correctly identify that the QuteHD has a very musical and sumptuously warm sound by comparison with its price rivals. I think it will fit in perfectly with the rest of your system, and of course you can always use it for computer audio or other such digital sources, too. When the day comes that your Marantz dies,

Since I upgraded my amp I don't think my CD deck is up to the task

then it could be replaced with a dedicated CD transport, such as the Cyrus transport.

CW: I concur with DP in thinking the weak point of your system is your CD player, which is relatively smooth and unrevealing. These softening qualities are then being redoubled by a fulsome amp that may be smoothing vital musical detail still further. There is an argument that the warmer and more laid back your amplification the more analytical you can afford your source to be, as the net result can sound well balanced. It's better if all components can be relatively neutral, but having a well-loved valve amp is reason enough to experiment. And while the Rega Apollo is a quality player with an analogue style of delivery, I sense

you may get better results with a more incisive player from the likes of Cambridge Audio or Audiolab. As you have already mentioned, it may be smart to invest in an external DAC like the Chord or Audiolab's M-DAC and retain your Marantz player as a digital transport. If you explore this later route, it may also be worth experimenting with an improved power supply from suppliers like Mains Cables R US as this can lift the performance considerably, giving you even more detail and insight for your amplifier to work with.

You absolutely won't lose the warmth you enjoy, but it needs to be joined by some microdynamic detail and faster leading edges to notes that will complete the musical picture. A quality dealer should easily be able to demonstrate the benefits you seek and may even allow you to trial products in your own listening room.

LETTER OF THE MONTH

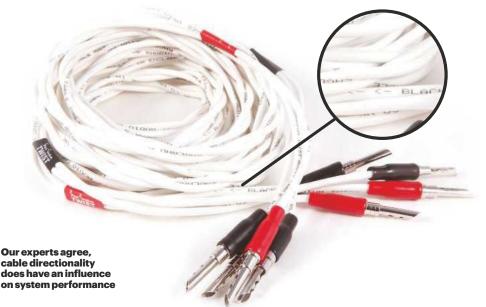
Emperor's new clothes?

Please can you give me some advice on cable directionality?

Having read the following statement, I'm not sure that it actually exists. "The signal – throughout its entire path – is a two-way, push pull, alternating current (AC) signal, so your speaker cones go in and out at the frequencies of the music



LETTERS



being played and vibrate the air molecules to make sound. In other words, the signal is travelling in both 'directions' (on both conductors) many thousands of times per second. The net distance travelled is (approximately) zero and the signal will spend 50 percent of the time 'pushing' and 50 percent of the time 'pulling'. If the signal were to act like a stream or river (direct current or DC) - going in only one direction from source to speaker like some people imagine - then your speaker cones would remain static (either pushed out or pulled in permanently without moving) and the driver coils would heat up and melt because the electrical energy would not be converted to energy, just heat. This is why the arrows on cables are meaningless and cable directionality is nonsense".

Is this true or completely wrong as it depends on the cable design being used? Any advice given would be appreciated, many thanks.

Mike, by email

NR: Hi Mike, what the statement says is correct, up until the last sentence! The signal is indeed two-way, but the statement overlooks non-linearities and other issues with the conductors and insulators. If, for example, one were to put a diode in series with the cable, that would result in a different resistance to the current flow in one direction compared with the other. It goes without saying that this would have a severely detrimental effect on the sound! Now, no conductor is perfect, unless you reduce its

temperature to near absolute zero (-273°C) as required by superconductors. So, all your cables will have a slight impedance, which is caused, among other things, by the crystallographic structure of metals. Any piece of metal is made up of a large number of crystal grains, which are regions of regularity in the alignment of the atoms of the metal. At the grain boundaries, the atoms of the metal have become misaligned and this will have a

Please can you give me some advice on cable directionality?

subtle effect on the electron flow across the boundary. Furthermore, this effect may be different depending on the direction of electron flow, resulting in non-linearities.

The key issue arising from your question is that wire is extruded by passing it through a die in one direction, and this will affect the grain structure. DCT (deep cryogenic treatment) of conductors has proved to be an effective way of helping to align these crystal grains. The process of running-in cables is also considered to assist in this process. When you consider that there are also other issues, such as Skin Effect and the Dielectric Constant of the insulators, it can be appreciated that the whole subject of the effect of cables on sound is not a simple matter.

Having said all that and although once a sceptic myself, I am now thoroughly convinced that cables and direction do indeed have an influence on

sound quality. Those who analyse the evidence from a purely engineering point of view may argue that there is little to support such claims. However, I make judgments based on what my ears, and not just the calculations, are telling me. Many people are sceptical about claims of sonic benefits, which they consider to be unsubstantiated since they can't be backed up with scientific proof. With all due respect to the sceptics, that's rather like saying that bumble bees couldn't fly until around 2005 when scientists finally managed to put this perplexing mystery to rest!

JK: I am not a physicist Mike, but I have heard the effect of cable directionality enough times to know that it does make a difference. There are many things in hi-fi that are hard to back up with hard science, but that does not alter the fact that we perceive differences and in this case it costs nothing to do, so there's no harm in it beyond the fact that it makes hi-fi nuts seem, well, like nuts when in reality we are prepared to listen a bit more closely than most.

CW: Most of what you quote is absolutely correct, but my understanding is directionality can absolutely be recognised around the 'shielding' design to many cables, where ground loops are often minimised through an earth connection only being formed with one component rather than both components connected by that cable. However, speaking at a more philosophical level, given very learned people still argue about light exhibiting both wave and particle behaviours, or that a



flame is hard to describe using our understanding of chemical reactions and plasma, then I'm very happy to live with the ambiguity that some physical properties around the energy flows in our hi-fi systems have yet to be fully explained, but can absolutely be heard.

➤ Record breaker

It's gratifying to hear that annual sales of vinyl records in the UK surpassed one million units in 2014 for the first time since 1996. However, retail experts explained that the young were buying vinyl rather than CD largely due to a desire to be trendy rather than an actual preference. Apparently many modern vinyl LPs are never played at all, just displayed - something that is restated in the December 2014 issue of *HFC*, page 87.

Still, the rest of us can enjoy the renaissance while it lasts. I've been able to replace a number of my old favourite vinyl LPs, largely from the 'prog rock era' of 1967-1974, where the originals had been played a few times too often with darning needles on the end of wooden sticks, and not with proper hi-fi equipment.



LETTERS

I'd replaced some of these old favourite LPs with CDs, and so have formed my own opinion of the differences between vinyl and CD played on the same hi-fi – although one must always remember the CD player and turntable may have deficiencies of their own. I am always surprised when reviewers trot out the same old story that vinyl is a 'warm' sound. To me, comparing un-remastered CDs with the original LPs on a medium-price system, the obvious difference is how brash, or 'forward' the CD recording sounds, relative to the vinyl LP at equal output volume (measured with a sound meter). Instruments are much more localised, rather than a soundstage.

The musicians on a CD sound as though they are playing with the front room as a studio; on an LP, live at the back of my short garden.

Vinyl's resurgence has been great as I've been able to replace my music

The brash CD sound is superficially attractive, but tires my ears quickly. I would expect to be able to tell the difference between a familiar album played on vinyl and CD in a blind test, although maybe not an unfamiliar one.

I have just one regret concerning the renaissance of vinyl. Some of my favourite LPs were compilations of recordings by single artists (example: Van der Graaf Generator's 68-71), and it seems that these were distributed on inferior plastic. They acquired too much snap, crackle and pop very quickly. I'd like the vinyl reissuers to



release these compilations too, but I suppose that this is a little too much to hope. There has been no sign of

such releases to date.

John White

DP: It is indeed great to hear of the continued vinyl revival, John, a subject I personally have been writing about for 20 years. Indeed two decades ago I interviewed the manager of EMI's Hayes record pressing plant, who told me it was booming thanks to sales of 12in dance singles - doubtless played in nightclubs on Technics SL1200s. Nowadays, this part of the market is less strong, and it's now LPs that are being bought in their droves. It seems that the average music buyer is happy to download or - increasingly stream music, while the collector's market has moved to vinyl. Just a few years ago we were seeing countless CD boxed sets, digi-packs, etc. trying to get people who already had bought the CD to buy it again for all the new goodies - many of which weren't so good. Now I think those wanting a physical format have realised the beauty of black plastic. The bright idea to throw in a digital download code has

Download codes with vinyl allow you to stream your album as well as spin it

brought the format to a new generation of music buyers, many of whom never saw it when they were young because their parents used CD!

NR: I quite agree with your findings, John, regarding the differences between a vinyl LP and its CD equivalent. Also, like you, I felt that inferior vinyl and pressings were to blame for all the noise I was experiencing with my record purchases in the seventies and resorted to sending back well over 50% of them to the manufacturer for replacement.

It was only later that I found out that much, if not all, of the noise could be removed by giving each new record a good wet clean. The dreaded mould-release agent used during the manufacture of the pressings has a lot to answer for!

Modern styli are fine enough to reach down and 'reproduce' all the residue that remains in the depths of the groove that maybe escaped the notice of older cartridges! Whatever the case, I am still amazed how much of an improvement can be achieved by washing a new LP using a good record cleaner. Even the modestly priced Knosti Disco-Antistat and Spin Clean record cleaning machines do a splendid job and are well worth the investment.

▶ Take the stage

I live in Spain and read your magazine every month. I hope you can help me with this as I am pretty mixed up.

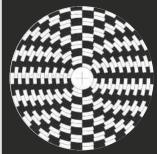
HINTS & TIPS

VALVE HI-FI MAINTENANCE

The sound produced by valve hi-fi equipment has a wonderful character and many would say that it offers a quality that surpasses its semiconductor counterparts. However, such valve equipment does require a little extra special care and attention to ensure that it is always performing at its best.

Valves are usually easily accessible and are plugged into sockets in the equipment. It is amazing the improvement you can get by simply cleaning the pins and socket using a good contact cleaner like Servisol or Caid DeoxIT.

Valves, of course, don't last forever. A small-signal valve (preamp or driver valve) usually lasts for around 10,000 hours before its performance drops to a point where it adversely impacts on the sound quality. However, when you think that this equates to over a year of continuous use, you can appreciate when people say that their valves have lasted for 20 years and are still going strong! Power output valves and other stressed valves are often considered to last 2,000-5,000 hours, but may last much longer. If you can get your valves tested, then so much the better, but if you feel the sound is not what it used to be (dull, lifeless and poor imaging), it might be time to try some new ones.



CHECKING TURNTABLE SPEED

Any deviation in the speed of rotation of a record when it is being played from the speed when it was recorded will manifest itself as errors in the pitch of the notes being reproduced. Therefore, many turntables allow for fine-tuning of the speed. To carry out this adjustment, a stroboscopic disc is required. This references the speed of rotation of the platter to the 50Hz mains flicker that is present in mains AC-powered incandescent or fluorescent light sources.

It is a good idea to adjust the speed while actually playing a record, so any effect of drag of the stylus is taken into account. A strobe disc that can fit over the label area of a record is therefore to be preferred. When the strobe disc is illuminated from an AC light source and is being rotated at exactly the speed of the calibration markings, the markings will appear stationary. Any deviation in speed will be apparent as the marks will move slowly in one direction or the other. If they move in the direction of rotation (clockwise), then the turntable is running fast and if they move anticlockwise, then the turntable is slow. All that is required is to adjust the speed control until the marks are stationary – job done!



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What the critics say

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- Hi-Fi Choice, Oct '14

"Yet another top-class speaker from the twenty range - PMC has done it again"

- What Hi-Fi Sound & Vision, Oct '14

"It reproduces voices and instruments in a very natural way, always faithful to its promonitor heritage and the joy of music."

-the-ear.net, June '14

"...all three drivers combine flawlessly to give a truly musically adept result."

- Hi-Fi News, June '14



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I have a PMC Fact 8 with a Naim Supernait 2 connected with Chord Epic Twin cables and I am looking now into upgrading the phono with the Pro-ject Xtension 9 superpack. The problem I have is that I don't know what phono stage will fit better in my system. I am considering a few, but should you have any other suggestions it would be very much appreciated.

The Pro-ject Phono Box RS looks good, but the THD (<0.019%) seems to be

I'm not sure which phono stage will fit best with my system, help!

considerably bigger than other phono stages in the same price range, like the Primare R32 (0.0010-0.0044%). The Creek Wyndsor also looks fantastic, but I'm not sure about the mini DIN connector's utility. I listen to a very wide selection of different music: electronic, pop and rock, cold wave, indie folk, songwriters, etc.
Many thanks in advance and kindest regards,

Gonzalo Prada

ES: Hello Gonzalo, I'm not always that preoccupied with THD measurements on phono stages given that more often than not, there's more distortion from the nature of playing records anyway so I'd not discount the Pro-Ject for this reason. This

being said, the Primare is a seriously good phono stage too so I can't really advise against it. If you are going with the Ortofon on the Pro-Ject pack, I have to say it sounded mighty fine with the Phono Box RS in the *Beautiful System (HFC* 393) I heard it in recently and you'd have some money over for buying some records too.

X marks the spot

I apologise for this long email but I do not write to hi-fi magazines very often and the bees in my bonnet grow in number.

I note that an increasing number of hi-fi separates now include aptX Bluetooth wireless audio. A number of individual reviews have noted that this may be the preferred way to transmit wireless audio conveniently from tablet PCs to hi-fi equipment (while accepting that a wired network or USB stick seems the best way to transmit HD audio files).

Recently I read the Wikipedia item on aptX and it states that "aptX Lossless supports high-definition audio up to 96kHz sampling rate and sample resolution up to 24-bits". Apparently it has been in use in broadcasting for over 25 years! So in theory I should be able to transmit HD files wirelessly, but is this the case? My Samsung tablet will play a 24-bit/96kHz or even a 24-bit/192kHz wave file, but does the Bluetooth link support either of these rates? Is this automatic or is there a set up procedure? I



LETTERS

have scoured manufacturers' websites, equipment reviews, and online articles, but none have answered these questions satisfactorily. The aptX information available generally is very vague on technical aspects and set up, even on the official website. I would be very interested to see an article of some description in HFC explaining the technicalities of aptX and perhaps a review of current aptX implementation in audio products. In particular how does it affect wireless transmission of HD FLAC or even DSD files? Is it lossless? Is a FLAC file converted to PCM (wave) before processing in aptX? Does it maintain sample rate and bit depth? I would also appreciate including more detailed information on its implementation where relevant in future equipment reviews. Many thanks

Mike Tartaglia-Kershaw

PS A similar email has been sent to other hi-fi magazines in the hope that at least one, but preferably all, will explain both the technicalities of aptX and its impact on sound quality, such as timbre, detail and dynamics, compared to other compression techniques.

ES: Hello Mike, I'm happy to be corrected, but as I understand it,



the current state of play is that while the aptX codec supports sample rates up to 192kHz, the available bandwidth on Bluetooth means it tops out at 16/48kHz in this form. This is still enough to make a decent fist of CD-sized files, however.

Back for more

You very kindly helped me a year ago to update my equipment and I am indeed very happy with the results. It now consists of a Mimetism 20.1 CDP (easily the best CDP I have ever had), Primare i32 amplifier, PMC 22 loudspeakers (on their own dedicated stands) a Teac headphone amplifier with Sennheiser HD 800 headphones and I also have a modded Musical Fidelity X-DAC V8. I am thinking of adding a subwoofer too at some point, but I love the detail and groove.

My question is: as my CD collection is still growing thanks mainly to charity shops, I am beginning to run out of space. I am living in shared accommodation so I only have access to wireless

internet. I would like to start ripping the CDs to a hard drive to play them through the amplifier and loudspeakers. I do not want to put it on a network, but would like to be able to back it all up. I was looking at one of the older Olive models the 4 - and I wonder if you could come up with any other decent alternatives?

Because I have upwards of 2,000 CDs I think I would need at least 1TB storage as I have used FLAC to transfer some to my Cowan player. My budget is £1,200 as an absolute maximum I am

Can you suggest the best way for me to rip and play back CDs?

willing to look at new, ex-dem or reputable second hand. Kind regards.

George Hodge

DP: Hi George, if you can find a nearly new Sony HAP-Z1ES (normally £1,800 discounted), that would be my choice. In my opinion, it is just about the most complete hard disk-based music source around at the moment. Unlike most, it does not rely on the internet that much; when you have transferred your music to it, it is pretty much a fit and forget device and has the instant track access that a NAS-based music streamer can only dream about. Furthermore, it's a thing of beauty to look at and to use, and reliable too. It sounds excellent, but can be further upgraded later by the simple expedient of fitting an external DAC, and is also able

DP suggests Sony's HAP-Z1ES holds the answer for George

to play the new flavours of DSD - which, of course, Sony itself pioneered. Those used to the tweaky, tetchy, buggy, fiddly, unreliable, 'computer audio' side of hi-res will be most disappointed, because the Sony feels just like the piece of high-end hi-fi that it is!

JK: Hi George, glad you like the system, the Mimetism is indeed a fine player. I think what you are looking for is a ripNAS, a CD ripper and network-attached hard drive in one. These devices pretty much have to sit on a network in order to get metadata – titles and cover art – for the discs they rip, but that doesn't mean they have to play over a network. The most interesting example that's currently available is the Bluesound Vault. This is made by Lenbrook, which also owns NAD so has audio credibility despite its lifestyle appearance, it's available in 1TB and 2TB variants with the smaller version costing £799. It has analogue and optical digital outputs as well as wired or wireless network connection.

COMPETITION WINNERS

Back in the January issue we ran a competition offering three very lucky readers the opportunity to win Chord Company cable looms worth £630. The happy trio who will be able to give their systems an audio upgrade are: C Gration audio upgrade are: C Gration from Gloucestershire, Mr Weston from Ipswich and D Odling from Cambridgeshire. Congratulations, your prizes should be on their way to you soon. Check out this month's competition on page 118.



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Numbers game

He might not have a head for figures, but **Lee Dunkley** can't deny that record sales are at an all time low. But is this really a bad thing and what does it mean for the future of music?

ave you noticed how nobody talks about record sales figures anymore? There was a time when artists eagerly boasted the announcement of platinum sales for this album or another 100.000 units shifted for another.

These days the industry finds the subject too embarrassing to be discussed in public and the sales figures that leaked out for the 12 shortlisted albums for the Mercury Music Prize last year show why.

The winners, Edinburgh-based hip-hop trio Young Fathers, had sold just 1,825 copies of their album *Dead* when on October 29 it was deemed by the judges to be the best record of 2014. Albums by two other shortlisted acts, Polar Bear and Go-Go Penguin had sold even fewer, just 1,732 and 1,522 copies respectively.

Getting shortlisted for the prize has long been regarded as a career-maker for little-known acts. Not any longer. True, Kate Tempest doubled sales of her album *Everybody Down* after its inclusion on the shortlist – an impressive achievement until you realise that her record started from a sales base of only 3,075.

Albums by the highly acclaimed Anna Calvi and FKA Twigs were revealed to have only just struggled past the 10,000 mark. Only one of the 12 albums on the list, the debut by the Brighton-based rock duo Royal Blood, has

It is becoming difficult for acts to sustain careers with record sales

sold more than 100,000 (which is the threshold for 'gold' certification) and *Everyday Robots*, the debut solo album by

Damon Albarn, once a multi-million seller with Blur and Gorillaz and arguably Britain's most inventive and imaginative rock star of the last 20 years, has sold fewer than 50,000 copies.

It is clear that the ubiquitous, zeitgeist-defining blockbuster album is now an anachronism. No record, however brilliant and thrilling, is ever again going to achieve the household status of such squillion-selling cultural behemoths as Fleetwood Mac's *Rumours* and Pink Floyd's *Dark Side Of The Moon*. Even the humble million-seller single is now an endangered species and privately, many in the industry accept that the sales achieved in the first decade of the 21st century by artists such as Adele and Amy Winehouse are unlikely to be repeated.

That record sales – even as downloads – are in catastrophic decline is hardly news and we've regularly touched on the subject in the past. But does it matter and should we care?

One theory is that we are better off without the blockbusters which only serve to hoover up sales from other artists and, as a result, we are witnessing a welcome market diversification in which instead of a small number of giant musical oak trees preventing the sunlight from penetrating their vast and lofty canopy, a thousand flowers can now bloom on the forest's floor.

The notion that a fragmented market place provides greater choicer and diversity in which

niche music and fringe audiences can thrive is attractive. But the sales figures of the Mercury Prize contenders – artists who are supposedly at the cutting-edge of music making – suggests that the model may not be sustainable and in reality, it is becoming increasingly difficult, even for prize winning acts such as Young Fathers, to sustain viable and enduring careers on the basis of record sales.

A piece of anecdotal evidence of this harsh truth struck me last month when a music journalist told me that a record company had said their promotional budget did not stretch to covering the phone costs for a 30 minute interview with a high-profile African artist on his mobile in Nigeria. Just 10 years ago they would have flown the journalist to Lagos to do the interview!

Things ain't what they used to be

Young artists can no longer expect the huge advances that were available in the past; sales are too low for record companies to have any confidence that they will ever recoup their investment. So other models come in to play.

One solution is 'crowdfunding', which essentially means getting your fan base to buy your album in advance before you have even made it. The most significant example of this to date is the American 'punk cabaret' singer Amanda Palmer, who raised 1.2 million dollars via Kickstarter to fund her 2012 album *Theatre Is Evil*. But even then, Palmer insisted that she made little or no profit and most of the money had been spent on recording the album, producing and shipping it, and setting up a tour to promote it.

Before we get too pessimistic, I should stress that there is still plenty of great music being made out there. But the altered cultural dynamics of our times mean that where popular music once defined eras and lifestyles, in today's virtual world it has become merely ornamentation \bullet



Kate Tempest's Everybody Down doubled sales after being nominated for a Mercury Music Prize, but only sold just over 6,000 copies



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Cat that got the stream

Right now, the way that the British public is buying recorded music is changing at great speed, says **David Price**. But what does this mean for the music industry?

ou only need to look at what digital media is doing to newspaper circulations to see that we are in the middle of a cultural revolution.

Things will never be the same again. The fact that we can zip digital information around the world at a touch of a button has changed everything, because almost everything can be digitised.

When journalists get together, there is often talk of online publishing and the future of the internet – with the sense that change is here and it's going to be profound. But you only need to look to the music industry to see the effect it has already had. Some of us have forgotten that just a decade ago, practically everyone bought music on Compact Disc. While MP3 was already making inroads, the music industry was still geared around contracting companies to press millions of polycarbonate and metal discs, ship them to a vast network of distribution centres and then on to shops in every town in the country.

Britain's music industry now looks nothing like this. On the surface things are good, with the 10 best selling artists in the UK in 2014 British, and many selling very well internationally. But behind this, the latest BPI figures tell us there's been a drop in total sales (in value), at £1.03 billion compared with £1.05 billion in 2013, down 1.6%. Album sales have dropped by 7.8%, and – significantly – the

The way music is consumed affects the very way it is being produced

annual market share of physical albums dropped below the halfway mark in 2014 for the first time ever, to 48.8%. This shows us that

the writing is on the wall for CD. Fascinatingly, though, it is not digital downloads that are ushering its demise; indeed these are now reaching the autumn of their life too. Rather, the real growth area is streaming, which rocketed up by 65.1% in 2014, with revenues of £175m easily surpassing 2013's £106m. The number of audio streams doubled, with almost 15 billion songs from digital services like Spotify, Deezer and Google Play, compared with 7.5 billion streams in 2013. Streaming now accounts for 12.6% of all music consumed in the UK – up from 6.2% in 2013. Give it another couple of years, and the trend will render CD a legacy format, and make the idea of owning a physical format in the first place pretty much redundant.

Instead, the same kind of people who last year bought albums from Ed Sheeran, Sam Smith, George Ezra, Paolo Nutini, Coldplay, Paloma Faith, One Direction, Olly Murs, Pink Floyd and Take That, will choose to hear their favourite artists on demand, piped into their music systems.

That is why every new streamer comes with some digital music service or other preinstalled, and why Apple is building its recently acquired Beats streaming service into its next generation of iOS devices – pitting it against Spotify, Pandora and SoundCloud. After 2015, music buying is going to look like another country.



The revolution won't be televised

The revolution doesn't stop there, because the way music is consumed ultimately affects the very way it is produced. Speak to many recording artists now, and they complain they are not making the same amount of money from having their music played on streaming services as they would have from CDs 10 years ago. Heaven 17's Martyn Ware recently introduced me to the Featured Artists' Coalition, an artists' rights lobby group. He told me there are some very well known people on the board including Sandie Shaw and Nick Mason, who say that royalties from streaming are not being dispersed properly to the artists. "They're sitting on huge amounts of revenue. I'd be surprised if more than £1 of that £7 actually gets to the artist. It's almost impossible for an individual artist of any magnitude to individually audit sales now," he explained.

Ware argues that the situation is getting so bad that it is stopping people from trying to make a living from the music business. "To give you an example of how strongly we feel about it as Heaven 17, we are not going to release our new album in any digital format at all, apart from an individual private download code for each person. All we're doing is releasing on vinyl, and our current single is only for sale on tour and everything is for sale on our website. We're not engaging with publishers, we're not engaging with record companies, with PRs, with anyone. We are going off grid."

Martyn says that he thinks more and more people will do the same. It looks like the existing structure of the music industry is being irrevocably changed thanks to the internet, the rise of streaming and the death of physical media. Fascinatingly it took around a quarter of a century for both the Long Playing record and Compact Cassette to grow from nothing to dominate the music world, and once again the internet looks set to do it in the same 25 year period. This time though, it may change much more than the machine you play your music on ●

Streaming services like Spotify and Beats Music look to be the future



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Systemdek IIX900/RB250/AT440 Thorens TD150, SME3009 good condition	used new	279 299	NAIM NAC82, excellent boxed	used	899	NAIM CDi, excellent boxed NAIM CD3.5, vgc	used	599 299	Nola Contender in Cherry Nola Micro Grand Reference inc stands, £15k new	dem dem	1499 5995
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Thorens TD160, Audio Technica arm, boxed Thorens TD209 turntable package	used dem		NAIM NAC72, excellent boxed	used	349	Peachtree DACit, excellent Prima Luna Proloque 8, ex demo boxed	dem dem	199 1299	PMC Twenty 22, excellent boxed, ex dealer demo Proac D38 in Yew, boxed	used	1399 Call
Thorens TD2030 Blue turntable	new		NAIM NAC42/NAP110, excellent boxed	used	499	Quad 99CDP, excellent REDUCED	used	399	Proac D28, good condition in cherry boxed		1999
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Tom Evans Groove, 0.85mv/100 ohm, excellent Townshend Elite Rock c/w Excalibur, boxed excellent	used t used		NAIM NAC202 with NAPSC, boxed	used	1199	Rega Apollo R, excellent Rega Apollo 35th Anniversary, excellent	used used	449 449	Proac Studio 140 mk2, nr mint boxed Proac Studio 110, excellent boxed	dem used	1199 499
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	u30u	. 55	Onix OA32 Integrated, excellent	used	299	Sugden Masterclass CD original version	used	999	Quad 11L2, excellent boxed Red Rose Rosebud £2.5k new with (used) stands	used dem	249 799
			Onix OA25 Integrated, excellent Oracle Delphi, Zeta, due in	used used	399 999	TAG McLaren DAC 20, excellent Tube Technology Fulcrum CD transport	used dem	249 699	Revel M22, excellent boxed	new	599
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Akai GX95mk2 boxed with remote	used		Placette Audio Passive Linestage Prima Luna Prologue 3 Preamplifier vgc+	dem used	599 649	Yamaha CD-S3000 near mint	dem	Call	Revolver Music 1, vgc+ boxed	dem	349
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Nakamichi RX505	used	Call	Sugden Masterclass Monoblocks, in titanium	used	3999	Elemental Audio speaker stands	dem	499	Usher N6311, transit damaged to clear Velodyne DD18 sub in black	dem dem	499 1999
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Quad FM4, late grey version, excellent	used	179 299	Sugden Masterclass Integrated in Titanium TagMcLaren 60iRV, excellent boxed	dem used	2749 299	Isotek Nova power conditioner Lehmann Rhinelander	dem	1199 199	Special system deals		
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Tweaker's corner

Not content with splashing the cash on the best hi-fi money can buy, **David Vivian** shares his findings from his DIY approach to improving the sound of his setup

any moons ago on the back page of this very magazine, I devoted a column to weird hi-fi tweaks from around the globe. There were plenty to choose from and there still are,

though since my brief back then was to gently poke fun at the more palpably barmy, I'm feeling a little guilty about the thing I'm about to reveal.

It's this: I'm an inveterate, solid-gone, penny-pinching, can't-leave-well-alone tweaker. Always have been. My first ever CD player was a Sony D50 Walkman. I didn't use it as a portable, but spent weeks experimenting with varying thicknesses of foam-backed table tennis bat rubber that I believed would act as a vibration-damping mat between the chunky Walkman and the thin wooden shelf on which it was placed, just above a more substantial one supporting the Naim Nait 2 amplifier to which it was connected. Bisected squash balls, semi-inflated bicycle inner tubes, bubble wrap sandwiched between panes of glass, speaker stand spikes located on screw heads drilled into the floorboards, creative use of Blu Tack – I've tried them all over the years and some remain in situ and do – I believe – make a positive, if marginal, difference.

Here's a twist on one of the oldest tweaks going that isn't going to break the bank, but can yield spectacular results if my experience is anything to go by. You may have heard of

I add more erasers and at no point feel that I am making a really big mistake

a Danish shop called Tiger. The first one opened in Copenhagen in 1955, spread across Europe, hit Japan, and now there are

quite a few in the UK. The chain describes itself as the purveyor of "lots of funny, useful things for your home, office and personal care". Think Ikea with a sense of humour. For £2 it sells a giant rubber eraser (choose from green, blue or pink). 'For Really Big Mistakes', natch. Remarkably weighty for its size, it's just about the deadest, most inert hunk of rubber I've encountered.

Daylight rubbery

No one needs an eraser 15cm across, of course. Not just the one anyway. I bought 14, after an initial purchase of two. Here's the thing: putting an ordered pile of books on top of your standmount speaker is an old trick that will make it sound better (and look worse) by adding mass while, to a degree, damping enclosure resonances. Crude but effective. I merely wondered if these freakishly large and heavyweight erasers *en masse* could do a better job. Here was a tweaker's itch that simply had to be scratched.

Still a bit belt 'n' braces? Nothing wrong with that. When I used to assist one respected British manufacturer with the voicing of its speakers a few years ago, I lost count of the times a blob of Blu Tack would be stuck to a bass driver to change its mass, with instantly audible results. Eraser-wise, I started with one per speaker (the Monitor Audio Bronze BX2s I occasionally use, planted, it has to be said, on fabulously heavy, rigid and stable Slate Audio stands). Each was placed at the front just behind the baffle and secured with a freshly cut slab of Blu Tack. To my amazement, there was a subtle sharpening of focus

and timing. Nothing that fundamentally changed the BX2's exuberantly detailed character – if anything, it unlocked more of the same.

Over the next few days I added more jumbo erasers and at no point felt I was making a really big mistake. On the contrary, with every addition, the speakers revealed hitherto unsuspected sonic talents that left me frankly gobsmacked: greater separation and organisation, more soundstage depth and width, a faster, weightier, better articulated and more tuneful bass and finer resolution of timbral textures. The final arrangement comprised seven erasers per speaker configured in a sort of matrix with some laid transversely and others longitudinally. And, yes, it all looks a bit strange to say the least. The project seems to run against some schools of thought that mass stores energy and messes with temporal integrity, too. But I can only go by what I hear. The BX2s have never sounded faster or more open. In fact, they sound like altogether more expensive and sophisticated speakers - certainly by a bigger margin than the £28 spent at Tiger. Oh, and you'll need a few packs of Blu Tack, too.

If there isn't a Tiger shop near you, the XXL erasers can be purchased online. And never let it be said that we don't learn from our really big mistakes ullet



This is no big mistake, just a simple way to improve your speaker's sound





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DEALER ENQUIRIES VERY WELCOME

Waxing lyrical

Ex vinyl junkie **Rob Lane** describes the sad day that he gave up on the format and the recent joy of rediscovering the black stuff for his Vinyl Night events

t's late 1991. Having resisted buying into CD as long as I could, bad quality control finally forced my arm. Having taken Primal Scream's *Screamadelica* back to HMV for a fourth time only to return to my student digs with yet more warped vinyl, I decided enough was enough. I returned the album and used some of the refund to purchase *Hi-Fi Choice* in order to select an appropriate CD player for my budget.

What I ended up choosing isn't important, but it was affordable for a mature student with a student loan. The more notable outcome was an enforced hiatus from buying vinyl, lasting until last summer, when I was seduced by the secondhand discs sold at the back of the Animal House pet shop in Bridport.

I'd only popped into the shop to buy pet supplies, having no idea that vinyl was also available. I left clutching pristine copies of ELO's *A New World Record*, Neil Young's *Harvest* and a bag of premium guinea pig food.

Fast forward a few months and I'm now fully back in the vinyl groove, having purchased a Pro-Ject Elemental – about as budget as you can get for a decent turntable, but I had to start again somewhere. I soon discover I'm not alone in being re-bitten by the vinyl bug. Several friends have also purchased or are considering purchasing new turntables. Unsurprisingly, perhaps, we're all blokes

I hosted the first vinyl night, inviting friends to bring their choice cuts

between the ages of 41 and 65, boasting sizable collections of CDs, mostly now housed as digital files on Macs and PC – vinyl

long since sold or gathering dust in the attic.

Over drinks we all described how we have felt increasingly disconnected from music; how the compulsion to upload everything to hard-drives has resulted in us playing less music, despite its convenience, and in some cases buying less too.

A wander down memory lane

We all know how it felt to buy records prior to CD: how the sleeve was almost as important as the music itself; how we'd sit and listen to side one, before flipping over and repeating the process; what it felt like to own the record – a feeling seemingly unique to vinyl. These are experiences I've rediscovered since I reconnected with vinyl, things that were absent from CD.

I decided to host the inaugural Lyme Regis Vinyl Night, inviting friends to bring their choice cuts and to sit, eat, drink and listen to as many tracks as we could, before



wives and partners called time. We managed an impressive 55 tracks – the most recent from the nineties.

Highlights included relatively obscure tunes from Johan the Swede, including Doll's *Desire Me*, The Fabulous Poodles' *Mirror Star* and *Bulerias* from Carmen's incredible *Fandangos In Space* album.

'Shoe-gazing' René played Slowdive's *Avalyn 1*, Ride's *Leave Them All Behind*, Stone Roses' *She Bangs The Drums*, Radiohead's *Karma Police* and St Etienne's *Filthy*.

Education expert Phil spun Clapton's Motherless Children, Elton's Funeral For A Friend and The Jam's That's Entertainment. And playful Paul chose Rod Stewart's Handbags And Gladrags, Zappa's Keep It Greasy, Tone Loc's Funky Cold Medina and the theme from The Persuaders.

Planning aficionado Simon brought along his original Friggin' In The Riggin' by the Sex Pistols – warped and very scratched – Talking Heads' Psycho Killer, House of Love's Shine On and Gangsters by the Specials. We were all surprised how much we liked Instinction and Chant No. 1 (I Don't Need This Pressure On), from local hotelier Jason, who purchased his Spandau Ballet hits LP in a charity shop, having sold all of his vinyl many years ago.

My input included The The's *Uncertain Smile*, Primal Scream's *I'm Losing More Than I Ever Had* (remixed into *Loaded* in the nineties, of course), Faces' *Stay With Me*, The Sugarcubes' *Birthday* and Madness' *My Girl*.

One or two attendees who were yet to fully reconnect with vinyl were surprised just how good the sound was, with the expected comments of "warmer", "more expansive", "sounds better loud", "more like live music" *etc* coming thick and fast. And the good news is the second Vinyl Night is already scheduled. To coincide with it, I'm hoping to trade-in my 20th anniversary copy of *Screamadelica* on CD for a pristine vinyl copy – if I can find one that isn't warped! •



A warped copy of Screamadelica led Rob astray...

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The great music free for all

While musicians like to complain about the way that their music is being made available for next to nothing, **Nigel Williamson** wonders if they're really being short changed

ree music is now everywhere, from Youtube videos to the streaming platforms of Spotify and Deezer, not to mention U2 uploading their new album into your iTunes library uninvited. Reducing music to the level of spam meant that Bono can

still claim to be the lead singer in the biggest and most ubiquitous band in the world. But it seemed a bit odd, given that only five years ago U2's then manager Paul McGuinness opined: "We are living in an era when 'free' is decimating the music industry and is starting to do the same to film, TV and books. What has gone so wrong?"

Sure, there has been some collateral damage in the proliferation of 'free' as the traditional music industry has become increasingly obsolescent. It's been a tough time for label executives, record store owners, disc factory workers, distributors, marketing men, A&R men, producers, publicists and all the other ancillary staff that make a living on the back of distributing the physical 'product' created by those who actually make the music. Many of them have lost their jobs. But then the same thing happened when the automobile replaced the horse and blacksmiths, farriers, and coachmen all had to find alternative employment.

The producer Steve Albini (Pixies/Page & Plant/Cheap Trick etc.), recently argued "the internet has facilitated the most direct and efficient, compact relationship ever

Informed estimates audience." That say that Apple paid U2 \$100 million for their 'free' album

between band and seems to me to be true, but not everyone is happy with this brave new world where we

have access to new albums from the world's top acts without having to shell out £9.99 for a silver-coated polycarbonate plastic disc.

Where's the value?

Taylor Swift, probably the biggest selling female artist in the world right now, withdrew her entire back catalogue from Spotify in November, saying: "I'm not willing to contribute my life's work to an experiment that I don't feel fairly compensates the writers, producers, artists, and creators of this music. And I just don't agree with perpetuating the perception that music has no value and should be free."

The contention that because something is free means that it has no value is highly dubious and Albini, for one, argues that the ease of access offered by the internet has actually redoubled interest in music. After all, we can admire the paintings of Rembrandt, Rubens and Leonardo da Vinci in the National Gallery for free; does that mean that we place no value on them? Do we place greater value on programmes on Sky TV's subscription channels than those on the terrestrial free-to-air

BBC? More pertinently, does a song lose its value when we hear it free on the radio?

What Swift means by 'value', of course, is not the intrinsic worth of the music but the 'price' paid to the artist. Oscar Wilde's famous definition of a cynic as someone who knows "the price of everything and the value of nothing" comes to mind. Yet that doesn't necessarily mean that Swift may not have a point. Is her crusade against Spotify the start of a concerned fight back by altruistic artists seeking control over how their music is distributed? Or merely the greedy reaction of a spoilt pop star demanding a bigger slice of the pie? Given that Spotify has responded by pointing out that last year it paid \$2 million to stream Swift's music, we can reach our own conclusion.

And how much did Apple pay U2 to distribute their Songs Of Innocence album to 500 million iTunes users across 119 countries for "free"? Informed estimates say that the sum was at least \$100 million and at the last count it had been streamed 81 million times and downloaded by 30 million fans. Perfect marketing, of course, for U2's 38-date 2015 world tour, which will net them further countless millions.

And that brings us to the second seismic change that has accompanied the digital revolution and the decline of the traditional record companies. As conventional record sales have plummeted, acts have increasingly turned to touring as their primary source of income. Industry figures suggest that the UK live music industry collected more revenue than recorded music for the first time in 2009 and the trend has continued to grow.

As the cost of recorded music has fallen to pretty much nothing, the price of concert tickets has increased exponentially. Fans who now balk at paying a few pounds for a new CD will happily pay £200 to see their favourite act in concert. U2's last album No Line To The Horizon sold only a fraction of the numbers shifted by previous releases, yet the tour that followed its release grossed \$736 million. Maybe there's no such thing as a free song, after all ●



Despite Bono's public apology, U2 have done very well from their 'free' album





Automatic for the people

Pioneer's fully automatic PL-600 turntable is one of the best Japanese turntables you've never heard of, says **David Price**

t may have been the decade that fashion forgot, but the seventies was also the time that turntables triumphed. The LP was in its pomp, with sales reaching a high watermark in Britain in 1975. Vinyl was king of the hill and the new pretender – Compact Cassette – had yet to make its mark. Hi-fi manufacturers always go where the money is, and that's why they started investing time and resources on developing record decks.

At the start of the decade, they had been crude and clunky things. Motors droned and bearings rumbled, and then there was hum and susceptibility to surface noise. Then along came Technics' direct drive turntable, offering the powerful sound of existing rim-drive designs, but with greater sophistication and longevity. It was expensive, of course, and what the world really wanted was something cheaper, but slick and refined too. Pioneer duly obliged with its PL-12D in 1974; £40 bought you a vinyl spinner with precious little

rumble, hum or wow and flutter, plus a high-quality pickup arm capable of tracking down to 1.5g. At a stroke, it made the British competition from Garrard and BSR look prehistoric.

It proved a massive success, and earned the company a sky-high reputation for turntables almost overnight. It was a hard act to follow, but by 1977 the likes of Kenwood and Sansui were snapping at its heels with

The PL-600 cost as much as a Linn LP12, but was a very different beast

the KD-1033 and SR-222 respectively. Pioneer replied with the PL-112D, but it wasn't as good; offering better styling and greater refinement, but its performance was, if anything, a little worse. One of the key reasons for this was its lack of an independently sprung sub chassis; the PL-12D had one, so was relatively immune to air

or ground-borne vibration, which of course sullies the sound. Like any non-suspended deck, the PL-112D was too sensitive to where it was placed. At this point, Pioneer must have done some serious soul searching and decided not to make the same mistake again...

The PL-100 series was Pioneer's answer. It came out in 1979, and at the time looked streamlined and futuristic, a whole generation ahead of the company's previous decks. Light-touch front-mounted controls outside the dustcover – including a lift-lower cueing button – made for easy operation and felt slicker too.

Better still, the PL-200 introduced direct drive to the £100 price point; this was appreciably more expensive than the PL-12D of yore, but the UK was ravaged by inflation in that period, so in real terms the '200 didn't cost that much more. At the price, it was a remarkably refined design, and a step change in what was possible.

Pioneer – like almost every Japanese company – had products at most price points, so the PL-200 was just the start of the new series; the £130 PL-300X introduced the company's new Stable Hanging Rotor Quartz-PLL DC motor for greater speed stability and accuracy over time. It had automatic end of side shut-off, too. But perhaps one of the most important features - and something it shared with the rest of the range was its coaxial suspension. The PL-200, PL-300, PL-400 and PL-600 all looked like they were solid-slabs, but actually had a well concealed independently sprung suspended subchassis under the skin.

Remarkably, at around £250 the PL-600 cost as much as a Linn LP12 when new in 1980, but it was a very different beast. An independently sprung, quartz locked, direct driven fully automatic integrated turntable with built-in tonearm, it is unlikely any Linn customers would have ever considered it. Not least because this was the time when most British hi-fi magazines were preaching to their readers that direct drive decks were inherently flawed and could never sound good. They were of course, but so too were belt and indeed rim-drive decks; there's never been a turntable that doesn't have problems. However, the issues intrinsic in direct drive systems didn't preclude them from sounding excellent providing the deck itself was done properly. If you were ever in any doubt of this, the Pioneer PL-600 shows how.

Looks can be deceiving

The irony is that it looks like a bland, budget Japanese direct drive - but isn't! That is why the PL-600 has been sadly overlooked. Rather like Japanese luxury cars, it managed to look contemporary and cool when it came out, but instantly forgettable. When you see it in the flesh, however, you discover that all those acres of what looks like plastic is actually aluminium, and the cheap looking S-shaped tonearm is beautifully made with fantastic, high-precision bearings. At 456 x 140 x 384mm, it's one of the smallest high-quality Japanese direct drives around, but still weighs nearly 12kg.

Everything from the optically triggered, non-contact tonearm drive motor to the microswitch controlling the lift-lower cueing motor are of the highest quality; the bearing housing is a robust alloy casting, which encloses a finely machined spindle. The turntable drive motor is silent and really strong; this brushless, slotless

linear design has a phase-locked loop quartz circuit that keeps wow and flutter down to 0.02% WRMS and noise back to a claimed -78dB. Put the deck in play mode and press down on the platter mat to induce drag, and instead of stopping you hear a gentle growl from the motor as it serves up some serious torque to counter the load, then the quartz lock light blinks on again in an instant.

Low-quality direct drive decks are harsh, forward and generally tiring; pretty much the opposite of what bad belt drives sound like, which is soft, spongy and flat. Interestingly, high-quality direct drives move closer to high-quality belt drives sonically; the former become fuller, sweeter and

The PL-100 series came out in 1979, looking streamlined and ultra-futuristic

smoother, while the latter get sharper, tighter and faster. The Pioneer PL-600 is a great – and pretty rare – example of what a well-done direct drive can offer; it is powerful, punchy and commandingly musical, yet has a satisfying smoothness and depth. In other words it does what all the good high-end belt drives do too, the difference being the special way it handles attack transients.

There are two distinct differences; first it seems to be particularly good at capturing leading edges of the notes in a musical performance. For example, the struck steel guitar strings on Tears For Fears' *Pale Shelter* sound more lacerating than via a good belt drive deck, and this isn't the Pioneer failing, it's how steel string guitars actually sound. The deck has a



BUYING AND RUNNING

The Pioneer 100-series was popular around the world, and there are still plenty of decks popping up on internet auction sites.

Because they're built so well, many have lasted. PL-600s aren't exactly plentiful, but surface now and again for anything from £50 to £300. Confusingly in Japan, the PL-600 was sold as the PL-120, and in the USA the PL-600X was an altogether different turntable; so make sure you're certain what you're buying. Cheaper decks in the series go for peanuts; a PL-300X can be had for under £100 any day of the week, and will still turn in a very nice sound.

The 237mm static balanced S-shaped tonearm fitted to the PL-600 has superb bearings, but is made from stainless steel, so will always have a tonal flavour of its own. Still, it can track good cartridges; even a £500 Audio-Technica AT-OC9 won't be a waste. Those on a budget should drop £30 on a new AT95E, which will still make a nice noise. Generally the deck is very reliable; the biggest problem is now sagging suspension. If the deck you view is droopy and its platter won't bounce energetically up and down it will need stripping, new springs sourcing and fitting and then rebuilding. Properly set up and equipped with a decent cartridge, any Pioneer PL-100 series will delight, giving superb sound per pound.

wonderful clarity in some respects, which is most apparent in the midband. However you can hear it in the bass too; indeed bass guitar notes are satisfying to behold; Saxon's Strangers In The Night gets a great fillip from the PL-600's vice-like bass grip, making even the excellent Michell GyroDec (belt drive) sound really rather loose and lackadaisical. The music seems in some way more propulsive; there's a greater sensation of it having a direction of travel, rather than just ambling around.

Treble rebel

This translates to the treble too; there's a clarity that's especially telling on ride cymbals, for example, such as on Rush's Subdivisions. You get the sense that you can hear every last part of the decay, rather than it being blurred into the next strike of the cymbal by the drumstick. It's not the best deck in the world, of course; it suffers from a narrower soundstage than is ideal, and the mediocre tonearm wiring gives a slightly grey tonal sound too. But still the PL-600 has an unflappable nature that invests everything it plays with a sense of solidity, yet it never sounds especially overpowering or in your face. It is extremely listenable; no matter what you play on it, it turns in a highly satisfying performance. And the number of fully automatic turntables that you can say that about, can be counted on the fingers of one hand! •

The French Connection



COMPONENTS

ELIPSON MC-1 £1,300

The MC-1 is Elipson's only standalone piece of electronics and partners the company's bold design ethos with some entirely sensible engineering including Class D amplification, CD, DAB/FM and aptX Bluetooth.

ELIPSON PLANET L £600

It might look like a cross between a diving helmet and a bowling ball, but the Planet L is the latest in a long line of spherical broadcast monitors going back decades and the 6.5 in dual concentric driver packs far more of a punch than you might expect.

s a society we make snap, subconscious decisions based on the appearance of things. We prefer the clean well-presented restaurant over the unkempt one and – whether we like it or not – attractive people frequently find themselves benefitting from opportunities afforded them by their appearance. This cuts both ways, though. When you turned the page of this magazine and looked at this system, I would wager that you made a snap decision that it is here because

it looks pretty funky. Spherical speakers and circular electronics are sufficiently different from the norm to be worthy of inclusion surely?

The reality is that this system does indeed look fantastic. It is a heady combination of clean lines, bold colours and a whiff of retro futurism. It is exactingly assembled and a joy to use. In some ways though, these attributes slightly count against it when the business of how it performs is considered. A system that looks like this has to be sold on those looks

rather than how it performs doesn't it? This is where looks can be a curse. If those spherical speakers were standard vinyl-wrapped boxes and the electronics placed in some competent but uninspiring casework, I promise you we'd be raving about them.

This is because Elipson has one of the best pedigrees in the business and there is, in the case of the Planet L speakers especially, some sound engineering reasons for their appearance. The Planet loudspeaker is to French Broadcasting what the



legendary LS3/5A studio monitor is to the BBC. It was designed as a broadcast monitor and although it has been built in several different versions, two essential facets have stayed consistent throughout. The two drivers were as close together as possible to aid with time alignment and have now morphed into a dual concentric unit. These have always been placed inside a cabinet that's as close to spherical as possible.

Sphere we go again...

Why a sphere? Those of you who didn't daydream their way through science classes will know that it is the smallest shape for a given internal volume. As well as volumetric efficiency, the cabinet that results is virtually immune to standing waves and resonances. The Planet L might look fabulous – particularly in the odd colour pair you see here (which given that they are available individually is possible as a customer option too) – but those looks are the result of a bloodline most brands would kill for.

The Music Centre MC-1 has a shorter pedigree, but the same diligence shown in generations of Planets is apparent here too. Conscious that its experience in amplifier design was rather less extensive than it is in acoustics, Elipson made a beeline for

the bombproof and highly regarded ICEPower modules from Bang & Olufsen, which means this compact unit disposes of 60W into 80hms and 120W into 40hms, which should ensure that the Planets have all the horsepower they need. This power is then harnessed by a CD mechanism, DAB/FM tuner and a selection of optical and analogue inputs.

Like the Planet, Elipson has not been content to leave the Music Centre

The reserves of power keeps the Planets sounding wonderfully cohesive

alone, though. Compared with the version I reviewed many moons ago in *HFC* 352, this example is now fitted with aptX Bluetooth allowing for localised lossless streaming from a suitable device. Additionally, while I never thought that the Music Centre was haphazardly constructed, this latest sample is exquisitely finished. The brushed steel casework is absolutely gorgeous and the MC-1 feels considerably more expensive than it actually is.

In fact, the whole system feels rather pricier than the retail figures would

Above left: Sumptuous build quality makes the most of the Planet's looks Centre: Connectivity is usefully comprehensive and adds flexibility Above far right: **CD** is ably supported by DAB, Bluetooth and digital inputs

have you believe. The Planets have the sort of paint depth and shine that car manufacturers strive for and are immensely solid to the touch. Making speakers spherical for the hell of it is likely to backfire when it comes to placement, but Elipson's experience shows here too. The supplied rings allow for them to be parked on table top or speaker stand and Elipson also makes lovely bespoke floor, wall and ceiling mounts for them too. Placement is, therefore, a breeze and those rather splendid aesthetics should do them no harm either.

A grand day out

To really understand what this system is all about, you need to ignore those sumptuous visuals though and simply listen to this trio. The Planet L has been on sale for a few years now, but it remains one of the very finest speakers that you can buy for under £1,000 and as befits something with as a many mounting options as it has, one of the most unfussy in terms of placement. All of that broadcast experience has clearly created a speaker that extracts tremendous amounts of detail from recordings and has tonality that is unfailingly believable, but where some products with professional roots can be ruthless when presented with less than perfect



material the Elipson manages to be almost endlessly forgiving.

Topping this off is the simple sense of fun that this system has in spades. With My Morning Jacket's proglike *Touch Me, I'm Going To Scream Pt2*, the Elipson revels in the sheer joy of the soaring vocals, driving bassline and monstrous guitar work. The accuracy never suffers, but it takes a back seat to delivering the emotional content of the piece.

I have listened to the Planets in a variety of situations and never found them wanting, but there is much to be said for choosing the MC-1 to partner them. The useful reserves of power and current delivery on tap keeps them sounding fast and wonderfully cohesive. Even with volume on the loud side, this duo has a refinement and control that considerably more expensive rivals cannot muster.

How low can you go?

Where this system adds a final ribbon to an already rather lovely bow is with its bass response. Be under no illusions, I love good bass – the deep, fast tight accompaniment to music that is felt as much as heard, but the Planet L while trading a little absolute depth comes unreasonably close to floorstanders for drive and clarity. There are very few other speakers that



TELEPHONE: 01925 205605 WEBSITE: elipson.com make such effective use of a single 6.5in driver and none of them at such a terrestrial price. Listening to Ramin Djawadi's score for the film *Pacific Rim* is wonderfully satisfying. A full orchestra with a rock flourish on the side isn't the natural comfort zone for a standmount, but the Planet delivers a sensational performance.

Having this ability on tap at a relatively sensible price is excellent and the multiple sources, flexible

The whole system feels pricier than the retail figures would have you believe

inputs and well implemented interface make the MC-1 a pleasure to live with.

The inclusion of aptX is a particular boon. As I've had aptX-capable smartphones for over a year, my latest device quite happily assumes the role of major control point. I can select material from my NAS drive or listen to Tidal and beam it straight to the MC-1 and the performance is on a par with the more traditional inputs. When you come in from a particularly unpleasant day at work to find that the MC-1 has paired with your phone and is waiting to make it recede into the

distance, your mood gets a whole lot better. This effortless performance, impressive flexibility and sheer user friendliness is arguably the most beautiful aspect of this little system. The quality arguments for dedicated separates still carry plenty of weight, but you might be surprised how close the Elipson gets while offering a smaller footprint and those unique aesthetics. Even after the listening is completed, I am happy to leave it in place and continue enjoying the joie de vivre it brings to music despite the presence of considerably more expensive equipment.

The look of love

Given how singular the Elipson's appearance is, I suspect it will never fully escape snap judgements based on how it looks, but to dismiss it as a design-led curio is to do it a terrible disservice. What this system is in reality is decades of experience, engineering flair and lateral thinking distilled into the smallest and most convenient platform it is possible for the company to make. That this comes complete with striking visuals and sumptuous build quality is something you should celebrate as a gift that keeps on giving. Sometimes, things that are beautiful on the outside are even more beautiful on the inside •



This underground electronic music label is a musical magpie's delight. **Simon Berkovitch** is your guide to a no-longer-hidden treasure

he once-alluring tag of 'independent' is all too often a byword for bland, corporate indie, but the Mordant Music label, one of the brightest stars in the electronic music firmament, is on a continuing mission to reclaim that term. It may lack the financial clout of majors, but when it comes to its all-important discography, the musically open-minded will find an embarrassment of riches.

Over 70 releases strong across an array of media, it has been quietly pushing boundaries, championing the unconventional and unearthing cross-genre gems since the start of the century. Mordant's eclecticism is thanks to the good ears of one Ian Hicks, whose alter ego Baron Mordant founded the label with graphic designer Gary Mills in 2001. From the outset, it had no intention of being a conventional record company – indeed, a debut release of a lavish CD booklet without a disc sets out the stall rather nicely.

Taking its catalogue system from the Factory Records model, early limited edition releases from Mordant Music (the act of the same name as the label) included debut 45 Baud With You (MM003); classic bootleg mash up Dark Side of the Autobahn (MM003) picture disc,

an inspired collision of Kraftwerk and Pink Floyd; and a 3in CD of twitchy electro housed in a Petri-dish (MM008).

Dubstep innovator Shackleton's debut single, the gritty Stalker (2004), saw the roster expand to increased critical acclaim. Mordant Music swiftly established itself as a round hole for other square pegs and their diverse modes of expression, including the outsider art of 'Cosmic' Dennis Greenidge; Mr. Maxted's vintage analogue explorations; Thanet's exquisite ambient drift; the mutant Scott Walkerisms of Vindicatrix; and Ekoplekz's industrial-strength electronic dub.

Archival additions to the discography have sprung from the label's collaboration with the BFI on a rescoring of the films of the Central Office of Information: 2010's *MisinforMation* DVD.

Thanks to the Baron's archival zeal, previously undiscovered gems such as Mike Ratledge's (Soft Machine) score to experimental film *Riddles Of The Sphinx* can now hit discerning turntables. Indeed, the recent excavation of library musician Donald Fraser's propulsive *Locomotion* marks Mordant Music's 74th release – and long may the label continue to surprise and stimulate the senses with its musical misinformation.

Baron Mordant

The cross-genre label head thrives on collaboration

A lthough the artist roster is now expansive, the label was originally conceived as a vehicle for Mordant Music (the artists), a collaboration between musician Ian Hicks (Baron Mordant) and graphic designer Gary Mills (Admiral Greyscale).

Early high points of this creative partnership include the limited edition Kraftwerk/Floyd collision Dark Side of the Autobahn (2003, pictured), the first instalment of The Tower black metal trilogy (2005) and the fantastic Dead Air (2006). Housed in an elaborate teardrop package, this latter album's postapocalyptic electronica is narrated by former Thames Television's continuity announcer Philip Elsmore, Library music work followed for Boosey & Hawkes, with offcuts heard on the queasy Radiophonics of Carrion Squared (2007).

No slouch, after Mills' departure, Hicks has steered the Mordant vessel into diverse

musical ports. Baron Mordant has collaborated with dubstep maverick Shackleton, compiled the excellent *Picking O'er The Bones* CD (2009); embarked on a series of digital-only, site-specific aural postcards in the *Travelogues* series; rescored public information films for the BFI on the acclaimed *MisinforMation* DVD (2010); and joined forces with Ekoplekz for

Dead Air featured Thames Television's Philip Elsmore

three albums of linguistic pyrotechnics as eMMplekz.

Extracurricular activity includes his work with cult filmmaker Chris Petit (*Radio On*) on the acclaimed *Museum Of Loneliness* LP. On the strength of this outing, forthcoming collaboration with writer Jonathan Meades on another vinyl outing for the Test Centre label is a strong contender for one of 2015's highlights.

Pink Floyd meet Kraftwerk on the hard shoulder of the *Dark Side Of The Autobahn* (2003)



Vindicatrix

Revel in his extraordinary baritone and file next to Scott Walker's later works

he disclaimer on Vindicatrix's MySpace page reads: price of admission – your mind. And when you've explored David Aird's sonic landscapes, you will agree it's a small price to pay.

Once the cavernous sub-bass and hypnotic kick drum finish moving molecules through the air, Vindicatrix's unforgettable voice begins its journey through the innovative series of songs that comprise the Die Alten Bosen Lieder mini-album (2009, roughly translated as The Old Wicked Songs). Little prepares you for his audacious, expressive voice, placing him squarely in the pantheon of legendary performers such as Billy Mackenzie (The Associates) and David Sylvian (Japan).

Vindicatrix first appeared on the label in the shape of a Baron Mordant/Shackleton remix of his *Private Places*, the flip of the Michael Jackson-referencing single 24 Million Or Sell Neverland (2008). Continuing to run with the Prince of Pop theme, an extraordinary, out-there cover of MJ's Human Nature (retitled Hume) was 2009's follow-up to the Die Alten Bosen Lieder vinyl and CDR set.

Two years in the making, debut album proper *Mengamuk* (2012)

Little prepares you for his expressive voice

is his most extraordinary work for Mordant: a double LP of fractured electronics, subterranean low end, otherworldly baritone and persuasive dancefloor rhythms.

You can file his releases next to Scott Walker's most avant-garde offerings. A recent super-limited, cassette-only soundtrack to arthouse flick *Ruin Value* on the Purge label finds Aird on blistering form in 2014.

Mengamuk (2012) is a must for those who like their music uncompromising



Ekoplekz

Two hands and a galaxy of gadgets serve up industrial-strength dub

koplekz is making up for lost time. Since his first self-released cassettes and early vinyl outings, he's amassed a dizzying number of releases over a multitude of labels – step forward Nick Edwards, the Bristol-based musician behind the mask.

Edwards wears his Cabaret Voltaire fan club badge on his sleeve for his first outing for Mordant, 2011's *Memowrekz* (pictured) – 33 tracks of melodic, experimental electronics ping ponging through two generously lengthy cassettes. His love of the pioneering Sheffield musicians is also showcased on Mordant's limited *Fountain Square* EP from the same year.

Live, Ekoplekz is an extraordinary proposition — one man and a table of gizmos taking off on flights of improvisational fancy. This seat-of-its-pants invention is captured on the second tape of

the follow-up cassette set for the label: *Skalectrikz* (2012).

Baron Mordant (words) and Ekoplekz (music) have also joined forces for four releases under the eMMplekz umbrella, releasing two LPs *IZOD Days* and *Your Crate Has Changed*, a live 12in, and last year's *You Might Also Like* cassette.



Mr. Maxted

Roehampton's answer to Gary Numan and Brian Eno

his reclusive musician, who has spent the past three decades amassing an eye-popping arsenal of vintage synths and drum machines sent the Mordant Music head a clutch of vintage-sounding electronic pop and hardbeat on spec, sensing a kindred spirit. The first fruits of this can be found on 2008's compilation Lives And Privacy (94-89). Here, Maxted not only puts the desirable kit (Wasps, Korgs, Vocoders and Rolands) though its paces, but also displays a keen ear for melody on earworms such as Consequences and Conditioned.

Subsequent delving into Maxted's archive has formed the basis of two cassettes: 2010's Momentum and 2013's Personal Player (pictured). The musician has also collaborated with Baron Mordant on two ambient tracks – Roehampton By Day, on the various artists

Variables EP (2009), and Roehampton By Night, squirrelled away on a fine compilation CD from The Outer Church (2013). Maxted has continued his distinctive impressionistic electronica under his Thanet guise on the lavishly packaged triple-CD set *Receiving Calls*.



► SHOPPING LIST

The Mordant Music label is a haven for artists transmitting beyond the parameters of the mainstream. Here are eight more of the Baron's knights



Shackleton Stalker This bass-heavy debut outing from the dubstep wild card emerged on Baron Mordant's

imprint way back in 2004.



Dennis Greenidge Giant Man, Giant Plan Compilation of the outsider artist's greatest hits, previously available on handdubbed cassettes.



Brian Morant Discrete Head Operating pseudonymously, the Baron dreams in tangerine on this Kosmische spool from 2009.



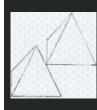
Tod Dockstader Electronic: Vol. 1 Public service reissue of the electronic music pioneer's 1979 commission for the Boosey & Hawkes library.



Mike Ratledge Riddles Of The Sphinx Excellent 1977 soundtrack LP from the former Soft Machinist unearthed from the BFI archives.



Some Truths
Some Friends I Lost
To Bedlam, Others I
Abandoned There
Modular synth
explorations form
the missing link
between techno
and cosmic rock.



Pyramids Of Space Pyramids Of Space Archival outing for this mysterious Cornish collective, channelling nineties-vintage Aphex Twin.



Donald Fraser Locomotion This mid-seventies collaboration between Steeleye Span and the composer is as motorik as it is unexpected.

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IsoTek EV03 Premier, Hi-Fi Choice, March 2013

EV03 Premier

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IsoTek EV03 Polaris, Hi-Fi Choice, March 2013



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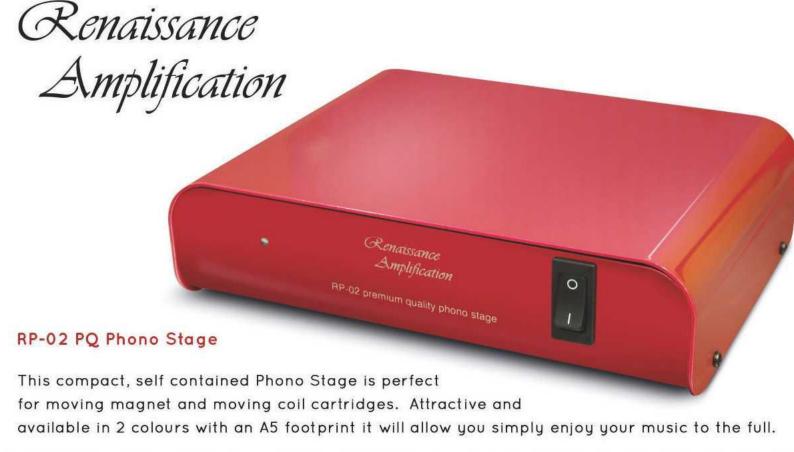
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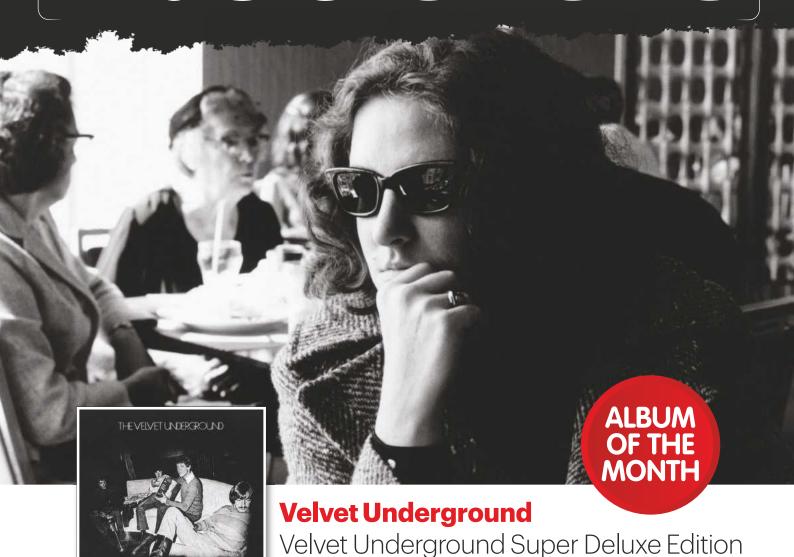


100 Cara DillonA Thousand Hearts



D1 Beethoven
Maurizio Pollini

Musicreviews



AFTER TWO SEMINAL LPs, under appreciated at the time but which in retrospect can be seen to have reshaped the history of rock music, the Velvet Underground's third self-titled album, released in 1969, sounded like a radical departure from the droning white noise and avant-garde adventurism of its predecessors. John Cale had left, taking with him the electric viola, which had made songs such as Venus In Furs and Heroin sound so eerie and experimental, and the band decamped to Los Angeles to record - a surprising decision given that the Velvets' trademark sound was so rooted in the claustrophobic, strung-out jive of New York's mean and menacing streets and that Lou Reed was openly contemptuous of California's hippie dreamers. "I thought we had to demonstrate the other side of us", Reed later explained. The results were tuneful and meditative, even mellow on songs such as Candy Says and Pale Blue Eyes.

That's The Story Of My Life was given a jaunty country-rock lilt, although What Goes On and Beginning To See The Light had at least a passing connection to the propulsive proto-punk of earlier classics such as Waiting For The Man. Reed's lyrical subject matter, though, was much darker and more nocturnal than the ostensibly soothing and sunlit tunes might suggest and it is this disquieting juxtaposition that gave the album its potency.

This six-disc deluxe reissue presents the original release in three different versions and audiophiles can stake their preference. The first disc contains the Val Valentin mix that has been used as standard on CD reissues since the eighties and subsequent remasterings. More intriguing is the so-called 'Closet' mix, so named by the band's Sterling Morrison, who claims it sounds like it was mixed in one. Overseen by Reed himself, the result was to give the 10 songs a more intimate feel, the vocals

higher in the spectrum and the guitar lines cleaner and sharper; the makeover improbably lends Beginning To See The Light a jangling sparkle that sounds more like the Byrds than the Velvets. The third mix is in mono and was done for radio stations, giving the more full-on rock tracks such as What Goes On a certain extra heft.

A fourth disc contains the demos for what might have been the band's fourth album, although its inclusion is somewhat gratuitous for the tracks have long been available on the out-takes collections VU and Another View.

More valuable to collectors are two live discs recorded in San Francisco in late 1969 of mostly previously unreleased material and including classics such as *Heroin, Waiting For The Man* and a freeform 36 minute take on *Sister Ray* that shows the group's ever-anarchic experimentalism remained intact. **NW**

Six CD box set Universal



Black Messiah

Sony

ALBUMS THAT TAKE 15 years to make (D'Angelo's last release, the Grammywinning Voodoo, appeared in 2000) ought to be destined to disappoint, but Black Messiah sounds like a genuine masterpiece, a record that reinvents what we used to call soul music and makes R&B sound as thrillingly experimental in 2015 as Sly Stone did in the late sixties, Funkadelic in the seventies, Prince in the eighties and the Fugees in the nineties.

Recorded and mixed in analogue with no digital loops, programmes or plug-ins, there's nothing retro about this nonchalantly timeless back-to-thefuture vision, which manages to sound familiar yet new and unprecedented at the same. Dense, complex, audacious and epic in scope, itchy funk, languid beats, jazz syncopation, sophisticated strings and amniotic harmonies create a rich mix of vintage deep soul and post hip-hop modernism. NW

MUSICREVIEWS



Ryan Bingham Fear And Saturday Niaht



Humphead

BINGHAM WAS CATAPULTED to fame when he won not just a Grammy, but also an Oscar for best song for The Weary Kind from the Jeff Bridges' movie from 2009, Crazy Heart. This, the fifth album from the gravel-voiced ex-rodeo rider, epitomises all that is best about contemporary Americana, a kind of stylised musical equivalent of a Cormac McCarthy novel as he sings his grainy, cathartic songs of cowboy desolation against a sparsely recorded, tight mic'd soundtrack. It's almost as though you can hear the scrape of every guitar string, so much is his rock'n'roll heart shot through with true Texan grit. NW



Bettye Lavette Worthy



Cherry Red

SIXTIES SOUL SIREN Lavette has been enjoying a comeback since 2005's I've Got My Own Hell To Raise and on this evidence her fire shows no sign of waning. There are quite a few quality cover versions here, including a stripped down, insightful interpretation of The Beatles' Wait, a funky take on Dylan's Unbelievable and a rocking version of the Stones' Complicated. There are also a few new tunes, but there are no duds here. The sound of the instruments is clean and precise, but there's enough dirt mixed into the production and the performances to help it avoid sounding like a sterile hi-fi test disc, with plenty of soul and grit. DO





Do you agree with our reviewers? Decide for yourself and listen to some of this month's tunes at www.hifichoice.co.uk

Mark Ronson

Uptown Special



MARK RONSON CEMENTED his reputation and pretty much defined his style when he produced Amy Winehouse's multi-million selling behemoth Back To Black. Collaborating with the likes of Bruno Mars, Mystikal and, yes, Stevie Wonder, he's pulled off a similar trick to Back To Black's retro soul but this time leaning heavily on the work of Mssrs Wonder and Brown (James, that is).

The arrangements hark back to classic cuts from the vinyl seventies, but the sound leans more towards the CD eighties with emphasis on the upper and mid range and less bass weight. Still, it pops and fizzes with kinetic energy and never lets up for a moment. **DO**

UDIOFILE VINYL

Jan Garbarek & The Hilliard Ensemble Officium

HOT PICK

Columbia

2x 180g vinyl **ECM**



EXACTLY 20 YEARS

after its original release ECM has seen fit to press this seminal album onto heavyweight 180g vinyl. The idea of combining a choral ensemble with the

tenor and soprano saxophones of Jan Garbarek came from ECM founder and producer Manfred Eicher, a man who regularly brings together unlikely combinations of musicians.

But this particular musical meeting has proved to be one of his most successful, the brass instruments working very much like a voice alongside the four singers in the highly

reverberant monastery of St. Gerold, Walsertal, in Austria where it was made. The deeper instrument works quite beautifully as an accompaniment; it doesn't have the same radiance of the treble sax, but adds to the depth of the songs, pieces from the 13th to 16th centuries by a variety of composers.

The layering of voices is powerful and rich and combined with Garbarek's improv makes for an immensely beautiful sound. His contributions vary from the subtle to the centre stage and on side two he does the latter in spectacular fashion. It's an amazing recording that scales the heights of dynamics and imaging, and sounds even more glorious on the ultimate format. JK

HIGH RESOLUTION DOWNLOADS



PERCUSSION VIRTUOSO KUNIKO Kato tackles three of Steve Reich's eighties classics with ingenuity and panache. She dances between the convergent rhythms and repetitive figures with a sometimes breathtaking lightness of touch while clarity of the sound ensures that every element is clearly heard and every undertone audible, though the pieces' complexity ensure that they benefit enormously from an excellent hi-fi system. DO



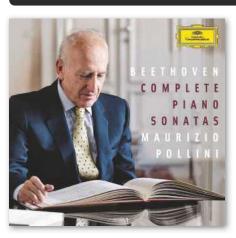
FLAC 24-bit/96kHz

Cara Dillon A Thousand Hearts



B&W Society of Sound

IT'S BEEN FIVE years since the Northern Irish singer's last album and this, her fifth, could be her best yet. Joined as ever by husband Sam Lakeman and a cast of musicians, her beautiful voice wraps itself around a mix tunes. Each instrument rings clear in the mix and there's plenty of room to hear the highest strains of violin and banjo. All take a back seat to Dillon's voice, which seems to mature in expression while never losing its naive purity. DO



It's been 40 years in the making, but is it worth the wait?

Beethoven

Complete Piano Sonatas Maurizio Pollini



Eiaht CDs

MAURIZIO POLLINI FINALLY completes his DG cycle of Beethoven piano sonatas. It's only taken him the best part of 40 years. His style of playing - objective, intellectually rigorous and unromantic - caused guite a stir. His cool clarity, and avoidance of exaggerated rhetoric, wrong footed many critics.

Aside from the five sonatas taped in the mid-seventies, all recordings are digital and deliver clear, bright, detailed piano tone - albeit, slightly dry in some cases. The analogue recordings (technically exceptional for the time) still sound well. An important set, but it kind of leaves Pollini looking like a marathon runner who crosses the line so late, most of the crowd have gone home. JH

BLU-RAY DVD



Jeff Beck Live in Tokyo

Blu-ray

Eagle Vision



This is the second release with this title but it's probably the best. The repertoire includes Little Wing, Stratus and a very fine rendition of the Mahavishnu Orchestra's You Know You Know. Beck is on top form, plucking away in

seemingly effortless fashion yet producing the intensity of youth alongside the inventiveness that has always been a trademark. He may be more wiry than Wired, but Beck's still among the very best in class. Sound quality is first rate for a rock Blu-ray, compressed but vital, powerful and very clean. JK

DEMO DISCS



An industry insider reveals the music they use to develop their products, this month: Roland Hoffmann, from Dynaudio



London Grammar

Hey Now We played it at the Bristol Show, on our Confidence C4 with Naim and Chord Sarum cables. People couldn't believe the deep bass.



Mike Sheridan

Udsigt A Danish electronic producer who is great at placing small details behind deep soundscapes. I believe he uses Dynaudio monitor speakers in his studio.



Kraftwerk

Die Roboter Even today many systems are too slow to reproduce the precision of the synthesisers. On a good system you'll only hear the pure sound effects



Danny Elfman

Mission: Impossible The best bit is the deep bass at the end. played by Adam Clavton, Many listeners never fully hear it - that's what a good system can do.

HIGHLIGHTS

Our pick of the best hi-res downloads released over the past month...



Biork's new album Vulnicura is exclusively on B&W's Society of Sound in all it's 24-bit glory. HD Tracks has added releases from Bobby McFerrin, Santana and John

Coltrane, while HiResAudio has Jack De Johnette, Muhal Richard Abrams, Larry Gray, Roscoe Mitchell and Henry Threadgill playing live in Chicago on Made in Chicago (Live). Finally, Linn records debuts Thomas Søndergård (above) and the BBC National Orchestra of Wales playing Sibelius, Boston Baroque's take on Monteverdi's Il Ritorno d'Ulisse In Patria and Jonathan Freeman-Attwood's interpretation of Stravinsky's Pulcinella during March.



Mozart

Die Zauberflote - hiahliahts Soloists: RIAS Kammerchor; Akademie fur Alte Musik, Berlin Rene Jacobs

Harmonia Mundi

IT'S A GREAT Harmonia Mundi tradition - take one of its best CDs, and reissue it as a sampler at budget price with a booklet illustrating the musical treasure it has to offer. For 2014/15 it's chosen a highlights disc from Rene Jacobs' acclaimed complete recording of Mozart's Magic Flute. The performance is well sung and sounds taut and crisply phrased. True, it's a tad fussy and mannered in places, but overall the recording is bright, clear, and tonally open. It's quite forwardly balanced, with explosive attack and some interesting 'sound effects' - birds singing, etc. - that will enchant or annoy; maybe both! JH

Minitest

RECORD CLAMPS £50-£130

Spin it to win it

Ensuring a good connection between your LP and platter when playing a record is vital. **Neville Roberts** weighs up four options

part from preventing slippage while playing, record clamps can help to resolve other issues such as flattening warped vinyl. Clamps also increase the mass of the rotating system, which helps to reduce flutter and other speed variations that can occur when an instantaneous increase in drag on the stylus occurs during the playing of loud passages. Furthermore, by coupling the record more tightly to the rotating platter,

record clamps help to dampen internal resonances of the vinyl, thereby reducing sonic colouration and improving clarity as a result.

For consistency throughout the tests, I use three great recordings to compare the performances. Firstly, there is the Telarc recording of Borodin's Polovetsian Dances with the Atlanta Symphony Orchestra and Chorus. For some detail testing, I turn to the English Chamber Orchestra and J S Bach's Concerto

For Four Harpsichords, which is a great recording for assessing imaging and instrument separation. My final choice is a good recording of Richard Harvey's Motor Roller from the KPM Music Library, played on both electronic and acoustic instruments, for a bit of rock and to check out bass response. All of these records are played sitting directly on an acrylic platter that is 25mm thick. The turntable is a belt-drive unit and is unsprung with no sub-plinth.

Pro-Ject Record Clamp-IT

PRICE: £70 TELEPHONE: 01235 511166 WEBSITE: henleydesigns.co.uk

DETAILS

PRODUCT Pro-Ject Record Clamp-IT Austria WEIGHT 120g **FEATURES** Aluminium construction with leather centre

and base inlays

DISTRIBUTOR

Henley Designs

THIS CLAMP DIFFERS from its rivals as it does not rely on being heavy to hold the record to the platter. Instead, it uses a mechanism around the centre spindle to lock itself in place. As a result, it will not add any significant amount of weight, but still presses the vinyl against the platter. The Clamp-IT also allows you to fine adjust the pressure depending on the condition of a warped record. This means that it can be safely used with any turntable, including those with a sprung sub-plinth assembly. The manufacturer considers that the clamp's lightness will not risk any increase in rumble when used with lower-cost decks, which tend to have small main bearings.

The Clamp-IT is made from aluminium and measures 78mm in diameter and 33mm in height. The centre clamping knob is machined with diamond-cut edges and the base area distributes the pressure evenly

across the label area of the record. Activating the clamp is very simple and I find that the leather-covered base provides enough friction to hold it on the vinyl while you turn the knob to grip the spindle. This means that, importantly, you do not need to press down on the base area with your other hand to tighten it, thus putting unnecessary stress on the centre bearing.

No lightweight

It may be lightweight, but its performance is certainly not. It does an admirable job of coupling the record to the platter. The Borodin is as exciting as ever, and with this

recording and the JS Bach the soundstage feels significantly wider. The bass of Motor Roller still hits the stomach, as it should do, but I have a greater awareness of the tightness of the rhythm •

VERDICT

A lightweight clamp that delivers its promise



ISOkinetik

ISOpuck SS1

PRICE: £50 TELEPHONE: 0208 2418890 WEBSITE: isokinetik.co.uk

DETAILS

PRODUCT **ISOkinetik** ISOpuck SS1 ORIGIN UK

WEIGHT 522g

FEATURES Stainless steel construction: resonance damping O-rings

DISTRIBUTOR ISOkinetik

AN ELEGANT-LOOKING CLAMP,

the ISOpuck SS1 was originally designed for use with SME turntables as well as for the larger VPI and Clearaudio decks. However, it is equally suitable for many other non-sprung turntables. It is precision engineered from high-quality stainless steel and fitted with resonance damping O-rings. The metal section is 37mm high and 50mm in diameter. Given the rather considerable weight of the SS1, it might not be suitable for use on turntables that employ a lightly sprung sub-plinth, as it could add significantly to the sprung weight, thereby shifting the position of the sub-plinth into a less optimal position. This is something that needs to be considered when deciding on an appropriate clamp for your turntable.

The robust-looking ISOpuck SS1 is well finished and the polished stainless steel with three black O-rings is likely to enhance the



appearance of any record deck it's placed upon.

When it comes to playback, I can certainly hear subtle differences with the clamp in use. For example, with the magnificent Polovetsian Dances recording, there is a noticeable improvement in imaging and slight cleaning up of the top end, which is especially noticeable with the vocals in the chorus.

Four play

With the four harpsichords record, the four instruments have been placed

from left to right across the soundstage in the recording in order to achieve maximum clarity, and I have a sense that the individuality of each performer is better preserved with the SS1 in place. The driving bass line of Motor Roller is very tight and punchy and doesn't interfere or detract from the twittering electronic treble line •

VERDICT

A solid clamp offering sonic improvements at a good price, but not suited to sprung plinths



String Suspension Concept

Record Point 420

PRICE: £120 TELEPHONE: 0203 5442338 WEBSITE: nunudistribution.co.uk

DETAILS

PRODUCT SSC Record Point 420 **ORIGIN** Germany WEIGHT 420g **FEATURES** Aluminium and

stainless steel construction **DISTRIBUTOR**

NuNu Distribution

COMBINING DESIGN FLAIR

with great functionality is quite an achievement for a record weight. The 420g clamp is 65mm in diameter and 26mm high. It is made from a block of CNC-machined stainless steel and capped top and bottom with highgrade aluminium. Again, it uses its own weight to hold the record to the surface of the platter and to help correct any warps in the vinyl. The Record Point 420 incorporates the company's 'SSC technology', which is a design feature to ensure a smoother application of the pressure between the disc and the platter. It is claimed that this results in a more homogeneous sound image by dissipating vibrations more evenly across the record.

Close inspection of the Record Point reveals that there is a small gap between the lower aluminium cap and the stainless steel body with some support material between them. This is clearly SSC's method of dissipating



unwanted vibrations and I find that the clamp slides over the centre spindle and fits very snugly onto the record label.

Three dimensions

I am immediately struck by the excellent 3-dimensionality and super imaging with the Polovetsian Dances recording. The chorus is a collection of individual singers, rather than being a congealed, unified sound, which is excellent. This feeling of depth is also something I believe I experience with the JS Bach recording. The four

harpsichords are not all lined up across the soundstage and there's a sense that not only are they spread out left to right, but also staggered front to back, which would doubtless have been the case at the recording session. The Richard Harvey synthesiser recording, meanwhile, has great stability and clarity in the lower registers too •

VERDICT

Use of this clamp really seems to extract the depth from recordings and it looks good too



Clearaudio

Quadro Clamp

PRICE: £130 TELEPHONE: 01189 814238 WEBSITE: soundfowndations.co.uk

the centre.

DETAILS

PRODUCT Clearaudio Quadro Clamp **ORIGIN** UK WEIGHT 390g **FEATURES** Stainless steel construction

DISTRIBUTOR Sound Foundations THIS SMART-LOOKING satinfinished stainless-steel clamp that uses gravity to hold any warped record flat and ensures a good coupling to the platter. It features a raised centre section, which makes it easy to grasp and fit over the spindle and a flat disc base to distribute the weight evenly across the label area of the record. It is 79mm in diameter and 30mm high. The Clearaudio logo is displayed in a small metal insert in

Once again, use of the clamp seems to have a positive effect on the music. Starting off with the Polovetsian Dances record, I have a sense of an opening up of the soundstage, as well as a general de-cluttering of the instruments. This recording has the chorus located behind the instruments and with the Quadro I am aware of a clearer perception of this depth to the sound stage. The four harpsichords of the JS Bach



record have a definite sense of occupying their own space with the Quadro fitted. It really boils down to the improvement in detail and a subtle focussing in on the instruments and a greater awareness of being drawn in to the performance.

Exciting stuff

With the synthesisers of the Motor Roller recording - the running up and down the scale at the beginning of the piece is cleaner and more precise. The pounding bass is still there and

doesn't conflict with the rest of the music. It just somehow seems that little bit more exciting when the clamp is positioned in place.

The Quadro is a good-looking clamp that produces a very pleasant listening experience across a wide range of musical genres •

VERDICT

An elegant-looking clamp that helps convey more excitement to the music, but costly



Minitest verdict

ALL THE RECORD clamps do their job well and the sonic differences in behaviour between the various makes are very subtle indeed. That is not to say that there are no discernible differences and one of the good things about reviewing record clamps is the ease and speed with which they can be swapped or removed during listening tests.

All four clamps, when fitted to my turntable, offer improvements to the sound. In particular, the soundstage seems superior and there is better instrument focus. Furthermore, bass response seems to tighten and I get an overall sense of better control with them in place. They all look very smart indeed and will enhance the appearance of most turntables, but I would expect that many will find that the elegant lines of the grey-finished Clearaudio Quadro Clamp fit in perfectly with their system. However, the winner of any clamp beauty pageant will, of course, be very much down to personal taste.

So what about the differences? The award for the heaviest clamp goes to the ISOpuck SS1 from ISOkinetik with the runner up being the SSC Record Point 420. These are likely to be the clamps of choice if you have a fairly lightweight platter with an unsprung plinth. If you do have a gently sprung sub-plinth supporting

your platter, then the Record Clamp-IT from Pro-Ject may well be your only choice. Finally, there is quite a variety of prices with the ISOpuck SS1 and the Clamp-IT offering the best value for money.





Arriving at a winner is no easy task, especially when they all perform so well. So, I have to take other issues like value for money and flexibility of use into consideration and it is this latter quality that nudges the Pro-Ject Record Clamp-IT into first place.



Choosing the correct record clamp for your turntable is going to be influenced by the type of player that you own as well as the design of the platter. If the platter does not have a mat fitted and the record sits directly on the hard surface, then a clamp is going to be essential in order to avoid the risk of slippage. The best way to check for any slippage is to put a tiny mark on the edge of your vinyl then line it up with a mark on the platter and then let the record go for a spin. If there is slippage, you'll quickly be able to notice as the marks will become misaligned.

The type of suspension of the sub-platter is also an important issue. If your record deck uses firm springs or the turntable is of a non-sprung design, then you can use a fairly weighty clamp. This will increase the mass of the rotating system to reduce any speed variations that might occur.

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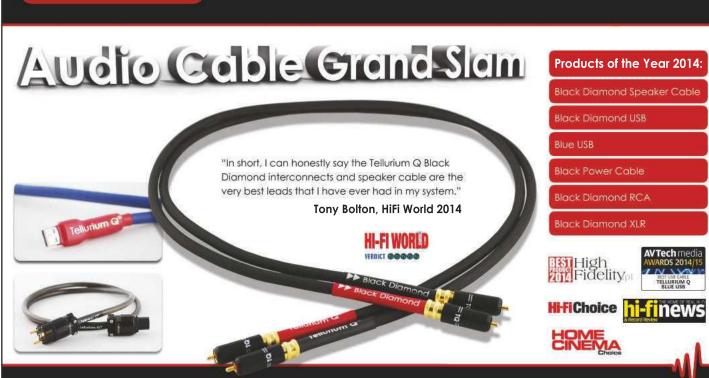
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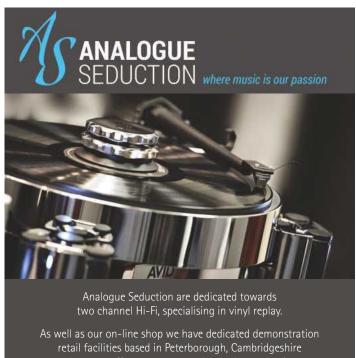
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Lindy

Audio DAC Combo

I MUST CONFESS I did a bit of a double-take when I saw the low price tag attached to this dinky little DAC. When I saw the specification, I really had to get my hands on one!

Don't let its diminutive dimensions put you off – this 63 x 23 x 53mm DAC has loads of features. For starters, it supports sampling frequencies up to 192kHz and a full 24-bit, so is able to support audiophile-quality recordings. It can be powered from either a USB port or from the supplied multi-country 5V 'wall-wart' power supply. It is fitted on one side with a 5V power socket and a micro-USB port, which is used as an alternate source of power, together with Toslink optical digital and coaxial digital input sockets. There is also a switch to select either coaxial or optical input. This allows both inputs to be left permanently connected if desired as the one being used is selected using the switch. On the other side there are two RCA phono audio outputs, a power indicator LED and a 3.5mm audio output jack. Incidentally, Lindy does not recommend the use of headphones directly connected to the 3.5mm audio output jack. Instead, it advises using this output to feed an external amplifier to which headphones can be connected. The only thing missing is a display to show the sampling rate, but to be fair, there isn't any space!

DAC to the future

Under the hood is a Cirrus Logic 8416 DAC. This is a great little chip designed for use in CD and DVD players, AV receivers, computer and automotive audio systems. It features a low-jitter clock recovery mechanism to provide a very clean signal from the incoming AES3 digital audio data stream. The 8416 can operate as a standalone DAC to allow systems with no micro controller (such as the Lindy DAC Combo) to operate the chip. Although it supports S/PDIF, the USB port on the Lindy is only used for power.

This will be really useful if you wish to use the DAC with portable



equipment and want to power it from a laptop computer.

Connecting a digital streamer to the Lindy DAC Combo using a Toslink optical digital cable, I find it works faultlessly. Similarly, I have no problems using the coaxial digital input and I consider the performance to be the same with either of the inputs in use. I find this to be a great little performer – it certainly has no problems with the variety of sampling frequencies that I throw at it. Going in at the deep end, I listen to a 24-bit/192kHz FLAC recording from Linn Records of Beethoven's Piano Concerto No. 3 with Artur Pizarro and The Scottish Chamber Orchestra. The Lindy DAC certainly gives a full and convincing performance, even though I find it gets a little muddy during the crescendos. Nevertheless, for a device at this price point, it produces a really great sound.

Next up is another offering from Linn Records, but this time a 24-bit/88.2kHz recording of Vivaldi with the soprano Mhairi Lawdon and La Serenissima performing Cantata Elvira. This clearly demonstrates that the Lindy can handle the vocal excursions of the soloist in the music and it seems happier with the smaller ensemble than the full orchestra of the previous recording. A 24/96

recording of Whiter Shade of Pale by Sara K is also very enjoyable.

I then give the Lindy DAC a taste of CD quality 16/44 recordings. Michael Kaeshammer's rendition of Sunny Side Of The Street from his album Tell You How I Feel is tuneful and melodic. The bass line on Wailing Wall from Runt: The Ballard Of Todd Rundgren, also recorded at 16/44, is good, although not quite as punchy as I am used to with this recording, but the female vocal line remains strong throughout.

Feast for the senses

For the final test I connect the Lindy DAC to the coaxial digital output of my PrimaLuna Prologue Eight valve CD player. For some exciting vocal excursions. I feed the DAC with some Gluck Italian Arias by the talented Cecilia Bartoli. I am treated to a very enjoyable performance, although the soundstage is a little flatter than I am used to hearing. Cecilia is in with the orchestra, rather than standing out in front of it. Lastly, a Decca CD of Vivaldi's Violin Concertos Op.6 by The Academy of Ancient Music sounds exciting and clear, and even though the soundstage lacks some depth, the Lindy manages a respectable performance at the price. NR

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Quadraspire QAVX Rack

EQUIPMENT SUPPORTS

GENERALLY fall into one of two categories. For two-channel users, a single-width rack that stacks equipment on top of one another is the norm, while the AV fraternity more commonly makes use of the greater width required by screens in the setup to place equipment alongside one another for a lower all-up height. All very logical and something reflected in range after range of AV and hi-fi furniture.

What if you need an equipment stand to cater for both approaches though? If you run separate two-channel and multi-channel systems – or even run a single system with a few external power supplies, 'legacy sources' or other paraphernalia, you can find yourself needing to go both upwards and outwards. Into this specialised requirement steps Quadraspire. As well as producing conventional stereo and AV racks, it also offers this solution that uses the same modular construction as the two-channel ones.

This means that as a bare minimum, the QAVX is able to hold three units per shelf with a flat screen on top of that. This rather defeats the object, though, as more conventional stands can match this capacity. Specify a four-shelf QAVX and the Quadraspire starts to make more sense. Four shelves gives nine equipment slots - each capable of holding a conventional 430mmwide unit – and a top shelf big enough for a whopping television or a brace of turntables. A conventional single-width stand able to do the same would require a basketball player to be able to reach the equipment near the top.

Made to measure

The overall height of the QAVX will depend both on the number of shelves you specify and their spacing. The configuration builder on the website allows for at least eight to be selected and these can be anything between 100 and 326mm apart. While this means that it is just as possible to make the top shelf



inaccessible with the QAVX as it is with a conventional rack, you will at least have a huge number of slots in such a unit. The width is fixed at a big but not unmanageable 1,630mm.

In practise, the QAVX masks its bulk well thanks to the high standard that it is finished to. Quadraspire offers a variety of wood and glass finishes, allowing the QAVX to blend into its surroundings better than you might expect. Neat tricks like the slight curve on the leading edge mean that it feels more like a piece of furniture than something you stand kit on. The build quality is excellent too. The columns countersink into the shelves and then screw together so that it's both rigid and solid.

Sonically, the most significant advantage of the QAVX is that the sheer size and cumulative mass it has - certainly in our four-shelf review sample - mean that it provides an almost completely inert base for equipment. This is most noticeable with turntables placed on the top shelf that are impressively decoupled from the activities of speakers and the like on the same floor. There is a complete absence of low-level interference on any equipment I've placed on it and even with a product susceptible to valve microphony, the isolation is impressive.

None of this capable isolation seems to come at the expensive of altering the overall tonal balance of the equipment in use. With the wood finished shelving, there is no suggestion of additional brightness creeping into the performance, but equally the detail and vibrancy of my Naim equipment is entirely intact. Judging the neutrality of any support is no easy task, but the Quadraspire goes a long way to achieving such a presentation.

Rack 'em up

This big but rather self-effacing rack is undoubtedly a specialist product as there is only a small subset of customers that will need the considerable storage capacity that it offers. If you do need capacity for six or more components – particularly if any of them are AV focused - the QAVX is a genuinely well thought out product that manages to combine enormous potential storage with a room-friendly finish.

Above all, it delivers all of the performance of the more conventional stereo Quadraspire racks and this means that if you do have a sprawling system to accommodate, the QAVX is a clever and seriously talented solution to the problem. ES

MS HD Power

S20 V2 distribution block

THERE'S NO SUCH thing as a clean mains supply. If you doubt this try turning off your fridge, central heating boiler, CD player, TV, etc. - indeed anything that's digital and has a switched mode power supply in – and listening to your LPs. On a decent system you should hear a big difference, a sweetening of the sound and a better sense of flow. If you don't, it's likely the quality of the mains coming into your house is already very poor, riddled with noise. At times like this mains filters can work wonders.

It is important to stress that they don't always make things sound better, it depends both on the filter and the quality of the mains itself. The nearer you live to a town or a city, the more likely you'll benefit from something to clean your AC up. This MS distribution block offers six mains sockets from the one it

takes up. It has a PRRT noise filtration network using selected components and the manufacturer claims excellent EMI and RFI Suppression -48,000 amps of surge suppression is quoted too.

Silver surfer

The 60 x 402 x 30mm (WxLxH). 800g unit is silver, looks like aluminium but is actually hard plastic. The socketry is good quality; the maker says the phosphor bronze socket clips pass the (30,000 times) BS Standard plug in/out test. All power clips are 3.0µm pure 925 silver plated, and the power bus bars are 5mm² silver plated. The chunky 2m cable it is attached to is three-core 6N oxygen-free copper, and is terminated with a moulded 3-pin plug with 3.0µm pure 925 silver-plated pins and fitted with a standard 13 amp fuse;

there's a mains switch on the unit itself. A lifetime warranty is offered.

With a maximum current of 13 amps and a maximum wattage of 3,000W, it should suffice for most smallish systems with a variety of sources. The block performs well, giving a subtle smoothing and opening out of the sound in a central London flat, taking a little of the edge and brittleness out of the equation. The other benefit is that it does this to six different sources, making it good value for money. Up against stiff competition, it's well worth auditioning. DP



DETAILS PRICE £186 **TELEPHONE** 01491629629 WEBSITE airaudio.co.uk



Tellurium Q

Ultra Blue loudspeaker cable

AS CABLE BRANDS go, Tellurium Q is a relative newcomer, yet has still managed to imprint itself in the minds of British audiophiles. The cables have sold themselves on audition, thanks to the distinctly sweet and musical sound. Where others go for searing detail and insight, the TQ house sound is more beguiling and friendly.

This new Ultra Blue loudspeaker cable sits between the company's entry-level Blue, and its distinctly more expensive Black big brother. Unterminated, one metre of this wire will set you back £31; obviously there's a whole range of terminations available, and the cable can also be specified in bi-wire form should you so wish. The company keeps its own counsel on precisely what goes into the Ultra Blue, it does not give the usual long list of bullet points you would expect from rivals. Instead,

you have to console yourself with the fact that it's very well put together, relatively slim and inconspicuous and the sheathing is soft and nonmicrophonic, just as it should be.

Keep on running

I am surprised to find that Ultra Blue needs a little more running in than many TQ products, but after a week or so I begin to hear very much the sound I would expect from this brand. Which is to say that it presents music in a smooth, subtly warm, rhythmically engaging and enjoyably atmospheric way. There's nothing singularly exceptional about this cable, rather it does everything extremely well and seems able to sound even greater than the sum of its parts. It finds the direct line to the music's rhythms and dynamics, and

weaves them together in a wonderfully cohesive way. You find yourself not listening to the hi-fi, but totally immersed in the music, forgetting completely about your system. The Ultra Blue adds subtlety, nuance and a good deal of depth over the cooking Blue, although it doesn't quite have the transparency of the much pricier Black. It's a great cable that will win many friends; make sure you audition it in the context of your own system if you can. DP





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Analogue Studio

Headshell accessories

IF YOU ARE the sort of person that likes to swap cartridges, or indeed need to fit a replacement cartridge in the headshell of your tonearm, then the chances are you are going to require some or all of these items of hardware. Screws and nuts that hold the cartridge in place are tiny little things that tend to go AWOL when you try and look for them, as indeed do those cartridge headshell leads. This is where these handy accessories from Analogue Studio will come in very useful indeed. Each item of this group is available to purchase separately.

Firstly, there is a rather snazzy headshell made from cherry wood that provides an elegant replacement for any standard P-mount headshell. The unit is supplied with OFC gold-plated cartridge leads and a metal finger lift. It is 56mm in length and weighs

9g. It provides a nice upgrade to a plastic or metal headshell supplied with a tonearm and if you have a second cartridge that you use occasionally, it would be a useful purchase to enable you to switch cartridges quickly.

Use your head (shell)

If you are using the headshell to support a spare cartridge, you will very probably require a pair of cartridge screws of an appropriate length. The pack of assorted screws includes three pairs of varying lengths including 10mm, 14mm and 18mm, together with two nylon washers and a pair of nuts should your cartridge require them.

Detachable headshell leads need to employ good-quality wire and connectors. The HS-2 set comprise a colour-coded set of four OFC gold-plated wires. They are 45mm



in length and feature non-magnetic, varying-gauge cartridge pins to make them compatible with most types of tonearm and cartridge.

Finally, it is extremely important to ensure that your headshell (and turntable) is perfectly level to get the very best from your cartridge. The little headshell VTA and azimuth bubble level is ideal for this purpose as it will fit nicely on the top of your headshell during alignment.

A great array of essential and well-made headshell accessories that are handy to have around for when you need them most! **NR**

DETAILS

PRICE Cherry Wood Headshell £38, Cartridge Screws £7.50, Headshell Leads £7.50, Headshell Bubble Level £5

TELEPHONE 01733 350878

WEBSITE analogueseduction.

OUR VERDICT



TCI Cables

Mamba interconnects

RESPLENDENT IN THEIR bright orangey-red cables, the TCI Mamba interconnects were three years in the making and take elements of design from TCI's previous range of high-end cables. They are designed, handmade and finished in the UK.

These RCA interconnects feature a pseudo-balanced construction, which means two conductors are used - one for the signal and one for the return. A fully balanced version fitted with XLR connectors is also available. Separately connected twin screens are used for improved RF rejection and these are connected to the return wire at one end of the cable only (the end connected to the source equipment) to eliminate the possibility of an earth loop. The source end is indicated by arrow markings on both the RCA phono plugs – a nice touch. The conductors themselves are made from 'aerospace quality' SP-OFC (silver-





plated, oxygen-free copper) wires, which are terminated in the TCI True-Plug proprietary gold-plated split-pin RCA connectors and soldered using lead-free high-purity silver solder. The core insulation material is Superthane (a polyurethane material) and the cables have a PVC outer jacket.

Plug and play

I find the True-Plugs easy to fit and the outer sleeve can be twisted to clamp them onto the phono socket. Before my listening assessment takes place I make sure that the 1m Mamba interconnects are run in for at least 10 hours connected up to a tuner. After

the burn-in period is completed, I find them presenting with all the desirable qualities that I have come to expect from silver-plated interconnects, namely excellent detail with plenty of speed and attack, married with a superb transparency and openness of the music. The opening track of a splendid Archiv CD of Vivaldi's Concertos For Two Violins (Viktoria Mullova, Giuliano Carmignola and the Venice Baroque Orchestra) really lifts my spirits with the excitement and power of the performance. Great interconnects at a fair price. **NR**

PRICE £200 TELEPHONE 02892 673024 WEBSITE

tcicables.com

OUR VERDICT

★★★★

The History of Audio Recording

The second part of our story explores the beginnings of truly portable music and how this was revolutionised by the advent of digital audio

he reel-to-reel tape recorder, first available in the US in the late forties, was too expensive and the design too bulky to be practical for amateur home use until well into the fifties and it was certainly more difficult to use than playing a vinyl record. To address this issue, the stereo 8-track cartridge designed by Richard Kraus was introduced in 1963, based on an endless loop tape cartridge that was first designed in 1952 by Bernard Cousino. The 8-track player could switch between tracks automatically, with the use of a small length of conductive foil at the splice joint on the tape. The player could be considered as one of the first portable personal music players and was often fitted in cars to enable people to choose, for the first time, the music they listened to on the move.

Around the same time in 1963, Phillips introduced the compact audio cassette tape format, which quickly replaced the cumbersome 8-track cartridges. In the beginning, the cassette was considered to only be suitable for voice recording or

BLANK 8-TRACK CARTRIDGE

45 rint loted time (8 3% Lp.s.

low-fidelity applications due to the slow tape-to-head speed of 1 1% in per second. However, developments in the oxide coatings of cassette tapes, as well as improvements in the design of cassette recorders and the implementation of noise-reduction systems (such as Dolby B) earned cassettes a place in hi-fi systems by the early seventies. This resulted in the first truly portable personal music player with the Sony Walkman being released in Japan in 1979. This heralded a change in music listening habits, allowing people to carry their music of choice with them and listen to it through lightweight headphones.

Four channels are better than two

As far back as 1954, people reasoned that if you could improve music reproduction with stereo offering imaging from left to right, why not front to back as well? The first medium to support four channels was reel-to-reel and the Vanguard Recording Society introduced Quadraphonic open reel tape (Q4) to the US market in June 1969. As an aside, the term quadraphonic is actually a hybrid word of both Latin and Greek. Strictly speaking, it would have been better to have called it either quadrasonic (Latin) or tetraphonic (Greek).

However, quadraphonic audio reproduction on LPs was problematic, because some systems were based on discrete sound channels or on matrix encoding the four channels into two tracks. Discrete systems allowed for full separation of the four original recorded channels, but these suffered from a restricted high-frequency response and reduced record life.

The stereo 8-track cartridge designed by Richard Kraus was released back in 1963

The discrete quadraphonic system was the CD-4 (Compatible Discrete 4) system where each left and right channel was recorded as the sum of its front and rear channels, so it was stereocompatible. The left and right difference signal (front – rear) was modulated onto a 30kHz carrier that was added to each signal. Of course, to



You really need a dedicated digital player as part of your audio system

pick up the 30kHz signal, a special (Shibata) stylus was required. However, this shape of stylus tended to wear out the record more rapidly than conventional stereo styli and eventually the carrier signal would be lost.

Matrix-encoded systems were also stereo-compatible, and these included the QS Regular Matrix and SQ Quadraphonic systems. These systems were more popular and used a combination of amplitude and phase modulations to enable an appropriate decoder to extract the four channels. Systems such as these could use a conventional stereo stylus and did not suffer from the wear issues of the CD-4 system. However, this was at the expense of poorer separation of the front-to-back channels.

Of course, all these systems, in addition to requiring a suitable decoder, needed the extra investment of four amplifiers and four loudspeakers. The rear speakers The first Sony Walkman was released in 1979 should be of the same or almost same size or quality and have the same or similar frequency range as the front speakers. For people who didn't want all this additional expenditure, a cheaper solution was available in the form of a simple connection of two rear speakers based on the 'Hafler' principle, first discovered by David Hafler some time in the early seventies. The idea was to connect a pair of speakers in series between the positive terminals of the front left and right channels to reproduce the differences as rear channels, giving a sort of pseudo-surround-sound effect.

Sadly, quadraphonics was a commercial failure due to the many technical problems and format incompatibilities and it didn't really

Digital music is now well established and gives analogue a run for its money

survive into the eighties. The rise of home theatre products in the late eighties and early nineties brought multi-channel audio recording back into popularity, although in new digitally based formats.

Let's get digital

While all this was going on, LPs remained in high volume production throughout the eighties. With the demise of the 8-track cartridge, the only portable media was the compact cassette and this was the last development of an analogue media. All this was about to change with the introduction of the Compact Disc (CD) that Philips developed and demonstrated to the industry in 1981. The little silver discs hit the Japanese market the following year and in Europe during March 1983. This was the first digital music for the masses.

In 1969, experiments began with digital recording. To record an

analogue audio signal (wave) digitally, you need to slice the wave up into little, equally spaced chunks. You then assign a number to each slice that represents its height. What you end up with is a list of numbers that represent the original waveform. In order to produce an accurate representation of a waveform, you need to slice it very thinly in the first place, so you need a large amount of numbers to define a small segment of audio. Furthermore, you need to be able to store very large numbers so you can record everything from the loudest to the quietest sections of a piece of music and ensure that all the detail is faithfully stored. The number of slices per second is called the sampling frequency and the number of binary digits used to store the numbers is called the bit length. For audio, you need to be able to record up to 20kHz (20,000 cycles per second), so you need to sample at a minimum of twice that number (according to the Nyquist Theorem), or 40,000 times a second - or to put it another way, a sampling frequency in excess of 40kHz.

It was Sony that developed the first digital audio recording devices to be used by professional studios in 1978. It developed a system using PCM that was recorded onto its existing U-matic video recorders. It had to use a video recorder to be able to record at twice the maximum audio frequency required – 40kHz. An analogue audio recorder was only designed to record up to 20kHz. Interestingly, it was the fact that Sony used a video system to store the digital audio that led to a digital standard that is still in use today - the Red Book standard for Compact Discs. All this led to the first CD players in the eighties, Digital Audio Tape (DAT) recorders in 1991 and Sony Minidiscs in 1992.

Following the failure of analogue quadraphonic (four-channel) sound to catch on in the seventies, surround sound emerged that was made easier



The Regency
TR-1 was the first
commercially
available
transistor radio
launched in May
1954 and
heralded the
beginning of
portable music

by using digital recording. Super Audio CD (SACD) supports both stereo and surround sound and was released in 1999. Other similar and competing systems emerged and this developed into an optical disc format war during the following years, resulting in the eventual emergence of Blu-ray disc technology in 2008.

MP3 players for downloaded internet audio appeared in 1998 and this marked the demise of the portable cassette players in favour of digital players. This in turn paved the way for the meteoric success of the iPod, which Apple launched in 2001.

Where to keep your music

The audio files themselves need to be stored somewhere, just as an LP stores the music as a pair of grooves (one on each side of the disc). Digital audio files can be stored on the music player itself, or on an external storage device, such as a computer hard disk or memory stick.

The file name can tell the equipment how the audio data is encoded within the file. For example, '.FLAC' indicates the file is a Free Lossless Audio Codec

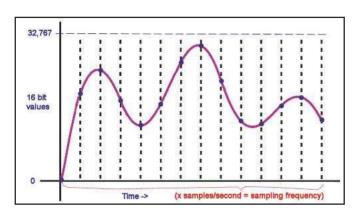
DIGITALLY RECORDING ANALOGUE

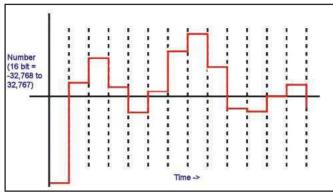
There are various techniques that can be used to record an analogue signal digitally. With Delta Modulation, the digital signal (ie a '0' or a '1') is used to determine whether the analogue waveform is going up or down at a particular point in time. Although it is of little value for hi-fi applications, it was used as one of the first applications of digital technology for voice communications for military applications in the seventies.

Pulse Width Modulation (PWM) is similar to delta modulation, except that it uses the width and polarity of a pulse to determine whether an analogue signal is going up or down. PWM is commonly used for controlling power to motors or lamps (such as speed controllers and dimmers). It has no use for audio applications.

Pulse Code Modulation (PCM) uses a digital number (made up from a group of zeroes and ones or 'bits') to determine the amplitude of a signal at a point in time. It is this technology that is the basis of digital audio recording.

The picture on the left shows how an analogue waveform is sampled, while the one on the right shows the reconstruction of the analogue waveform from the samples





GUIDE TO...

format audio file which, as the name implies, employs lossless compression to offer top-quality audio.

The easiest way to get started with digital audio is to connect the audio output of a portable media player to a spare input on your hi-fi. That will, of course, limit you to the range of formats that are supported by the portable device, and the files you will store in the device will often be a lossy compressed format, such as MP3, to enable you to store a reasonable amount of music on the limited internal storage of the device. For true hi-fi applications, you really need a dedicated digital player as part of your audio system. These are known as digital media players (DMPs), digital audio players (DAPs) and digital stream players (DSPs) and media receivers, to name but a few!

What's best for you

As with any other piece of hi-fi, there are devices to suit all budgets. At the more affordable (but nevertheless, excellent quality) end of the market, you have a range of great products to choose from, including the Logitech Squeezebox and Sonos devices.

The Squeezebox Touch, for example, is a one-box unit that has the receiver and display together and can accommodate 24-bit/96kHz sampling in native mode. Formats up to this resolution do not need to be transcoded down (ie 'on the fly' format conversion is not required) before streaming to the receiver by the Squeezebox Server software. This device requires connection to your home computer network either by direct cable connection to your router or via your wireless network. It uses either its own internal music server or external server software (available as a free download) running on your PC to access music files stored there. The earlier Duet model, as the name implies, has two units: a wireless remote control display and a receiver, which can only handle 24-bit/48kHz files before transcoding is required. However, this is still in excess of the Red Book CD format of 16-bit/44kHz sampling. For higher format files, such as 24-bit/192kHz, the software will automatically transcode down to the PCM stream that the Squeezebox can handle. This also has the advantage that you can send the data over your relatively slow wireless network without the risk of overloading it (causing drop-out). To use 24-bit/192kHz, you must use a direct cable connection.

Even though this transcoding process will inevitably result in a loss

of quality, the 24/192 format is still a significant improvement over a CD. As previously stated, 16-bit breaks the audio signal in steps from -32,768 to +32,767, while 24-bit goes from -8,388,608 to +8,388,607, which is a much finer resolution!

Shopping for music

With the advent of iTunes, Napster and the like, it has never been easier to buy music. Instead of having to purchase physical media, like a record or CD, you can download your purchase instantly over the internet.

Many companies allow you to choose the format, from MP3 through to 'Studio Master' FLAC. The downloads often include the album artwork, which can usually be displayed on

The 8-track could be considered as one of the first portable music players

your player while listening to the music. We'd recommend buying the highest quality you can to future-proof your investment, providing your player can at least transcode down to a format that your system can handle.

So, we are now up to date – from non-replayable wiggly lines in soot over 150 years ago (see last month) to portable streaming digital audio. Modern DMPs are as easy to use as any other music source and can offer a wide range of features, such as the display of the album and track information that you could never get with a CD player or record deck.

Many still consider that you can never beat a vinyl record for quality and the experience of lowering a needle into the groove. However, digital music is now well established and the higher sampling and bit-rates certainly give the analogue formats a run for their money •

Logitech's Squeezebox Touch can accommodate 24/96 files



THE CD 'RED BOOK' STANDARD

The Red Book standard for Compact Discs defines a sampling frequency of 44.1kHz and a bit length of 16. Incidentally, it is named after one in the series of Rainbow Books (so called because they are bound in different colours) that contain the technical specifications for all CD and CD-ROM formats.

The Red Book standard of 44.1kHz sampling frequency will, in theory, record up to 22.05kHz and a bit length of 16 will allow a range of numbers from -32,768 to +32,767. The figure of 44.1kHz was arrived at by Sony as it fitted very nicely on the US video standard used on the Sony U-Matic (three samples fitted perfectly in one U-Matic video frame at the US frame rate of 60Hz with three samples per field of 490/2 lines = 3 x 245 x 60Hz = 44,100Hz).



DATA COMPRESSION AND AUDIO FORMATS

There are two ways of compressing digital information: lossless and lossy. Uncompressed or lossless compression does not lose any information and is, therefore, of inherently higher quality. Lossy, by definition, loses some of the original information, but can result in very small files, thus making it a suitable technology for portable media players. MPEG1 or MPEG2 Audio Layer III (more commonly referred to as MP3) is a patented digital audio encoding format using a form of lossy data compression.

These different audio formats are created by the use of a device called a Codec (COder-DECoder or COmpressor-DECompressor). One is used to create the file and another is used in the player to convert the file back into a digital audio data stream

In order to convert the digital data stream back into an analogue signal (suitable as a source for an audio system or for feeding into the amplifier section of a media player), a digital-to-analogue converter, or DAC, will be required. DACs take a digital audio stream and convert it into a normal analogue signal. DACs can be built into audio equipment, such as portable media players and CD players, or can be external, standalone boxes that are usually much higher quality units.

We now have a plethora of audio formats that use either uncompressed (eg WAV, AIFF, AU and PCM) or compressed in both lossy (such as MP3, AAC and WMA lossy) and lossless (including FLAC and WMA lossless) formats. We also have a spectrum of digital resolutions, from CD-quality 16/44 (16-bit, 44.1kHz sampling) through to 'Studio Master' qualities of 24/192.

NEXT MONTH: How to buy second-hand equipment. Your guide to procuring hi-fi classics that won't break the bank



jan 2015

Apprentice MM Phono stage HFC Recommended 2014



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COMPETITION

AV Tech media AWARDS 2014/15

BEST FLOORSTANDING SPEAKER
MONITOR AUDIO
SILVER 8





WIN:

Monitor Audio Silver 8 loudspeakers

Enter the world of grown-up hi-fi with this wonderfully capable floorstander

here comes a point in every hi-fi enthusiast's life when the decision is made to start taking this hobby thing seriously and investing in some proper grown-up speakers. It's all very well having a fancy little standmount hidden away in the corner for blasting out your favourite tunes, but nothing says you're in for the long haul more than a pair of floorstanders. Not only is it a visual statement that you're serious about your music, but a three-way floorstander such as the Silver 8 offers an ease of drive that's easy to hear, meaning the crossover work in the midband suddenly becomes seamless.

There have been many floorstanders that have won the hearts of our reviewers of late, but few have come close to the majesty of Monitor Audio's stupendous Silver 8, which received Best Floorstanding Speaker 2014/15 in our AVTech Media Awards supplement. At £1,250, it might be positioned below the company's Gold and Platinum ranges, but the sound the 25mm C-CAM dome tweeter and 100mm C-CAM midrange unit combined with a brace of 165mm C-CAM RST bass units provides has to be heard to be believed.

When we reviewed it back in the sunnier climes of the August issue, we found that the Silver 8 had "a surprisingly clean and neutral sound, unlike other rivals that use metal coned drivers". If anything, we concluded that it was slightly on the warm side and more than comfortable when partnered with a lively sounding source or amplifier.

"Rather than firing the sound out like a sniper rifle, the Silver 8s are closer to a job-spec sawn-off shotgun, dispersing all over", we noted in the award-winning review. No, we didn't mean they'll make a real mess of your listening room, we were referring to their uncanny ability to provide a seamless sound that spreads out easily into the room, with the bass, mid and treble drivers integrating perfectly. Not only is the sound clean, but it is fast too – getting its speed from its excellent tracking of transients rather than any sort of zonal edge or 'zing'.

In the end, we concluded the Silver 8 has no real weakness, it just gets on with the job, does it well and doesn't make a fuss. If you're after a more than capable design to handle your music in a subtle, yet sophisticated way, look no further.

To be in with a chance of giving your home setup the kick start it really deserves, answer the simple question opposite and stick it in the post. Good luck!

TO BE IN WITH A CHANCE OF WINNING, ANSWER THIS SIMPLE QUESTION:

What size is the dome tweeter on the Silver 8? A) 25mm B) 25cm C) 25m

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CES 2015

Hi-Fi Choice puts on a pair of comfy shoes and heads to the bright-lights of Las Vegas and the Consumer Electronics Show

CES is a monstrous event that kick starts every new year in Las Vegas heralding the latest tech coming our way over the next 12 months. This year's January event saw attendance figures up on the previous two years with 170,000 attendees, including over 45,000 from outside the US. With more than 3,600 exhibitors the huge event is a feast for the eyes (and ears, of course) and hosts the world's greatest consumer technology brands showcasing everything from driver-less cars to the latest 4K big-TV technology, curved smartphones and smart watches that are to be found at almost every turn throughout the show's vast 2 million square feet of exhibition space.

The speciality audio element is just a small part of the Las Vegas event, but can still take four days to get around. There's always plenty on show for audio fans, and many international audio companies as well as UK hi-fi specialists chose to announce their new products at this year's event.

Creek debuted its Evolution 100A integrated amplifier – see our full review on page 46 – and also unveiled the new Epos K3 floorstanding loudspeaker from its sister company. Cambridge Audio announced its new CX series of high-performance components under its rebranded Cambridge logo, while Chord Electronics showcased its new desktop Hugo TT DAC.

Personal and hi-res music looks set to continue to be big news this year with the introduction of luxury hi-res portable models from the likes of Sony, and a revolutionary pair of headphones from AudioQuest constructed from 'liquid wood' being among the highlights of the show for personal audio fans.

Cabasse's new StreamAMP is a compact amplifier with wired/wireless network streaming capabilities up to 24/96. Bluetooth with NFC is on board and its price is set to be £449.

cabasse.com

2 Portable music is on the move, and the luxury market looks set to be the trend as Sony unveils its NWZ-ZX2 Walkman with SD and DSD support. It's priced at £950 and on sale now. sony.co.uk





SHOWREPORT









5 Designer Luke Creek presents the Epos K3 floorstanders priced at £1,400 along with an Active-K option (£TBC) to allow customers to upgrade K-series speakers to active models. **eposltd.com**



Technics shows the SE-R1 Class D power amp, SB-R1 floorstanders and – mounted on stands – the SB-C700s that typically accompany the 'Premium Class' system reviewed last issue. **technics.com**

3 Astell&Kern displays its new AK500N, a network audio player with CD ripper, networking, up to 4TB of SSD storage, support for 384kHz PCM and DSD128 priced at £9,000. astellnkern.com



• Arcam shows its D33 DAC (top left) alongside the new £800 CDS27 network streaming-enabled SACD/CD player, chunky £3,750 C49 preamp (centre) and £4,000 P49 Class G power amps (below) rated at 2x 200W/8ohm. arcam.co.uk

① Luxury French hi-fi brand Devialet chose CES for the large-scale unveiling of its Phantom and Silver Phantom all-in-one networked speaker system. For more info see our Audiofile news story on page 8. en.devialet.com

We spotted the first outing of the NightHawk headphones from AudioQuest. A semi-open backed design with earcups made of 'liquid wood' and fitted with 50mm drivers, these are set to cause excitement in 2015. audioquest.com

(top) Class A/B integrated amplifier rated at 2x 80W/8ohms along with the CXN 24-bit/384kHz upsampling network music player. cambridgeaudio.com













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07920101740 or email: SiLoPeRi@gmail.com.

CLASS A amplifier power supply, self-contained freestanding unit, suits John Linsley Hood's 1969/1996 designs and similar amplifiers, best offer will be accepted, can post if needed:

02074998729.



DENON PMA 350 amplifier, DCD-590 CD player, TU-260L AM/ FM stereo tuner with remote, Tannoy speakers in black ash with copper bi-wired speaker ports. Denon kit £200, speakers £100:

01522810439 or email: dougberrie@gmail.com (Lincoln).

SPENDOR SA1 speakers. Gloss Zebrano, mint condition, boxed, little use, £525, buyer collects:

01482853091 (Hull).

REGA Saturn CD Player, VGC, recently serviced, new laser/disc drive, fine natural sound, will demo, photos. Remote control and manual. boxed, buyer collects, £300: 01277219639

(Brentwood, Essex).

YAMAHA SACD-S2000 as new, Cost £1.000, sale price £500. With manual, remote and box. Yamaha TX-761 stereo tuner, DAB/FM/AM. Cost £130, sale price £50. Buyer must collect: 01302 538027 (Doncaster).

TELLURIUM Q Graphite interconnects, 1m XLR in excellent condition complete with packaging. £350 ono: 01303863424 or email:

john.pattrick.john@ btinternet.com(Kent). **REL** Stentor 111 subwoofer,

11 years old, teak sides. piano black top, VGC £550:

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MUSICAL FIDELITY

X-DAC V3 £250, pair 3m bespoke Silver High Breed Quintessence speaker cables, banana termination, £95 Sonus faber Concertino speakers with Sonus faber Piano Black fluted stands in excellent condition, with original boxes £570: 02476 679165 (Coventry).

btinternet.com (Preston). **MONITOR AUDIO**

Silver RX1 bi-wired £375. Tannoy DC6 £150. Tannoy DC4£100. Wharfedale Diamond 8.1 Pro-active £80. Q Acoustics 10i £60. Rega Brio amp. Excellent condition £100. Monitor Audio Radius 90 speakers piano black. Excellent condition £275. Buyer collects: 01865 559737 (Oxford).

GEEK OUT 1000 USB DAC only 2 months old, as new

07549603398 or email: dave.drew@talktalk.net (East Yorkshire).

condition, £160:

CAMBRIDGE AUDIO

Aero 6 loudspeakers in black ash finish, less than 6 months old, complete with original boxes & manual, mint condition £275 ono including delivery: 07806680454 or email: aaronsmith1892@ hotmail.co.uk(Northants)

NAIM Credo speakers, beech, very good condition. £250. Can demonstrate. Naim Flat Cap Power Supply, little used, £150:

07785724849 or email: tjames@principium.co.uk (Oxfordshire).

REVOX B77, Garrard 401. SME Series II (12in), Sony TA-E7 stereo preamp and TA-N7/ N7B power amp. Rega Planar 3, Ferrograph F307 Mk2

amplifier, Richard Allan A21 amplifier, Technics ST-S31L tuner, Garrard MRM 101 music recovery module. Reasonable offers invited: **01535 661278** (West Yorkshire).

HI-FI magazines for sale, 250 in all. Hi-Fi Choice, Hi-Fi News & Record Review. All for £110 ono: 01484427426 (Huddersfield).

VIENNA ACOUSTICS

Haydn Grand SE speakers. Walnut, as new, few hours use, boxed. £650. Bowers & Wilkins P7 headphones, as new, few months old, unwanted present. £220 boxed: 07843746026 (Dorset).

PRO-JECT RPM 5.1 turntable half hour's use. Ortofon Red cartridge. £200 ono: 07734505626 (Devon).

LINN Sondek LP12. Mounted in a heavy mahogany plinth with oak cone feet and new lid. SME Series IIIs pick-up and non-resonant platter mat. Serviced and set up by retired mechanical engineer as a labour of love, £750:

01277219639 (Brentwood, Essex).

QUAD FM3 tuner. Unused since Quad service. New box and packaging £50: 01825 722936 (East Sussex).

ATACAMA HMS1.1700 speaker stands. Black, filled with 3 tubs of Atabites mint condition (RRP £300) £160. Collection only: 07971 024091(Watford).

DENON black TV1800 DAB tuner. Earthed case. updated Rhodium-plated IEC inlet, screened 6mm IEC power cable complete with Atlas Element interconnect, boxed with remote. £100 ono: 01917111506 or email:laurajane052@ gmail.com (Co. Durham).

QUAD 909 lots of power with lovely Quad sound £550:

01225 706783 (Wiltshire).

PRO-JECT Xpression UKX latest version with carbon fibre tonearm, Ortofon 2m Silver cartridge, Bordeaux red plinth, white acrylic platter. Four months old, mint condition, boxed. Cost £575 will accept £300: 01243

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!

Reader Classified ads HIT Choice

607988 (West Sussex). **MONITOR AUDIO RX**

Silver 6 floorstanding, Tannoy V1 floorstanding speakers, Castle Knight 1 standmount speakers, Rotel RAIO silver amp, Denon 520AE black amp. Open to offers, buyer collect: **01977695385** (West Yorkshire).

ACOUSTIC ENERGY

AE 301 gloss black. Unwanted present £329. Comes with manufacturer's warranty. Parasound 7dac wellreviewed £299. Will

guarantee: **07979151445** (West Sussex).

CHORD Sarum Tuned ARAY mains cable, 1m. box. bag, stunning sound, was £1,050. Now £500:

07539493084 (Pinner, Harrow).

GOLDRING Lenco GL

75 transcription turntable in Dynatrone wooden cabinet complete with Shure M55 pick-up, instruction manual, as new, £60. Prefer buyer collects: **01432267129** (Hereford).

GARRARD 401 in excellent condition, plinth,

SME 3009, Shure V15ii. Stylus retipped 2013 by Expert Stylus Company. Additional used Shure stylus. Refurb. service by Loricraft in 2008, serviced

2013.£975:**0208332** 6181 or email: rohan. jensen@btinternet.com (London).



TECHNICS stacking system. Amplifier SU-V300, CD player SL-PG390, cassette deck RS-BX501, turntable SL-BD22D. All v.good condition, buyer collects. Accept any reasonable offer: 01673861074 or email: freestone175@btinternet. com (Lincoln).

TELLURIUM Q Black cable loom 1m RCA interconnect, 2x 3.5m speaker cables and jumper links. Approx 3 months old with original packaging. £550: **07933109234 or** email: adamlee.ah47@

ROTEL 1582 MK 2 stereo amplifier Black new £895. Buyer collects: **07956121** 013 (Middlesex).

amail.com

LINN Index speakers with Ku stone stands serial no: 017871. Good condition from new. Nice open sound. Can demo. Collection only £100:

01285860967(South Gloucestershire).

BEOLAB 9 loudspeakers in blue. 700W per speaker plus cable if required. Pick up and demo. £3,000:

01923829354 or email: michaelhardy10@ btiternet.com (Middlesex).

CASTLE Howard S2 speakers. Yew cabinets. Lovely sound. £550

ono: **07976031413** (Hampshire).

YAMAHA B2 & C2 Pre & Power amplifier (160W p/c) £100 ono, buyer to collect due to weight: **07768273** 946 (Kendal, Cumbria).

CHORD Signature Digital Tuned ARAY 1m long digital interconnect, not fully burnt in yet. Lovely cable and excellent reviews, but no longer required. £245 (£410 new):

01202515474 or email johnlangley17@talktalk. net (Bournemouth, Dorset).

ARCAM A18 integrated amplifier, boxed and remote control for £300. plus Monitor Audio Bronze BX2 speakers in natural oak £125 - both in excellent condition - collection only: 07793725356 or email: ieuanisaac@hotmail.

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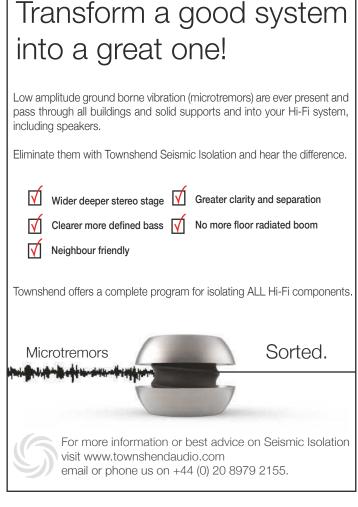
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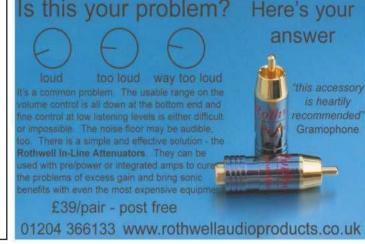


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