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Queen were surely a band everyone was wowed by and loved. With a massive on-stage presence and songs like Bohemian Rhapsody (1975) that had a structure all of their own, this band was as popular in Patagonia as Peterborough I suspect. So when we heard Abbey Road Studios – a mile from our offices – were at it again, re-mastering the entire Queen studio collection this time – last time it was The Beatles

– we were right there! You can read Paul Rigby's

fascinating and admirable coverage of this audiophile LP box set, that takes in not just the songs but the technical mastering difficulties, on p79 of this issue.

Our telepathic readers, equipped with high speed cheque books, managed to get there first though, as Jenny Vine tells us on p36 of Letters. I suspect this box set will receive an equally enthusiastic reception around the world, where it will bring back old memories to those who first span Queen on LP long ago. Was it really the 1970s? Oh dear!

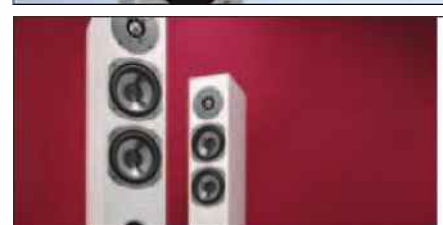
There's plenty of coverage in this issue of Chord's new portable DAC, Mojo, so I'll not say any more here. You can read my views, written days after launch, in our News Feature on p7 and my column on p67. Meanwhile Mojo is being tested for a review in our next issue; we didn't want to rush-review it for this issue, as some may choose to do.

Mojo is aimed at the portable market, for use with mobile phones, not Digital Audio Players (DAPs) I was told. But I spotted a press shot of it being used with an Astell&Kern AK120 DAP all the same (!).

You can see what I thought of FiiO's latest budget wonder DAP, the X5 2nd Gen, on p28. At just £399 the Mojo may be used in conjunction with players like this: we will see after listening to it at length next month.

And finally, we all loved listening to Quadral's Rhodium 400 loudspeakers. They were small but sassy, with surprisingly firm low bass for a ported loudspeaker: I wondered where it was all coming from at times! Don't miss Jon Myles review on p12.

**Noel Keywood**  
**Editor**



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## verdicts



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worth auditioning  
unremarkable  
flawed  
keenly priced



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## testing (see [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) for full explanations of all our tests)

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

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

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

No other UK hi-fi magazine has in-house testing, and none has access to such advanced tests across all types of equipment. That's why you can depend on *Hi-Fi World* reviews.

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# Audio Cable Award Grand Slam

## Products of the Year 2014:

Black Diamond Speaker Cable

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Black Power Cable

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"But perhaps their reticence is understandable when the product sounds as good as this – after all, why let others in on the secret? Used in a variety of systems the Black Diamonds consistently revealed a wider perceived bandwidth, bigger soundstage and the ability to present transient details in an effortless fashion"

HiFi World, Awards Edition Jan 2015

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# Future View

**Chord launch a new portable digital convertor, Mojo. Noel Keywood reports from their press reception at London's Shard tower.**

**L**ondon, October 14th, 2015. Chord electronics announced what they told assembled press was their most important product yet: Mojo.

Mojo is a small, portable DAC. Its price is small too: £399. And for that you even get a machined aluminium alloy case, Chord style.

Mojo capitalises on Chord's successful Hugo technology, packaged into a yet smaller case to make it truly portable.

After Hugo Chord realised they have the technology and – almost uniquely – the skills to set up high volume, automated production – in Kent! Yes, Mojo is built by robots in the UK at a special factory set up for the job. With robots, designer Rob Watts told me, China loses its advantage of low cost labour – it is better to assemble in the UK.

Rob explained today's automated production methods 24 years ago, when we discussed his early use of surface mount devices and machinery in the Deltec Precision Audio (DPA) PDM-Two DAC (June 1991 edition), at that time made in Wales, near Cardiff.

Still living in Wales, near Carmarthen, Rob now travels the world almost continuously on business as a top digital design engineer (for US chip manufacturers) and for Chord, to explain Hugo – and now Mojo.

Mojo is a demonstrator of what is possible when advanced engineering skills, in this case supplied by Rob Watts' unrivalled knowledge of digital audio, get the backing of a company that understands manufacturing and – in particular – global marketing. The assembled UK hi-fi press were preceded by the 'serious' press, meaning the Financial Times, Times, Telegraph etc, to get the message out to a wide audience.

Low price was seen as the key. Mojo had to sell for £399 – and not a bean more. It had to be affordable



*Rob Watts explains Mojo features to the press.*

to the mobile phone toting masses of the world – all 3 billion of them. And it had to outgun all potential rivals – this is the hi-fi side of the story.

It is Rob Watts own and unique WTA (Watts Transient Aligned) DAC architecture, with its 1000-tap digital filter (commercial chips manage 20, Rob told me) that sets Mojo apart. "I can get digital noise patterning down to radically low levels with this DAC architecture" Rob said, "and this helps smooth all digital, even that from CD". "Lower distortion and better digital timing in particular improve the perception of stage depth".

Initial measurement, made the day after the launch (where we received review samples), proved Rob's point. Mojo manages 120dB dynamic range – up with the best domestic DACs costing £1000+, and at full digital volume (not easily usable in practice) it returned a massive and unmatched 143dB dynamic range and 0.0017% distortion at -60dB. These outstanding figures – way ahead of all else – show the potential of Chord's technology.

We'll publish a full review in the

next issue, after using Mojo over many weeks in both a reference hi-fi system and hooked up to our mobile phones to provide high quality headphone listening, as intended.

In the meantime robots in Kent will be churning out thousands of Mojos at a time, eventually outnumbering even Kent's apples, Chord will doubtless hope.



*Mojo has two 3.5mm headphone outputs, optical and electrical S/PDIF digital inputs and a USB digital input. It works with any phone and all digital formats, Chord say, selecting input automatically, using signal sensing. The only controls are on/off and volume.*

email:news@hi-fiworld.co.uk

# news

## MCINTOSH DIGITAL PREAMP

McIntosh Laboratory has launched the C47, a 12-input solid-state digital pre-amp. It offers a built-in phono stage for the direct connection of turntables, a headphone stage with McIntosh's proprietary Headphone Crossfeed Director (HXD) plus four digital inputs.

It's compatible with the latest audio formats via its USB input, including DSD64, DSD128 and DSD256 along with DXD 352.8kHz. Its twin optical and single coaxial inputs can decode at up to 24bit/192kHz resolution. For SACD playback, the C47 preamp can also connect digitally to McIntosh's recently launched MCT450 SACD/CD transport via its 'MCT input', creating a secure, custom DSD connection.

For analogue sources, the C47 includes two balanced and three unbalanced (fully assignable) inputs, plus moving coil and moving magnet phono inputs. All inputs are available all of the time – even those that have been assigned to individual devices. Bass and treble tone controls are available for fine tuning.

The C47 incorporates classic McIntosh design cues, including a black glass front panel, an illuminated logo and brushed-aluminium end caps. Price is £3,995.

To learn more, call 01202 911886 or log-on to [www.mcintoshlabs.com](http://www.mcintoshlabs.com).



## NOBLE'S NEW IN-EAR MONITORS

Specialist headphone manufacturer Noble has released a revamped version of its flagship Kaiser 10 universal fit in-ear monitor (IEM).

The new K10U features an anodised aluminium shell in place of the acrylic construction used in its predecessor – with a gloss red faceplate and clear satin eartips. Noble says the new IEMs were designed and manufactured in conjunction with experts in California whose other clients include Louis Vuitton, Dior, Marc Newson and Holly Hunt.

The K10U sits at the top of Noble's range of in-ear 'phones and features 10 drivers per side for maximum frequency extension – two super tweeters, two tweeters, two mids, two bass and two low bass.

The K10U is on sale now priced at £999 and comes complete with a detachable two-pin cable, crush-proof carrying case, black velvet soft pouch, 12 pairs of ear tips, cleaning tool, two noble wristbands and a certificate of ownership.

Watch out for an exclusive review of the Noble K10U in a forthcoming issue of Hi-Fi World.



## KEF MUO

KEF has announced the launch of the MUO, a new wireless Bluetooth speaker created by KEF in collaboration with designer Ross Lovegrove.

KEF engineers worked with Lovegrove to create a strong molded internal enclosure to house MUO's drivers. These are encased in an outer shell of extruded aluminium with rubber feet.

The MUO's miniaturised Uni-Q driver array decouples the tweeter dome from the outer cone by a flexible membrane. This means that the whole diaphragm is free to pump out midrange frequencies as powerfully as a conventional driver while allowing the tweeter dome to move independently. The mid/bass cone is profiled to act as a waveguide for the tweeter. Flanked by the twin driver arrays is a long-throw auxiliary bass radiator.

You can synchronise a pair of MUOs to stream stereo sound via Bluetooth aptX. Alternatively, when you want to place them far apart – at a party for example – simply select the 'Dual Connect' party mode to replicate the same full-range response in both speakers.

MUO also comes with an internal sensor that automatically optimises its output to suit its orientation. So, whether you place MUO upright or horizontally, inside or outside your home, the unit automatically delivers the same output.

Non-Bluetooth connection includes a 3.5mm Aux input. Most Android devices will also connect via its NFC 'Tap-to-Pair' function: hold the device against MUO's surface and they'll be paired and ready to stream in seconds.

A choice of five finishes include horizon gold, storm grey, light silver, neptune blue and sunset orange. Price is £299.95. For more details log-on to [www.kef.com/muo](http://www.kef.com/muo) or call 01622 672 261.





## TEAC'S ENTRY POINT

Teac has introduced a new entry-level, belt-drive turntable. The TN-200 (available in any colour you like as long as it's black) includes a built-in preamp providing line-outs and a USB out. The USB output can also be used in conjunction with recording software to archive your vinyl collection or add it to your mobile playlist.

The TN-200 includes an aluminium die-cast platter, MDF plinth and upgradable MM cartridge. Price is £250.

Click [www.teac-audio.eu](http://www.teac-audio.eu) for more information.



## BLACK RHODIUM

The Hercules is a new power cable from Black Rhodium. Covered with three separate layers of screening, the Hercules also employs additional noise cancelling technology and is treated with



DCT++ cryogenic processing treatment. This involves temperature processing above and below room temperature. In addition, it is also treated with the Crystal Sound Process that refocuses the outermost skin of the conductor. Each of the mains conductors (live, neutral and earth) employs a conductive low microphony layer that reduces triboelectric effect that occurs when friction between the screen and the insulation creates an electrical charge.

PTFE insulation is used because of its low dielectric loss while the cable also includes the Graham Nalty Legacy Range VS-1 Vibration Stabiliser.

Prices are: for UK 13A plug to C13 IEC, 1.5m pair power cable with GN Legacy VS-1 Vibration Stabiliser and for Schuko plug to C13 IEC, 1.5m pair power cable with GN Legacy VS-1 Vibration Stabiliser, £1350 each

To learn more, call 01332 342233 or go to [www.blackrhodium.co.uk](http://www.blackrhodium.co.uk)



## HEED ELIXIR

New from Heed Audio comes the Elixir amplifier, the first product in a new series targeted at the beginner.

The Elixir is a compact five-input integrated amplifier with built-in phono stage and dedicated headphone amplifier.

A Class A headphone amplifier and MM phono stage utilises the capacitor coupling principle borrowed from the Heed Audio TransCap amplifiers. The power amplifier output of 50W per channel at 8 Ohms or 65W into 4 Ohms can be had along with four pairs of RCA line inputs, one pair of RCA MM phono inputs and two pairs of 4mm speaker connectors, along with a pair of pre-amp outputs.

Elixir is available in two colours: silver and the ember-like black, while the price is £750. Phone 01242 511133 or visit [www.heedaudio.co.uk](http://www.heedaudio.co.uk) for more information.



## ROBERTS SPEAKERS

Roberts has announced its new R-Line product range, a collection of wireless speakers. You can use R-Line speakers individually or as part of a multi-room wireless streaming system. With the new designs you can play the same music in every room, play different music in each room, stream across Wi-Fi or Bluetooth, access your music collection, stream an on-line music service including Spotify which is built-in or listen to Internet or DAB radio.

You can control your playlist and speakers via the UNDOK iOS or Android control system. You can also control your speakers all over the house on standalone or multiple devices, navigate between audio modes, browse your playlist and control volume directly on the speakers.

The R-Series is a portable speaker with a nod to an earlier, retro design. A base unit and speaker with Wi-Fi, Bluetooth and Spotify Connect for streaming indoors and out with optional detachable battery pack and leather handle, the two units can be used as single stereo speakers, as a left or right speaker in a stereo set-up or component of any open format multi-room system. The R1 wireless stereo speaker is priced at £180. The R100 base unit with speaker, priced at £250, has a full colour screen display of on-device navigation and DAB/FM radio.

The S-Series is a contemporary designed, modular multi-room speaker range with Wi-Fi/Bluetooth, streaming capability and Spotify Connect. The S300 Base Station with speaker has two sub-woofers built in. Also included are DAB/FM radio, CD playback and a 3.5in colour display. Price is £500.

For further information visit [www.RobertsRLine.com](http://www.RobertsRLine.com)



## REAL SOUND

Here's something new. The Real Sound RSP-501EX is a small box designed to absorb 'counter-electromotive current' and reduce the fluctuations in speaker impedance characteristics and so make it easier for the amplifier to drive. Price is £495.

For more information visit [www.nunudistribution.co.uk](http://www.nunudistribution.co.uk) or call 0203 5442338.



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## MAGNEPLANAR 0.7

Magneplanar has introduced the new 0.7 ('point seven') speaker, a scaled down version of the 1.7 speaker, designed with the smaller listening room in mind.

The Magneplanar concept is similar to an electrostatic speaker in that both produce sound by moving a thin film membrane. But in the Magneplanar design, the force is magnetic rather than electrostatic, generated by an array of closely spaced permanent magnets.

Like the 1.7, the new scaled-down 0.7 is a full range quasi-ribbon design, American-made with virtually all US-produced parts. The key differences lies in its slightly smaller dimensions and the fact that it is a two-way rather a three-way design.

Because the 0.7 has a smaller bass diaphragm, it has less 'bite on the air' so the bass will be less than that of the 1.7 if it is used in a larger room. However, the optional add-on Magneplanar Bass Panel offers the flexibility to add bass diaphragm area to fit the needs of any room.

Price for the Magneplanar 0.7 is £1,690. Price for the Magneplanar DWM Bass Panel (optional, for larger rooms) is £990 while the optional plinth/stand is available on request. Call 01252 702 705 or visit [www.decentaudio.co.uk](http://www.decentaudio.co.uk) for more information.



## GRAMOFON CONNECTS WITH HTC

Gramofon is a music gadget to stream music over the cloud to any audio system you own, from portables to hi-fi separates. Plug the black box into your system via the supplied stereo RCA cable, connect it to your home Wi-Fi network and stream. Now, owners of HTC smartphones can do the same thanks to the integration of HTC Connect. This works in tandem with HTC's latest Sense 7 user interface, enabling both locally stored and web-based music to be streamed from an HTC phone to any Gramofon-connected sound system with a three-finger swipe. Gramofon costs €59 (around £43) with free shipping, via [www.gramofon.com](http://www.gramofon.com).

## ZEPELIN WIRELESS

Bowers & Wilkins has released the Zeppelin Wireless. There's the same instantly recognisable silhouette to this luggable unit but every element of the speaker has been redesigned.

Key among the changes are the five new drive units. Zeppelin Wireless features two double dome tweeters as found in Bowers & Wilkins CM Series of speakers, while the two mid-range drivers benefit from FST technology, also found in Bowers & Wilkins flagship 800 Series Diamond. A new, larger 6.5" subwoofer with ultra-long voice coil is included.

The reinforced cabinet has also been redesigned in order to provide a solid platform from which the drive units can work along with a front fascia that is 50% thicker than the previous version, offering specially designed glass fibre ribs to strengthen the cabinet.

The Digital Signal Processing (DSP) is now twice as powerful as its predecessor and AirPlay, Bluetooth, aptX and Spotify Connect are featured. Finally, the Bowers & Wilkins Control App has also been updated and is available via iOS, Android, Mac and PC.

For more information, call 01903 221 500 or visit [www.bowers-wilkins.com](http://www.bowers-wilkins.com).



## SONOS TRUEPLAY & SMARTS

Sonos has introduced new speaker-tuning software called Trueplay and an all-new flagship PLAY:5 smart speaker.

Using the Sonos app, the microphone on an iPhone or iPad and a special tone emitted by the Sonos speaker, the system analyses how sound reflects off walls, furnishings, glass and other surfaces in any given room. Sonos then tunes that speaker. Initially, Trueplay will be available on all PLAY:1, PLAY:3, PLAY:5 products and iOS controllers and will continue to be added to the Sonos lineup over time.

The new PLAY:5 arrives with six synchronised, custom-designed drivers, the speaker's three mid-woofers are joined by three tweeters too. In addition to horizontal orientation as a standalone speaker, two PLAY:5s can be paired together for stereo sound.

Available in a custom matt black and matt white finish, the PLAY:5 will retail for £429. For more details visit [Sonos.com](http://Sonos.com) or call 0808 2346596



# Rhode To Riches

**Quadral's new Rhodium 400 floorstanders give a big sound from a small cabinet. Jon Myles is captivated.**

**G**erman hi-fi company Quadral may not be the best-known loudspeaker manufacturer here in the UK – but across the rest of Europe it has a reputation for solidly engineered products at realistic prices.

Take, for example, the Aurum Wotan VIII floorstanders we reviewed some three years ago (Hi-Fi World April 2012 issue). Noel Keywood concluded they provided “a massive sound but one that is both fast and accurate, with delicious detail and imaging”. At £6600 they were ‘a bargain’ considering the overall sound quality, size and standard of engineering involved. But £6600 is still a considerable amount of money.

Which brings me to the Rhodium 400s on test here – part of the latest loudspeaker range to join Quadral's line-up.

In terms of price and size they are a world away from the mighty Wotan VIIIs.





**The 25mm aluminium tweeter is set into its own waveguide to aid dispersion.**

For a start they cost just £895, weigh just 11kg each and measure a diminutive 135mm x 828mm x 232mm (W/H/D).

Taking them out of the box, my first impression was just how slim and compact the speaker is – and maybe that the designers have opted for form over function.

But looking a little deeper I quickly realise that the same attention to detail that goes into Quadral's more expensive models has been applied to the Rhodium 400s.

For a start, they are specifically designed to be used in smaller rooms. Hence the implementation of a front-firing reflex port and slim baffle to enable them to be placed in tighter spaces and closer to back walls.

A two-way loudspeaker, the front baffle features a pair of 135mm titanium-coated mid/bass drivers of Quadral's own design which operate in tandem before handing over to the 25mm tweeter which features an aluminium membrane and sits in a shallow wave guide to aid dispersion.

Below the driver complement is the bass reflex port while the cabinet sits on a sturdy screw-on wooden plinth with spikes which are adjustable from above to make levelling the loudspeakers refreshingly easy (if only all manufacturers would adopt this method!). A thin cloth mesh grille is also supplied, but this was left off for most of the review. Round the back is a single pair of 'speaker binding posts, so bi-wiring or bi-amping is out.

Fit and finish was exemplary for the price, the whole package sporting clean lines and a purposeful air.

## SOUND QUALITY

Relatively small they may be – but the first thing that struck me about the Rhodium 400s is just how big they sound.

Hooked up to the smooth-sounding Creek 100A integrated amplifier the Quadral's had no problem filling our relatively large listening room with sound.

More importantly it's a sound that is both clean and controlled, yet at the same time immense fun. That slim baffle (the mid/bass driver chassis reach right to the edge of the cabinet) mean the Rhodium 400s have superb imaging, in much the same way as a very good standmount. Voices and instruments seemed to float free of the cabinet while the stereo spread extended far past the outside edges of the loudspeakers.

"Listening to something with a strong beat, like Lady Gaga's 'Monster', the 'speakers latched onto the rhythm, driving the track along in a thoroughly infectious manner"

Yet they are also imbued with the authority and slam of a floorstander – albeit a small one – with a low bass punch that few standmounts can match.

Playing New Order's classic 'Technique' (24/96) via an Astell&Kern AK120 high-res digital player into a Wadia di122 DAC (see review elsewhere this issue) the music positively bounced along.

Peter Hook's distinctive bass lines had a robust, driving quality about them, while Gillian Gilbert's intricate synthesiser work was rich with detail. Vocals were also extremely well-presented – with Bernard Sumner's voice locked centre stage between the 'speakers, sounding suitably plaintive.

It's easy to track individual instruments if you so wish, but the Quadral's knit the whole thing together into such a compelling musical picture that I found myself letting the sound wash over me.

Those titanium-coated mid/bass drivers give the Rhodium 400s an

innate sense of speed. Listening to something with a strong beat, like Lady Gaga's 'Monster', the 'speakers latched onto the rhythm, driving the track along in a thoroughly infectious manner. Bass may not be thunderous, but it is deep and devoid of thump, sounding tonally accurate and controlled.

But it's not all pace at the expense of musical detail. There's also a strong sense of detail on offer, so even dense pieces such as the San Francisco Symphony's rendition of 'Mahler's 4th' have good instrumental separation, with various parts of the orchestra being easy to place in the wide soundstage.

Part of this is down to a little brightness in the top end. The aluminium tweeter definitely has a slight zing to it – but it's not enough to make the music sound edgy or

unnatural.

With Nigel Kennedy, for example, his violin never sounded anything other than lifelike and the extended treble added some welcome bite to the playing.

So as long as your system is not unduly bright in the first place this shouldn't be a problem.

Overall, though, it's the smooth, natural and unforced sound of the Quadral Rhodium 400s that ultimately impresses. They are refreshingly uncoloured – something you don't always get at this price point where designers often engineer in inflated bass or strong treble to impress in a dealer's showroom.

Refreshingly, Quadral has resisted that temptation and instead opted to make a loudspeaker that gets on with playing music in as accurate a manner as possible. That means it is able to shine with all genres of music – having the pace and timing to bring the best out of up-tempo Rock or Dance tracks



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**The rear of the Quadral Rhodium 400 features a single set of 'speaker binding posts while the sturdy plinth have spikes that are adjustable from above, for easy levelling.**

while possessing enough sophistication and detail to make classical or acoustic jazz a rewarding experience.

Also, despite their relatively compact dimensions, the Quadral's do not need masses of power to go exceedingly loud.

They could be driven to exceedingly loud levels on the end of a Creek 100A and any amplifier of 50 Watts or more should be enough to drive them to neighbour-bothering sound levels (see Measured Performance for more details).

Okay, in the final analysis the Quadral Rhodium 400s may not have the outright authority and gut-punching slam of something like the mighty Aurum Wotan Vllls – but nor are they meant to.

Instead, this is a loudspeaker designed to fit comfortably into the average UK-sized living room with

## NOEL SAYS -

I think we were all impressed by Quadral's little Rhodium 400s. They have a crisp, modern sound that's technically accurate and shiny clean in nature, with a hint of extra pizzazz from the tweeter, just so you always know there are high frequencies in your music whatever is being played.

But the real plus point of the Rhodium 400s is their unusually firm, steady bass that plays a tune beautifully. In 'Misery' by Dave's True Story (24/96) the bass line was impressively concise and it went downward without difficulty – I was puzzled by how such a small box could sound so stable and adept. You don't get massive bass power, but you don't get any boom or bloom either.

Hooked up to our Creek Evolution 100A amplifier, Oppo BD-105D universal player and Astell&Kern AK120 portable, the Rhodium 400s sped along with Fleetwood Mac's 'Second Hand News' (24/96), having enormous bass pace and firm transient delivery, whilst 'Dreams' put Stevie Nicks right out in the room, John McVie playing a steady background bass line that was obvious yet firm, whilst Mick Fleetwood had good presence on drums.

Whilst we didn't get thunderous subsonics from Lady Gaga's 'Bad Romance', the little Rhodium 400s still played this anthem with enormous gusto: they were just exciting. They put a smile onto everyone's face, including mine. Well worth a listen then: these speakers sparkle by the standard of what passes through our portals.

minimal fuss and maximum sound quality at a realistic price. All of which it achieves admirably.

## CONCLUSION

To say the Quadral Rhodium 400s punch well above their weight would be an understatement. They give a big sound from a small cabinet, are easy to drive, detailed and musically infectious – all for just £895.

They never failed to prove enjoyable with all forms of music and put a big, fat grin on the face of everyone who heard them.

You'd have to go a long way to find a loudspeaker as good at, or anywhere near the price, given their range of abilities.

In fact, I was rather sorry to see them leave the listening room at the end of their stay.

## MEASURED PERFORMANCE

Frequency response of the Rhodium 400s measured impressively flat, our analysis shows. Unusually, bass extended downward to 40Hz before rolling off fast – and this is hardly ever achieved. The small ports contribute, working around 40Hz to add a little output. But the

forward response suggests bass from this small floor-stander will be strong and run deep, subjectively.

Even output across the entire audio band means the Rhodium 400s will sound tonally balanced, low in coloration from local resonances and detailed because of sustained output in the region – 2kHz to 6kHz – that contributes to the impression of detail. There is some lift in treble of around +2dB above 5kHz, extending to 18kHz that will give these 'speakers a slightly bright top end.

All the same, this is an impressively even and accurate loudspeaker under measurement, with excellent bass delivery due to low frequency output that is well damped and controlled.

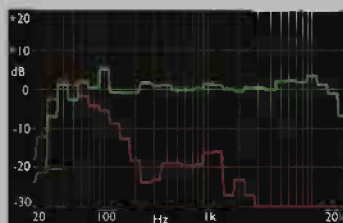
Sensitivity was high at 88dB Sound Pressure Level from one nominal Watt (2.8V) of input. Impedance measured 6 Ohms overall, and amplifiers of 50 Watts or so would be enough to make the Rhodium 400s go very loud.

Quadral's Rhodium 400s measure unusually well for a small floor-stander and are likely to give fine sound quality.

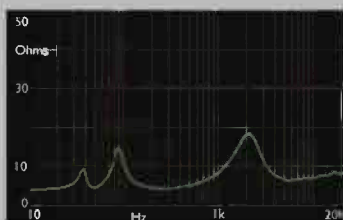
NK

### FREQUENCY RESPONSE

Green - driver output  
Red - port output



### IMPEDANCE



## QUADRAL RHODIUM 400 £895



**OUTSTANDING - amongst the best.**

**VALUE - keenly priced.**

### VERDICT

A compact floorstander that does everything right. Simply demands to be heard.

### FOR

- big soundstage for its size
- infectious sound
- uncoloured

### AGAINST

- a little bright

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# Mighty Ming

Ming-Da's new MD-150 monoblocks produce a massive 150 Watts apiece from just two output tubes. Noel Keywood is suitably impressed.

**V**alve amplifiers: big, unliftable and of little power – until now. Ming-Da's new MD-150 monoblock valve power amplifiers I'm reviewing here deliver a massive 150 Watts apiece, yet at 18kgs I could just lift them – as could many I suspect. These amplifiers seemingly break the rules as far as valve amplifiers go. I was intrigued.

The main reason I was intrigued concerns the seeming impossibility of getting so much power from just two output valves in a lightweight chassis; I've designed many valve amplifiers

in the past and experience tells me that 100 Watts is difficult to achieve, whilst anything more becomes impractical in terms of bulk, weight and price. Audio Research are one of the few companies to take on this challenge and you may be amused to see the result in their Reference 750 that uses eight matched pairs of KT120 output tubes (valves) to deliver 750 Watts – but each amp weighs 77kgs. However, Audio Research are a US company and quite likely have shares in Mack Truck, just so there's a vehicle available to deliver their amps.

Back in Blighty, where we are more likely to use a half-timbered Morris, such monsters are off the menu. Instead, we specialise in a pair of KT88s that deliver 40 Watts as the sensible choice, in an amplifier that is liftable and affordable. But the scenery is changing: a new and very good power output valve, the Tung-Sol KT150, became available from New Sensor Corporation a year or two back and everyone is flocking to use it, including Ming-Da in the MD-150 Potente, price £3995.00 per pair.

With the new Potente Ming-da of Zuhai, China – just across



the water from Hong Kong – have come up with a product that was unthinkable not so long ago. But it well suits the modern world and is a wolf dressed in sheep's clothing it seems to me. In spite of all that power each monoblock is compact, measuring 23cm wide, 25cm high and 49cm deep – not including protruding sockets and their plugs etc. There's a lovely illuminated meter on the front panel, marked in VU, to tell you how much power is being used, a red area warning of overload – but few users will ever reach this.

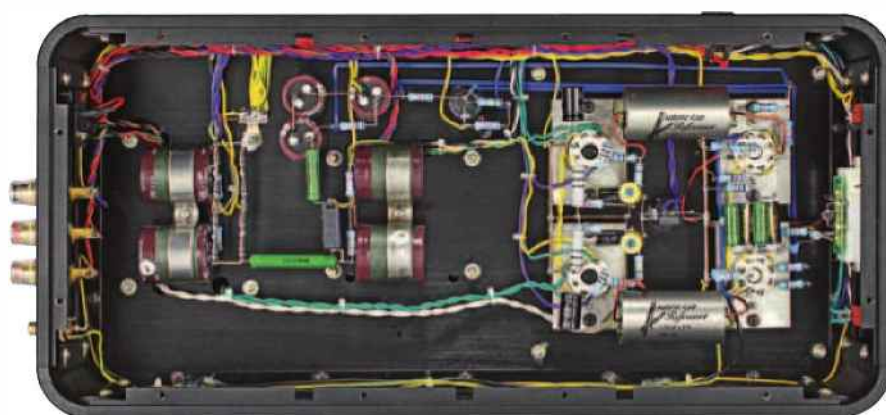
To the left lies a toggle switch to mute output, presumably to prevent 150 Watt noises when plugging in the signal input lead, and to the right lies an Ultra-Linear / Triode switch. This traditionally means changing between hard and powerful sound quality, to soft and atmospheric



**The new Tung-Sol KT150 is a power tetrode fitted with large power-dissipating anodes.**

– but not in this amplifier. I ended up preferring Triode mode as a slightly more spacious sounding option but the modes were not so far apart sonically and neither was quite what I am used to from Ultra-Linear or Triode from valve amplifiers I've used before. In other words the MD-150 Potente did not sound like either mode as I know it. It has a sound that is quite different to the norm.

Mechanically, the amplifier is little different to usual in most, if not all areas. The power switch is a side mounted rocker close to the front and easily accessible. The front mounted toggle switches are conven-



**Underneath the chassis the point-to-point wiring is nice and neat - as ever with Ming-Da products.**

tional as are the sturdy, gold-plated rear mounted 8 Ohm and 4 Ohm loudspeaker terminals that accept 4mm plugs, spades or bare wires. An IEC socket accepts mains power. So hook up and use are easy.

At the front sit two 6SN7 'onion' shaped valves. They are double triodes, one acting to provide gain and phase splitting, the other a driver for each KT150 – the large rear valves shaped like London's Gherkin building. These are power tetrodes, just like KT88s, but fitted with large power-dissipating anodes, ribbed for strength and heat radiation. The electrode structure of this valve has been designed to be both sturdy and free from microphony.

The 'onions', although they look good, have suffered from microphony in the past. I've previously had to abandon a review because there was so much ringing in the loudspeakers from them, conventional tubular substitutes curing the problem. Ming Da told me the MD-150's 6SN7s don't suffer microphony. I guess their manufacturers took note from all the criticism onion shaped valves were getting on the 'net, improving rigidity of the electrode structure to reduce this unwanted phenomenon. Needless to say, I tapped the envelopes – there was no noise at all.

To get high power, Ming-Da have inevitably turned to fixed bias working, meaning bias needs occasional adjustment, but there are no user adjustable parts. The bias adjusters are inside and a meter is needed for this procedure. With around 500V winging around inside it isn't something an owner armed with a Maplin multimeter should attempt.

Ming Da UK say that they offer a biasing service, or for £300 an electronic automatic bias system can be fitted – probably the best idea.

Switch on is silent and uneventful. There was no thrum from the mains transformer, nor any sound from the loudspeakers. The valves hardly glow either; it was difficult to see the heaters on the 6SN7s or the big KT150s. The MD-150s come across as benign. They produce no hum or hiss either.

## SOUND QUALITY

After measuring the MD-150s I wasn't surprised to encounter a very different sound to either earlier Ming-Da amplifiers or conventional rivals. They have a much lighter and more open character than is usual for valves, as a result of extended bandwidth I suspect. Few transistor amplifiers reach 100kHz, let alone valve amplifiers – and this inevitably

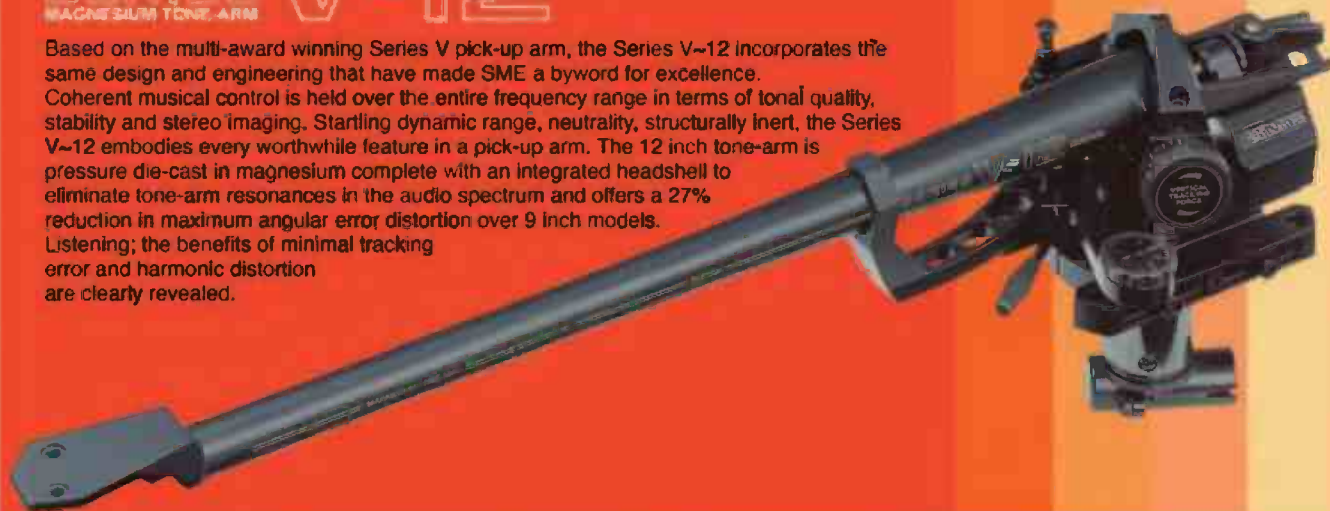


**The rear panel has 8 and 4 Ohm outputs, as well as a power socket and analogue input.**



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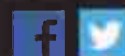


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**Two front-mounted 6SN7 valves handle gain and phase splitting for the KT150s.**

happening within the instrument; I sat and almost shivered at how close it all was from the big Tannoys driven by an amplifier like this.

Vivid midband insight and treble detailing inevitably threw a spotlight onto Nigel Kennedy's Stradivarius, making his fiddling jump from the Tannoys whilst playing Vivaldi's 'Spring' (CD).

It was interesting to hear how, when moving from classical on CD to high-resolution, this amplifier made differences obvious. The smoothness of strings in a 24/48 recording of the Royal Philharmonic, led by Andre Previn, playing 'The Planets' sounded silkily clean, horns ringing out clearly without harshness; they had easy purity.

With conventional Rock, on The Eagles 'Too Busy Being Fabulous' (CD rip), the MD-150s held the bass line well and put force behind drums, but they're not bass-heavy amplifiers.

## CONCLUSION

If you want the valve sound, coupled with unlimited power, the new Ming-Da Potente MD-150s are a great choice. Their 150 Watts will drive any loudspeaker to shattering volume. Having a sound that's airily open and fast, with superb definition and timing – not warm and cuddly like some valve amps – the Potentes are worth hearing.

They're simply more open and dramatic than transistor amplifiers, giving an expansive sound that's a league ahead of most else, and they are far more powerful than most valve amplifiers.

Those big KT150s are worth hearing and the MD-150s are a great way of doing it.

"a sound that's airily open and fast, with superb definition and timing"

affects sound quality. Triode mode was a little more open and spacious than Ultra-Linear, but the latter had stronger bass kick.

Music sources were an Oppo BD-105D universal player, additionally fed by Astell&Kern AK120 hi-res digital player acting as a transport. Loudspeakers were various over the period of review, but mostly I used Tannoy Westminster Royal GRs and Quadral Rhodium 400s to represent a modern balance, as it were.

The MD-150s have great midband insight and vivid high frequency detailing. I sat entranced by this major character trait. It is so pronounced, every squeak and tweak of the guitar strings on Jan Akkerman's 'Am I losing You' (CD) were highlighted with force. This amplifier spotlights detail and projects vocalists with brutal clarity.

Bass was tight and tuneful, if not as heavy as a transistor amplifier, at least with smaller loudspeakers. On the Westminster Royal GRs however the MD-150s had impressive bass resolution and tunefulness, kick drums having real kick. These amplifiers bring music alive, like any good valve amplifier, but they are conspicuously clean and pure in their sound, with not a hint of valve warmth – unusual.

With Arkadi Volodos playing 'Vallee d'Oberman' (SACD) the strings of his Steinway piano resonated deliciously as he lifted both hands from the keyboard, the MD-150s peering right into what was

## MEASURED PERFORMANCE

The MD-150 monoblocks were massively powerful, producing 150 Watts into 8 Ohms and very similar (144 Watts) into 4 Ohms, at 1kHz – extraordinary from one pair of KT150 valves working in push-pull. This was in Ultra-Linear mode.

In Triode mode the figure inevitably was less, but still an impressive 78 Watts (72 Watts into 4 Ohms). Better still they managed these figures without difficulty at low frequencies where output transformers usually show signs

of stress due to magnetic overload (saturation). And also at high frequencies (10kHz) where transformer winding capacitance often degrades performance.

Distortion in both Ultra-Linear and Triode modes rose progressively to around 1% at full power, but at low levels of 1 Watt the MD-150s produced just 0.04% in the midband, rising to a low 0.4% (second harmonic) at bass frequencies (40Hz).

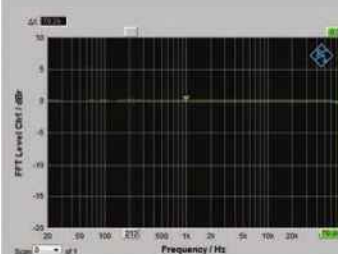
Frequency response was also surprising in its extension, reaching 100kHz (-1dB), again in both modes, with little difference between them. Low frequency output was also well sustained, reaching down to 4Hz (-1dB).

Sensitivity was low, 1.5V being needed for full output, so a preamp with high output is needed; most deliver 1V.

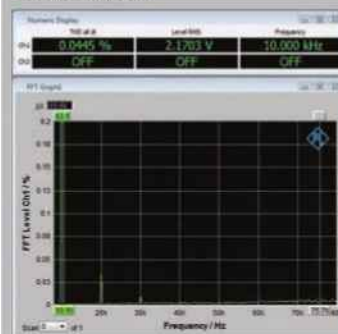
Noise was very low too, with just 0.2mV of hum at 50Hz, way below the 1mV or so common from valve amps.

The MD-150 monoblocks extract massive power from KT150s, much more than is common, and with extended bandwidth and low distortion they are likely to sound less warm and easy than may be expected, more likely fast and punchy. **NK**

### FREQUENCY RESPONSE



### DISTORTION



Power	153 Watts
Frequency response	4Hz-100kHz
Noise	-105dB
Distortion	0.04%
Sensitivity	1.5V
Damping factor	12

## MING-DA MD-150 AMPLIFIER £3995



**OUTSTANDING** - amongst the best.

### VERDICT

Clear, light and open sound with clean, fast bass and oodles of power. Very impressive.

### FOR

- high power
- clean, open sound
- power meters

### AGAINST

- needs bias adjustment
- no glow

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# WIN CAMBRIDGE AUDIO'S SUPERB AZUR 851N NETWORK PLAYER WORTH £1,200 IN THIS MONTH'S GREAT GIVEAWAY!

**H**ere's your chance to win the superb Cambridge Audio Azur 851N network player we reviewed in our July 2015 issue. Just read the review excerpt below and answer the questions.

"The 851N is a combined UPnP streamer/DAC/pre-amp with support for all current popular PCM codecs up to 24bit/192kHz, as well as DSD 64 via a computer connected to one of the USB inputs. Added to this is built-in support for Spotify Connect

and Apple AirPlay, as well as internet radio. An optional BT100 dongle is also available for those looking to add Bluetooth capability.

Internally, all signals are up-sampled to 24bit/384kHz before being passed to a pair of Analog Devices AD1955 DACs operating in dual-differential mode, while Cambridge has made use of a sturdy toroidal transformer for the power supply.

Both wireless and wired streaming is supported and the 851N features no less than five USB inputs – four Type A for HDD/flashdrive

connection and one asynchronous Type B designed for hooking up to a Mac or PC. Do note that with the latter the unit has to be switched into USB 2.0 mode via its menu system to support 24/192 files – with Windows users needing to download the appropriate driver from the Cambridge Audio website.

Other connections include digital AES/EBU, two S/PDIF coaxial and two Toslink optical inputs as well as balanced XLR and unbalanced RCA analogue and AES/EBU, coaxial and Toslink optical digital outputs".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by December 9th to:

**December 2015 Competition,  
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## QUESTIONS

### [1] The 851N supports -

- [a] the roof
- [b] popular PCM codecs
- [c] various wavelengths
- [d] Manchester United

### [2] Its BT100 dongle adds -

- [a] Bluetooth capability
- [b] motion sensing
- [c] LP replay
- [d] television

### [3] How many USB inputs are there -

- [a] none
- [b] too many
- [c] five
- [d] stellar quantity

### [4] Connections include -

- [a] 4mm terminals
- [b] DIN sockets
- [c] AM aerial socket
- [d] balanced XLR

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

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# Wadia Know



**A new entry-level DAC/preamp from American high-end experts Wadia attracts Jon Myles's interest.**

**M**ention the name Wadia and you probably think of high-end digital products with bomb-proof build and prices stretching into the many thousands of pounds.

The company was, after all, once synonymous with the more rarefied end of the American audio industry and one of the original exponents of cutting-edge digital decoding products.

Times change, though, and since its acquisition by the Italian-based Fine Sounds Group – also owners of McIntosh Laboratories, Sonus faber and Audio Research – Wadia has been releasing products that aim to combine more affordable price tags with its signature sound quality.

Hence the Wadia di122 – a standalone DAC/preamp/headphone amplifier costing £1598 that can be used direct into a power amplifier or slotted into an existing system as an upgrade. If you opt for the former, Wadia also offer a matching a102 power amp using a proprietary Class D circuit to provide a claimed 50 Watts per channel into 8 Ohms, for a

similar price of £1598.

And while those prices may be entry-level for the Wadia range, there's no obvious evidence of any cost-cutting when you unbox the di122. Weighing in at 3.2kg and measuring 254mm x 80mm x 356mm (W/H/D) the unit is constructed from aluminium with a clear glass top and the Wadia logo engraved into the fascia, giving it an undeniably classy look.

Inside the di122 is built around one of the increasingly popular and excellent ESS Sabre DAC chips, specifically the ES9016S that allows USB operation up to 24bit/384kHz as well as being able to process DSD and DXD.

Round the back are five digital inputs – two coaxial, two digital and a USB-B. Also, there are both standard RCA and balanced XLR analogue outputs.

The front panel features a small but legible display window that indicates the selected input, volume and incoming sample rate. Additionally, there is a 1/4-inch headphone socket. Two small buttons control standby/on, volume and input

functions, although the unit is best controlled by the supplied remote control.

## SOUND QUALITY

If there's one characteristic that distinguishes the Wadia di122 from many of its competitors at this price it's the level of detail it manages to extract from digital files.

While some components employing Sabre ESS DAC sets have a warm, almost analogue quality about them (the Oppo BDP-105D disc player and Resonance Invicta Mirus DAC immediately spring to mind) the Wadia has a much more forensically focussed sound about it. What that means is it lets you hear every last facet of the music, taking you deep into performances.

Listen to Kraftwerk's 'Minimum-Maximum' live opus, I found every echo and shimmering synthesiser line was laid out before me. With this player it's easy to close your eyes and be transported to the seats of the concert hall.

Similarly, on The Smiths' 'How Soon Is Now' (24/96) the di122 brought out the layered studio effects



used to give Johnny Marr's guitar its distinctive deep tremolo rumble.

But, crucially, the Wadia doesn't do this in a mechanical or artificial way that robs music of emotion. Instead, it seems the di122 has been designed to dig out every single note, vocal inflection or drum beat for your enjoyment.

As such it's particularly satisfying with up-beat material, having a fast, exciting presentation that suits Rock and Dance music where it sounds both vivid and sure-footed.

With Led Zeppelin's 'When The Levee Breaks' via a Creek 100A integrated amplifier and the excellent Quadral Rhodium 400 loudspeakers also featured in this issue, there was a visceral kick to John Bonham's pounding drums that could almost be felt as well as heard.

Switching to something a little more sedate in the form of John Rutter's 'O Praise The Lord Of Heaven' collection, there was great separation between the orchestra, choral voices and organ – each in its own distinct space with one never being allowed to overwhelm any of the others.

I've heard other DACs that can sometimes be overwhelmed by the musical forces at work here but the Wadia retains the power of the performances while letting you hear every nuance of the music.

Those same attributes were also present in the headphone stage, where again there was detail and drive aplenty. Listening to the Led Zeppelin track again via a pair of Oppo PM2s I heard great presence and punch. The Oppos can sound a bit soft for my liking at times, but the Wadia managed to extract the best from them. It also managed to go exceptionally loud without losing any sense of composure.

There are, however, one or two downsides that can't be ignored. Unfortunately, unlike some other companies who have utilised ESS Sabre DAC chips (Audiolab, Resonessence etc), Wadia haven't opted to implement any form of user-selectable digital filter options. Not that this is a must, but it is a nice option to have. Also, the optical input can be a little temperamental, requiring precise plug alignment if it's to recognise 192kHz. Also, high-resolution files over 96kHz (176.4kHz and 192kHz) were down-sampled to 44.1kHz via the S/PDIF, dropping bandwidth to the equivalent of CD (see Measured Performance for full details).



*Inside, the Wadia di122 is built around the well-regarded ESS Sabre DAC chipset with volume control handled in the digital domain.*

While none of this is a deal-breaker, it's worth bearing in mind by potential purchasers.

Having said that, the Wadia di122 does have a distinctive and detailed sound that sets it apart from most other DACs in this price range. It is exciting in its sound, with an ability to dig deep into music. Some may prefer a little more warmth but for anyone who really likes to get to the heart of the sound it is well worth an audition.

## CONCLUSION

A few niggles aside, the Wadia di122 is a genuinely accomplished and engaging DAC that offers something a little different.

## MEASURED PERFORMANCE

Wadia's di122 DAC had massive dynamic range of 131dB from its balanced analogue XLR output. This is around +10dB better than the current best that measure around 121dB, ignoring the Resonessence Mirus Invicta (September 14 issue) that used an ESS Sabre32 DAC per channel. Unfortunately, the Phono socket unbalanced output didn't maintain this performance, measuring 119dB – still up with the best, but no better.

Both outputs – Phono and XLR – deliver very high maximum output voltages, 3.6V and 7.2V respectively.

Distortion was also incredibly low – half that of the best DACs, measuring a miniscule 0.01% at -60dB (24bit) via XLR – the lowest value we have ever measured – and 0.02% via phono socket output, on par with the best.

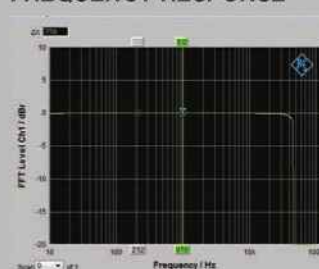
In contrast to these figures the Wadia acted peculiarly when measured for frequency response. Up to 96kHz sample rate all was normal, this rate giving smooth output to 45kHz our analysis shows. Higher sample rates via

S/PDIF, meaning 176.4kHz and 192kHz, were processed differently however, as bandwidth dropped to that of CD – 21kHz. USB behaved likewise until our Apple Mac Pro test mule was set to 384kHz sample rate output, whereupon the Wadia saw this rate and measured flat to 50kHz. The optical input worked to 176.4kHz reliably, but was a little intermittent with 192kHz, the input optical receiver being sensitive to plug alignment.

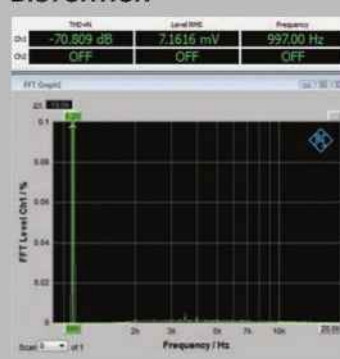
So the Wadia offers exception results up to 24/96 PCM. Past that however, analogue bandwidth becomes that of CD, although 24bit resolution is retained. The same problem occurred with USB, disappearing at 384kHz sample rate. NK

<b>Frequency response (-1dB)</b>	<b>2Hz-45kHz</b>
<b>CD</b>	<b>24bit</b>
<b>Distortion</b>	<b>0.009%</b>
<b>0dB</b>	<b>0.01%</b>
<b>-60dB</b>	<b>0.01%</b>
<b>Separation (1kHz)</b>	<b>116dB</b>
<b>Noise (IEC A)</b>	<b>-128dB</b>
<b>Dynamic range (EIAJ)</b>	<b>131dB</b>
<b>Output (Phono/XLR)</b>	<b>3.6V / 7.2</b>

### FREQUENCY RESPONSE



### DISTORTION



## WADIA Di122 DAC £1598



**EXCELLENT - extremely capable.**

### VERDICT

A classy-looking DAC/preamp/headphone amplifier that majors on detail with a lively and engaging presentation.

### FOR

- forensically detailed
- excellent timing
- superbly built

### AGAINST

- no digital filter options
- fiddly optical input
- some high-res files down-sampled

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- Hi-Fi News | September 2015



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**Large selection of headphones available**

# Higher Five

**FiiO take their X5 portable digital player up a level, to 2nd Gen form. Noel Keywood takes it walkies.**

I reviewed FiiO's new X3 2nd Gen in our September 2015 issue and was impressed. A super low price of £150 plus a great technical performance and fine sound is beyond argument. But it wasn't the sonic steamroller of a Lotoo PAW Gold – see our review in the October 2015 issue – and nor did it have the chiselled images, clarity and punch of my Astell&Kern AK120. But it

doesn't have their price tag either.

Enter FiiO's new X5, now in second generation 2015 form. Be aware that internet reviews of the X5 commonly refer to the first unit; on review here is a new upgraded player, identified as 2nd Gen or X5 ii. At around £295 it's bigger and more expensive than the X3, but my experience suggests greater size results in better sound, likely because of increased battery capacity. The indirect correlation here is that higher current consumption 'professional' chips can be used, for digital conversion and in the all-important headphone drive amplifier. Our measurements show quite clearly that it is the headphone amp of conventional portable players that limits dynamic range: they're noisy and weak. If you look at data sheets for these chips they're designed for low current consumption and maximum battery life, little else.

That's where

Astell&Kern originally made their point, with the superb AK100, now in MkII form. Its output was five times that of the average player. FiiO tread this development path with the latest X5, copying Astell&Kern's unusually technical arguments supporting the efficacy of their product. The forums in particular analyse hi-res players in fine detail, which I think is a good thing if a little baffling for the non-technical. But this is the territory modern players like the X5 inhabit – so here we go!

To kick off, FiiO say "the headphone output stage employs two BUF634U amplifiers which can supply up to 250mA (a 67% increase on the original X5)". In the portable world 250mA is big, and this is where battery size and hence player size come into it. It's a good start.

FiiO also say they retain the Texas Instruments PCM1792A DAC, a top quality part. There's an "all-new digital architecture able to decode native DSD64/128 and directly play DSD ISOs". DSD is a form of digital first used by Sony on SACD and now available in downloads; it sounds less 'digital' (!) than PCM, meaning less stark.

Then FiiO get even more technical saying the X5 2nd Gen "utilises the Ingenics 4760B dual-core 600MHz CPU. With its formidable processing power, the X5ii supports all six major lossless music formats - DSD, APE, FLAC, ALAC, WMA and WAV lossless music formats". The





**Side mounted buttons control volume and on/off, while headphone and line out sockets are on the top.**

issue here is that lossless formats have a higher data rate, which is why they sound better; for example 24/192 WAV runs at 9.2Mbps, or 7x faster than CD.

But enough of the technotwaddle. These parts do in real life underpin sound quality, but crafting a good music player – like any hi-fi component – is as much about how the cake is baked after you've chosen the finest ingredients. And you have to listen to assess this, same way you have to eat the cake.

Physically, the X5 ii is a step up on the smaller X3, even if it is smaller than the first model. It weighed in at 178gms on our scales – more than the 165gms quoted – and measured a just-pocketable 64mm wide, 109mm high and 16mm deep. That's quite big as portable digital audio players go, the X5 being a step up on my Astell&Kern AK120, but it does make the device easier to use.

FiiO retain their simple rotary file selector mechanism, with central selector button – the big black disc and silver button pictured here. At top right of it is the associated and important Return button. There's a good sized 2.4in and legible (400x360 pixel) display screen but FiiO still cram on a lot of small text and the smaller Astell&Kern Junior I reviewed last issue, November 2015, was easier to read and navigate.

The X5 ii has plenty of facilities, including a ten-band equaliser with pre-sets like Classical, Custom setting and Off; there was plenty of variation here.

I liked the optional spin-wheel volume control – easier than the Up/Down buttons. And the speedy start up of 10 seconds, as well as instant switch-off. This player is quick all round.

The file formats a player handled not so long ago was a big issue but the X5 ii puts file-angst to rest: it

plays everything.

That means all Apple files including AIFF, both DSD 64 and 128 and SACD ISO files (i.e. DSD ripped from SACD silver disc – rare). I checked this by playing all files except SACD ISOs, and every file played. However, DSD does not play through the digital S/PDIF output I found in use; there's no conversion to PCM to allow this.

The 3,300 mAh capacity lithium-ion battery recharges in 4 hours with a 2A USB charger and lasts for around 11 hours, depending upon screen usage as usual. The unit plays

"the player has a lovely open midband quality and broad, rainbow-like imaging, where a mass of fine detail seemed to rain down"

whilst charging so it can be used at home connected to a power supply to avoid battery run-down when being used as a 'CD player' feeding the hi-fi, for example.

There is no on-board memory, just two microSD card slots in the base that support up to 128GB cards each, giving up to 256GB capacity – plenty enough even for giant DSD 128 files and whole LP rips. External OTG (On The Go) storage can be plugged into the microUSB socket too.

The same microUSB socket also handles file transfer from a computer, charging and operation as a USB DAC, meaning acting as a DAC fed from a computer. To feed an external, mains powered hi-fi DAC, which I prefer to do at home using an Audiolab M-DAC, there is a 3.5mm jack that doubles as line out or digital S/PDIF out – both electrical, and switched in software. Our measurements showed Line out (analogue) gives 1.5V fixed and a better performance than Headphone out, with 2dB more dynamic range, so it appears to be taken before

the volume control as you'd hope.

This output can feed the CD input of a hi-fi amplifier, giving better sound quality than CD of course, with around ten times less distortion. However, you are better off using the digital output into a high quality external DAC if possible, where a sturdier linear mains power supply usually results in a punchier sound – more of which later.

The headphone output has Low and High settings in software, Low giving 1.6V out and High 2.6V our measurements show: a lot and plenty enough for all headphones, including insensitive planar magnetics from Audeze, Oppo and Hi-Fi Man.

## SOUND QUALITY

FiiO sure use a lot of quality parts in the X5 ii: it's an impressive technical line up. And they out-do even Astell&Kern for tech data on their

website. It all looks very convincing and our measurements back up their claims (except – strangely – for the weight of the player).

But high-fidelity isn't that simple: switch-mode power supplies give better technical results all round but they're commonly shunned for having weak dynamics. FiiO inevitably use charge-pump d.c. voltage converters to hike battery volts (3.3V) to no less than 14V they say – and I suspect that somewhere in here lies the reason for a slightly less meaty bass quality I heard through Oppo PM-1



**Twin microSD card slots allow for up to 256GB of memory to be installed.**



# Simply the Best



## Spondor D7

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

Spondor's approach is the most radical I've seen, going where no hi-fi manufacturer has gone before. D7 is extremely capable and very neutral, but most importantly it puts the music first

*Hi-Fi + Dec 2013*

If you're after a great all-round, affordable, high end loudspeaker, here it is

*Hi-Fi Choice issue 370 2014*

D7 has an unmistakeable touch of magic. Easy to drive, genuinely efficient, undemanding of placement, fine stereo, extended powerful bass, upbeat and well-balanced, build and finish first rate.

What more can one ask?

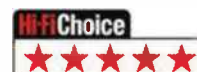
*Hi-Fi Critic Sep 2013*

However it's been achieved, we can't help but marvel at the sound from the D7's. Spondor D7's set the standard for speakers at this price

*What Hi-Fi Oct 2013*

Bass punch allied to tremendous mid band and treble insight makes for a winning combination

*Hi-Fi World Jul 2014*



**NEW** Spondor A5R

Spondor A6R



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Spondor A6R

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

Brilliant mini-monitor  
one of the very best ever  
*Hi-Fi Choice Yearbook 2014*

This is a remarkable  
little speaker  
*Hi-Fi + Sep 2015*

Outstanding  
*Hi-Fi World Oct 2015*



Spondor D1

# SPENDOR

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

headphones, that in themselves have good bass. Switching between an Audiolab M-DAC's headphone output and the X5 ii output highlighted differences, as did a tighter and punchier Astell&Kern AK120 player I use. But of course they're both far more expensive.

The X5 ii had plenty of bass heft and kick, but a lighter air about it and a little less meat on the bone, as it were, when playing for example Fleetwood Mac's 'Dreams' (24/96). Bass was fulsome – and fast in its transient attack on this track, listening through Audiolab's external M-DAC connected digitally as a reference – and it was still attention grabbing through my AK120.

Although the X5 ii has plenty of kick and sounds tight, its lighter air disappointed me. But the longer I listened and swapped between M-DAC, AK120 and X5 ii the less sure I became about the X5 ii being inferior, so much as different and a little less immediately attention grabbing.

One reason for this was that the "lighter air" of the X5 ii was in itself a sonic asset. The player has a lovely open midband quality and broad, rainbow-like imaging, where a mass of fine detail seemed to rain down. This was so different I checked that

some peculiar software processing wasn't switched on – it wasn't. The wonderfully clear midband and sparkling treble were a part of this player's lighter quality.

This quality transferred well to classical. Strings of the Trondheim Soloists playing Divertimenti (DSD 128) sounded texturally rich – a property of DSD – and occupied a nice open space – another strength of DSD.

The X5 ii captured these strengths of DSD well and, coupled with good imaging, the small ensemble was wonderfully engaging with this piece, through Oppo PM-1s – and Philips Fidelio X1s that I also use as 'conventional' phones.

## CONCLUSION

It isn't quite the slickest player to use, but the new X5 ii 2nd Gen is easy enough all the same. It feels good in the hand and delivers great sound from all digital files, if not quite being the giant killer I had hoped for.

Able to feed a hi-fi system from its analogue line out and also its digital S/PDIF out, this player can do



*The FiiO has a 10-band equaliser that features custom settings such as Rock and Classical.*

it all.

The new X5 2nd Gen is a thoroughly impressive portable – and a great addition to any hi-fi system as a high-resolution digital source.

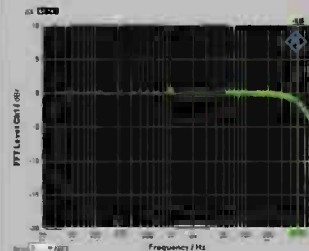


*FiiO supply a short 3.5mm jack-to-phono line socket adaptor lead for the digital S/PDIF output. It facilitates connection to an external DAC.*

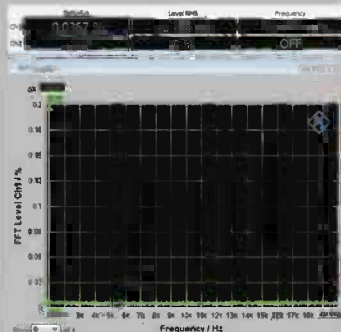
## MEASURED PERFORMANCE

The X5 ii produced a high 2.6V at its headphone socket when set to High. It actually managed a little more but was moving into overload, the 2.6V figure being just before overload. Set to Low this was 1.6V. These are high outputs – plenty enough for even the most insensitive (e.g. planar magnetic) headphones.

### FREQUENCY RESPONSE



### DISTORTION



Distortion at full level (0dB) measured a low 0.005% and at -60dB a very low 0.04% with 24bit digital, where around 0.1% is common from budget products. Because of this and low noise, EIAJ Dynamic Range was high, measuring 115dB from 24bit – as good as it gets from portables, ignoring Lotoo's PAW Gold that manages 121dB but costs well over £1k. Interestingly, dynamic range through the Line output measured 117dB, so this offers even better results when using the X5 ii as an alternative to a CD player (CD gives around 102dB dynamic range, by the way).

Frequency response with 192kHz sample rate reached 50kHz our analysis shows, so the X5 ii exploits hi-res well.

FiiO's X5 ii measured very well in all areas. It has high dynamic range and high enough output for even the most insensitive phones. **NK**

**Frequency response (-1dB)**  
CD 2Hz-50kHz

Distortion	24bit
0dB	0.005%
-60dB	0.04%
Separation (1kHz)	96dB
Noise (IEC A)	-114dB
Dynamic range	115dB
Output	2.6V

**FiiO X5 2ND GEN**  
**£289**



**OUTSTANDING - amongst the best.**

### VERDICT

An affordable player that does it all - with fine sound.

### FOR

- sound quality
- solid build
- plays all digital formats
- fast turn on

### AGAINST

- large-ish
- small screen text
- no digital output from DSD

Advanced Players Ltd.  
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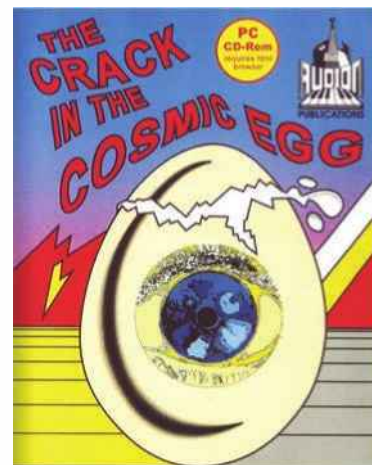
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# Egg-cellent!

In the second of a new series of music-related books, Paul Rigby looks at a tome that goes that bit further than the rest.

## The Crack In the Cosmic Egg: Encyclopaedia of Krautrock, Kosmische Musik & Other Progressive, Experimental & Electronic Musics from Germany Authors: Steven Freeman & Alan Freeman Price: £20



If there is one thing that I am quickly learning about books of this size, scope and professionalism, it's that the titles are enormous. It's as if the authors want to give you some idea of the work that they've put in and – my goodness – there's been some work put into this one!

If you read our last installment, the review of 'Tapestry of Delights', don't be fooled by the contrasting price. That book was priced from £68 and this one is a 'mere' £20. But that's because this book is so large that it cannot be comfortably contained within two card covers. In fact, it has been transferred to a CD-ROM. What you've got here is the equivalent of an A4 book spanning way over 3000 pages.

But, this tome is more than that. It sprawls in all kinds of ways and ends up in varying dark corners. This is a CD-ROM to spend serious time exploring.

I mention the 'Tapestry of Delights' because, although this is a CD-ROM, 'Cosmic Egg' has a similar feel to that book, although this book's computer interface is arguably more intuitive

and the design allows for quick and easy research methods.

Let's take Krautrock supergroup, Kraftwerk as an example. The band receives a general history but good use has been put to hot links so when Klaus Dinger is mentioned as Kraftwerk's early resident drummer you can click on his name to be taken to his own pages.

Notable dates or TV appearances are also hot-linked to scanned posters or images. Further down is a detailed discography that features a track listing of each record, catalogue numbers, labels, alternative pressings and more, while attendant compilations that feature the band are also included.

Numerous images of record sleeves are included. Many can be clicked on, but to no real benefit. I expected to be shown a hi-res version of the small image but was merely shown a slightly enlarged image on a blank screen: this might have been a factor of disc space, though. There is, however, an additional image archive which does offer a few supplemental rarities.

Of course, many groups never achieved Kraftwerk's fame and so their entries can be much smaller. The prog/jazz fusion outfit Crossfire, for example, musters only half a dozen lines plus a record cover scan and attendant details.

This sort of entry is what makes this book such a treasure, though. I've never even heard of Crossfire so anything on the band is news to me. For such an obscure outfit, there's



*This is the main index which makes navigation easy.*

actually quite a lot of information available here, in relative terms. You see this sort of thing repeated ad nauseam within 'Cosmic Egg' and, to be frank, I was continually amazed by the thoroughness of the author's research.

That's the core of the project, but you also get a selection of twenty audio interviews with Krautrock legends, twenty-five music clips, five promo videos plus information on producers, record labels, non German-related groups and two whole CDs of extra music. It's very easy for many happy hours to pass as you explore this amazing 'book'. A wondrous achievement that continues to grow. In fact, when the time comes, you will even be treated to data upgrades!

You can buy the book from <http://home.btconnect.com/ultimathule/crackrom.html>. Here, you will find prices for Europe and the World plus other retail outlets and background information.



*You will sometimes be able to access rare images on a band page.*



# mail



## LETTER OF THE MONTH PRIZE



**KEF Q100 LOUDSPEAKERS**

**Visit our website at [www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk) or send your emails to [letters@hi-fiworld.co.uk](mailto:letters@hi-fiworld.co.uk). Letter of the month wins a pair of KEF Q100 loudspeakers.**

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

**For more advice see Letters from earlier issues at [www.hi-fiworld.co.uk/letters](http://www.hi-fiworld.co.uk/letters)**

**A pair of KEF Q100 loudspeakers are on their way to **ROB NICHOLS**, Letter of the Month winner in our November 2015 issue.**

## Letter of the Month

### WESTIES AND ROOMS

*I have particularly enjoyed reading about the Tannoy Westminster Royal GR loudspeaker in your Nov15 issue and was struck immediately by your reactions to them. You mention many times that they sounded as loud and room filling wherever you were in the room and my first response to that was – yes!*

*That's exactly what live music is like (I'm discounting stadia and open field sites). But if you go to the Wigmore Hall or the Festival Hall or to a church what you hear is more often than not room filling sound, unless you happen to be stuck up in the Gods. So, somehow, the Westminsters are converting their signal into sound that is matched to the room. Its like listening to music in the room rather than to a pair of speakers – however good – making music into the room. A sort of musical room/ speaker impedance matching I suppose, is one way to put it.*

*It's a bit of a far cry from my own set-up which is definitely one where the speakers are making the music come into the room. However, my little Linn Kan MkII's seem to do most things in ways I like but I'm always listening to the hi-fi, not to music in the room.*

*One of the things I've longed to ask reviewers for many years is about their ears! Unfortunately for me my hearing began to deteriorate when I was about 40 - 45 especially in my left ear. Clearing my ears by blowing*



**An imposing sight: Tannoy's Westminster Royal GR in stately surroundings.**

*hard on my nose pinched shut would temporarily improve the sharpness, especially if high atmospheric pressure had caused them to be over pressured. Since that time (I'm now 54) my ears have just got worse and worse to the extent that my left ear can probably only hear up to about 7kHz and my right about 9 or 10kHz. The strange thing is I can still hear the difference between a CD quality FLAC through my Linn Sneaky and an mp3 or AAC. I still find my LPI 2/Ittok/Quintet Blue better than a Rega Planar 3/Goldring G1042 - or at least more musical. So there is still something working and differentiating*

*quite well.*

*What this hearing loss also means, and many people don't recognise this, is that the dynamic range is also compressed. So, although I need to listen to music more loudly than I used to, to be able to hear details, I can't take as much volume before it all sounds a bit tiring and strained.*

*How about your ears? Have you had them tested over the years; ever? Do you think knowing how they perform would be important in gauging the performance of the equipment you test/review? I imagine that this sort of thing might have a large effect on*

many people's enjoyment of music and therefore hi-fi. What do you think?

The final thing. I love hearing about all the new equipment and developments in hi-fi. Most of us build up systems over a period of time and choose them, often, to emphasise, or diminish, certain characteristics of the room, or where our wives will allow us to put the equipment. I would love you to compare the equipment we might actually own with new equipment we could upgrade to, directly. So how is my 15 year old Goldring 1042 cartridge measuring up against a newer MC? How is the power amp that we bought in droves in the 90s, 2000s comparing to what we could go and buy now? Its a bit like my ears I suppose. How do mine compare with your (younger) ones?

**David Osborne**  
Surrey

**System:** Linn LP12/Cirkus/Ittok LVIII/Ortofon Quintet Blue Trichord Dino Phono Amp Linn Sneaky DS/RipNas/Kazoo Linn Classic Music 2xLK140s Linn Kan MkII on Kan stands REL T subwoofer Chord Crimson Interconnects QED Silver speaker cables in bi-wire mode.

Hi David. Our ears vary in age because there are many of us! But we do discuss what we hear and ensure there is correlation and agreement – which interestingly there is. This even extends to quite subtle yet obvious differences such as the sound of our in-house prime reference, an Oppo BDP-105D universal disc player, against other DACs that also use the ESS Sabre32 DAC chip set. Our ear age doesn't seem so much a factor as long term and relaxed exposure, as well as controlled listening conditions. All products are tested in-house and often auditioned as well, before being sent to outside reviewers, to eliminate malfunctioning units or duffers before they cause problems (aborted reviews, etc) and to ensure that there is consistency and consensus in our opinions on sound quality.

But as you note, and as the Tannoy Westminster loudspeakers made clear, some of what we hear from hi-fi is quite obviously contrived, yet we all seem to hear past this deficiency and into other aspects, such as "detail" and what have you. Quite where the best balance lies depends upon

individual preference: for example Rafael Todes does not understand why I like the Westminster (he popped in to hear them), compared to his beloved B&W 802s. Yet I would be hard pushed to choose between Westies or Martin Logan Summit Xs if marooned on a hi-fi desert island – and these loudspeakers sound entirely different from each other. Which seems to render irrelevant the notion of accuracy I so dearly cling to as an engineer! Hi-fi is a funny business: you do have listen for yourself in the end.

On that score, by the way, I asked Tannoy where readers could go in the UK to hear Westminster and they are – Audio Gold, London; Heatherdale Audio, Worthing; HiFi Guy, Hastings; Brighton HiFi, Brighton; Analogue Seduction, Peterborough; The Audio Works, Cheadle; Hi-Fi Corner, Edinburgh. Phone first – and if you do go, please write to us with your impressions!

The measured performance of much hi-fi has improved over the years, but only as a generality. Your Goldring 1042 always measured well, even by today's standards, but modern day alternatives – most notably Ortofon's 2M Black – are a tad better (flatter frequency response). Power amps? Crossover distortion was the greatest measurable limitation of pre-2000 designs, although I believe mediocre component quality was often a bigger factor in holding back sound quality. There were amplifiers like Hitachi's HMA-7500 power-MOSFET amplifier (1978), for example, that measured superbly but didn't sound very good. In retrospect its component quality – especially switches, speaker terminals etc – was atrocious, even though deemed acceptable at the time. Its use of early, wide-bandwidth MOSFET power transistors, made in Japan, and high feedback circuitry that eliminated their distortion, including crossover, gave a spectacular measured performance all the same – but only whilst the switches worked properly and the terminals stayed on!

So power amplifiers have measurably improved, but only in general. What has improved no end is internal component quality,



**Goldring's G1042 cartridge – offers lovely sound and is a quality design.**

the bit you don't see and can't easily measure. The Alps Blue volume control is now almost derigour, whereas when we started using them in World Audio Design amplifiers in the 1990s they – and Black Gate electrolytics – were virtually unknown. Under the bonnet (USA readers: hood!), the landscape



**An Alps Blue potentiometer volume control. 'Audio grade' components like this are expensive but improve sound quality.**

has changed then, and sound quality improved no end as a result. But improvements are not always easily measurable. **NK**

Hi David. You make a very interesting point about hearing. It was something brought home to me rather forcefully when I visited audiologist Gisele Flower recently to be fitted with a pair of Noble Audio's custom in-ear monitors. Fortunately, my hearing was better-than-average for someone my age – but a build-up of wax in both ear canals meant I wasn't getting the benefit. Once this was removed the difference was astonishing with a greater clarity to sounds and, as a result, I found I was playing my hi-fi system at a much reduced volume.

But the point was also made



that deterioration in hearing can be caused by a variety of reasons – and quite often these can be remedied. Unfortunately, we think nothing of having annual eye tests as we get older but rarely consider similar check-ups with an audiologist – although it's something I will be doing in future.

Yes, it's true that hearing acuity does diminish with age – the perception of high frequencies being the first to suffer (which, I believe,



**"My PMC MB2 'speakers are keepers" says Gary Barlow.**

has been one of the reasons many loudspeaker manufacturers have engineered a boost in treble on many of their models). But frequently it's not as severe as many people think. There'd be no harm in seeing your local GP or visiting a registered audiologist to have your ears checked out. You never know, it might just enhance your enjoyment of music.

**JM**

### WHICH WAY

I'm hoping you can point me in a final direction in which to go. I've been upgrading my system over the last 20 years and I'm really happy where I've got to now, having PMC MB2 speakers, TQ ultra black interconnects / speaker cable, Bryston 7b mono block power amps connected with PMX XLR to Bel Canto Pre 3 preamp. Source is a Linn Akurate DS network music player, Michel Orbe SE turntable, Dynavector DVI03d cartridge and DV phono stage; DIY isolation platforms are under the DS and Pre 3.

My question is, just how much further can I go? (and is it going to be worth it?), or stop right here!

My 'speakers and amps are keepers. I realise moving to the Linn

Klimax DS would be a logical upgrade – and that will be my final source upgrade.

Your review could take me to upgrade from TQ Ultra Black to Silver Diamonds, and again this will be the last upgrade on the cable front.

So can you advise whether it will be seriously beneficial to change direction with my pre amp? Is it the weakest link in my system? The Pre 3 is great and it is important to me to have a Home Theatre Bypass in a preamp to integrate in my cinema system.

My Linn DS is the only streamer I've ever used and I really like everything about it, and I will demo the Klimax within my system, so with the planned possible upgrade to the Klimax and TQ cables can you recommend whether a change of pre amp will really bring any significant improvements to my enjoyment of my system?

I listen to a wide range of music too, so any other suggestions would be gratefully received, or if I'm barking up the wrong tree please point me to the appropriate forest! I think if I have a final path planned, hopefully when I get there that will be it and I can forget about the next upgrade.

Many thanks,

**Gary Barlow  
Hertfordshire**

Hi Gary. I would suggest you listen to the Tellurium Q Silver Diamonds in your system before thinking of any component changes. Although I was amazed at just how good these new cables perform, they are distinctively different to the Ultra Blacks – having a much faster sound, extra detail and a more extended top end. It might be best trying them out in your current system and then thinking just what direction you want to go next. **JM**

### QUEEN FOREVER

I have just received a package that I have been really looking forward to.



**"The Queen Studio Collection Vinyl Box Set are 18 circular pieces of pure pleasure" says Jenny Vine.**

This package has no connection to the CD world, nothing at all to do with the art of downloading, no hand in hand relationship with streaming. I may be a forty five year old woman with a husband who loves everything modern and innovative, but I still love everything that is 'exceedingly well established' shall we say – meaning virtuous vinyl.

"Don't stop me now, I'm having such a good time..." Well who wouldn't be on discovering the existence – and getting to grips with – a brand new box set from my favourite band, Queen.

It is The Studio Collection Vinyl Box Set – 18 circular pieces of pure pleasure. All albums are in a different coloured vinyl, to match the original album artwork.

There is much else to enjoy in this package – and if you absolutely must there are download codes included. This is perhaps for my husband.

I don't know about Hi-Fi World but I reckon that no download, no stream, no CD version of this collection would get anywhere even close to the pleasure of owning this particularly well put together box set. I'm no expert, but this kind of thing just works for me and I hope that bands, new and more established, continue to be inventive with the vinyl medium for a very long time to come.

**Faithfully,  
Jenny Vine.**

The big, new LP box sets on top quality vinyl are a wonderful experience. Heaven on earth. No wonder music was once so popular! I'm sure you'll always treasure them and the experience they offer. **NK**

### PROMS

As a keen devotee of the BBC Proms, I was naturally very interested to read Martin Pipe's article in the current (Oct 15) issue of Hi-Fi World, giving some behind-the-scenes information about how they are broadcast.

I'd agree with Martin that the best way to listen is via the on-line 320kb/s Radio 3 HD service. Despite compression, the sound can sometimes be really quite good, if not up to the standard of a well-recorded CD. However, I do have two issues with this means of receiving R3.

The first problem I've experienced is that the sound drops out occasionally. Usually it comes back on after a few seconds, but I have had the link disappear altogether necessitating a complete re-boot. I'd be very interested to know if Martin or readers have had the same difficulty. Since I live in the sticks it may be due to my slow internet connection, so it would be helpful to discover if others are plagued by the same fault and if so, whether they are similarly lumbered with slow or unreliable broadband.

The other comment I have is that I find the sound quality varies quite a bit. I thought the broadcast of Monteverdi's *Orfeo* was not only excellent musically but also very satisfactory sound-wise. By contrast that of Beethoven's 9th Symphony was to my ears very disappointing: the sound picture was unduly narrow and it didn't do anything like justice to the large musical forces deployed (even if this was a splendid performance from a musical standpoint).

I have noticed the phenomenon of an overly narrow stereo image before in R3 HD Proms broadcasts, which makes me wonder if perhaps the compression algorithm throws out more of the difference signal than is desirable. Or perhaps it depends on how the balance engineer mixes the huge number of mikes at his/her disposal. Again it would be interesting to know if others have noticed this.

Also I would be grateful if Martin could tell us how the R3 balance engineer monitors the programme: does he/she listen only to the full 48k/16bit output from the mixer, or is there at least some monitoring by the person doing the mixing of the R3 HD 320kb/s stream?

**Thanks.**

**David Lord**

Many thanks for the feedback, David!

I haven't experienced any streaming 'glitches' of the sort you mention, but I use a 'technically-involved' (geeky) alternative to iPlayer that employs my computer's hard disk as an enormous 'buffer' – a data store, used to safeguard against any of the streaming interruptions that can cause such discontinuities. And any nasties of this sort would certainly impact my enjoyment of a



**The BBC's Proms. "The best way to listen is via the on-line 320kb/s Radio 3 HD service" says David Lord.**

service that can indeed, as you point out, approach that of commercial CDs. Such are the wonders of Radio 3, which is by any standards a national treasure. I'm lucky to live in a large-ish town that has been 'cabled', and my Internet service provider (ISP) routinely offers broadband speeds measureable in the tens of megabits per second. That's enough for HDTV – never mind mere compressed audio!

But my situation is very different to yours. I guess that streaming glitches will be more likely in areas with poor broadband coverage; it

may after all provide different levels of buffering. Can the same glitches be heard? Are other streaming services affected?

I spoke to Huw Robinson, the BBC Radio Operations Manager you may remember from my article. He told me that the BBC does monitor the stream: "There are almost no drop outs", he explains, "and so I suspect that any connectivity problem is probably one associated with the ISP". He continues: "The sound balancer for the concert listens to the output of their desk in the truck. Further down the broadcast chain



**"I decided to explore the Inspire X100 tonearm" says David Deeks. "On some recordings the side-to-side image extends beyond the speakers in a way I have never heard before".**

may be difficult to sustain 320kbps under some circumstances. But I'd also recommend taking a closer look at your setup. Are you using Wi-Fi, and thus possibly sharing what capacity you have with other devices in your household? What are you using as a playback device? A computer, tablet or streaming player with Radio 3 HD support? I recommend trying any alternatives at your disposal. Different options

in Broadcasting house, someone else is listening to what will be distributed – and, of course, checking the quality of the incoming circuit from the hall. As there are a number of broadcast platforms – FM, DAB, satellite, Freeview, HD etc., – we can't monitor the audio on all of them all of the time, but periodically we check on them – as well other things, like the 'now playing' information".

Huw is pleased that you enjoyed

the sound of the Proms; "as you saw, the BBC puts a lot of effort into making it as good as possible!" I also asked him about the differences in presentation you noticed between the Orfeo and the Beethoven 9. They were, he revealed, "actually balanced by the same person!" Huw is "not aware of stereo width being affected by compression algorithms", but it shouldn't be forgotten that "there are many possible links in the broadcast chain, from the hall to your speakers".

Then there are the performances to consider: "It may just be the case," Huw said, "that these are very different musical forces – there is a lot more 'air' or 'space' in the Monteverdi. The stage-plan for the CBSO Beethoven shows a compact orchestral layout, and there is also a lot more to fit in the stereo image. To me there is a good, natural stereo image for both". A final point is that the BBC needs to cater for all Radio 3 listeners: "We need to consider the mono listener in all our radio balances – this may have an effect on perceived stereo width, relative to commercial CDs where this is not an issue. In fact, this is sometimes used as a technique to create a particular sound". **MP**

### MORTAL COILS

In the August 2013 issue you published an e-mail of mine where I complained of edgy vocals and occasional distortion from my Linn Klyde/Ekos in my Linn LP12. Noel diagnosed occasional mistracking, confirmed that he had reviewed Linns that did not track well, suggested a change of cartridge, and mentioned a personal preference for his Ortofon Cadenza Bronze. He agreed however that the short headshell of the Ekos would make it difficult to change to other makes - suggesting that an SME or Rega arm could get round this, with a Rega being a better bet with the LP12.



**Ortofon's Cadenza Bronze moving coil cartridge has a "gloriously golden quality".**

I must confess to some resistance regarding the arm, as with the encouragement of my Linn dealer I had previously upgraded from an early Origin Live modified Regal/Goldring G1042 to the Ekos, originally with a Linn Adikt and then the Klyde.

I subsequently reported in the May 2014 issue that I had however cost-effectively followed Noel's Ortofon advice by having North West Analogue (NWA) very successfully rebuild an old Ortofon MC15 Super II cartridge of mine and this had, with the help of Lintone Audio, been shoehorned into the Ekos.

Set at 1.75gms rather than the 2.2gms of the original and reminding NWAs Dominic Littlewood of an MC2000 he had modded, it was knocking spots off the Linn Klyde. I began to wonder though whether to return to Noel's advice and replace the Ekos with something from the Rega family, to get around the problem of needing a dealer for any future cartridge replacement.

I was concerned whether a Rega-based arm could match the Ekos sound-wise. I decided to explore the Inspire Hi Fi X100 as I reasoned that it might work particularly well with the Inspire Vivid subchassis and arm board already installed in my LP12. Now in MkII guise, the original X100 was very positively reviewed in the July 2011 issue, and its 'cartridge support platform' (rather than headshell) design makes it especially universal.

Contact with Inspire's Robert Isherwood resulted in a part-exchange deal being agreed. It is now several weeks since installation and I can only say that the X100 MkII is exceeding the performance of the Ekos by a comfortable margin. Improvements include better defined bass notes, lower surface noise, more three dimensional soundstage – and on some recordings the side-to-side image extends beyond the speakers in a way I have never heard before.

With the Ekos, the Inspire Vivid upgrades resulted in better differentiation of the 'acoustic' of different recordings, and this aspect has been taken further. I would imagine that all of this means the arm is providing overall better 'detail retrieval' – yet my deck still has the inherent tunefulness that attracted me to the LP12 in the first place.

I don't know of course whether the X100 would similarly trounce an Ekos on a more 'standard' Linn LP12, and I haven't heard my deck compared with an 'official' fully spec'd up latest model – but all I can say is that the Inspire Vivid

sub-chassis/arm board (430) noticeably improved my LP12/Ekos, and the Rega-based X100 Mk II arm (1000) has proved a further very cost-effective upgrade. So my thanks again to Noel, who of course was right all along! All best

**David Deeks**

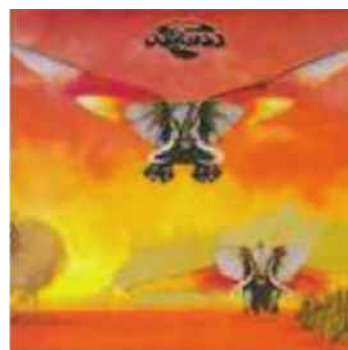
Ah, but David, are you are still using an Ortofon MC15 Super II cartridge in that set up? If so you are way behind the curve of Ortofon cartridge development. I remember



**Audio Technica's AT OC9 ML-III moving coil cartridge "offers vivid sound at a low price".**

the MC15 II well and it was technically impressive for its time, but a bit lacking in the MC qualities of stage depth and transparency. The Cadenza Bronze is in another league here: it offers all the properties moving coil cartridges are known for, with a nice treble sheen and a rather gloriously golden quality to its sound from its tapered alloy cantilever, as if listening to music on a sunny day, where cartridges with boron cantilevers might be said to have the darker quality of an overcast day, for example.

I recall Ortofon described the Bronze as "romantic" when I asked them about it upon release, some years ago. Available at a reasonably sensible price, as such things go



**LP covers as art – Roger Dean's Osibisa LP artwork was one of many for 1970s bands such as Yes.**



– which means around £1300 – this is a cartridge I can confidently recommend.

If price is an issue, then try an Audio Technica AT OC9 ML-III, at around £480. It offers vivid sound at a low price, the superb stylus delivering finely differentiated treble. There's plenty of solid bass – and good pace. My apologies for being an upset! **NK**

### PLUG 'N PLAY

I was wondering if you could give your opinion on something. There appears to be two camps set up in music land.

Camp one contains folk who do not really worry very much, if at all, about anything except a guarantee that some music will pop in to their ears, and that seems to be about it.

Camp two contains folk that seem to be overly obsessed with getting everything so technically correct that they will literally not buy some music if it is deemed not to be hi-fi pure. They will insist on analogue masters being used, 180 or 200 gram vinyl is a must, the pressing must be as near to perfection as possible, regardless of the huge price tag on occasions, any slight pops or crackles are frowned upon – and the list could easily go on.

There is also now an obsession with the sleeves for vinyl records. Folk will tell you that it is a real pleasure to sit and admire these items as if someone had just given them an original Monet. To my mind, these sleeves were looked at once, maybe a couple of times by the owners, back in the day when there were only records and they were just the containers that kept the records from being scratched by the cat. Overkill seems to have arrived big time with regard to the sleeve's importance today.

When I bought records a million at a time (or so it seemed) the entire point was the music and no thinking went into all of the distracting technical stuff, that was undoubtedly there, but was not important to acknowledge because just getting a thrill from the music was all most people really wanted.

Is it possible I wonder, to gear everything up so painstakingly and perfectly, that the simple buzz of the music is lost, as listeners sit in their castles, surrounded by all this perfection, but seemingly missing the true kick of it all.

If folk put the same amount of detailed attention into choosing a husband or a wife, nobody would ever be truly happily married. Some basic grunt or primal raw urge would be missing.



**The Miyajima Zero moving coil cartridge: "built to perform a single task" – playing mono LPs.**

Maybe the kids do have it right today. Just plug in to Spotify, at an alarmingly low bit rate – and be done with it. Yes, you will miss a bit of detail, but you will still feel the thrill of the ride and not be glued into a chair in a castle trying to tell yourself that it was all worthwhile, whilst wondering where the meaning has gone.

**Faithfully,  
Malcolm Zinner.**

Hmmm... yes. We do get this view expressed from time to time, but it's not one I suffered whilst listening Tannoy Westminster Royal GRs at 106dB SPL, with the office building shaking and Notting Hill Gate police station sending out the squad cars. In fact real hi-fi is so moving it can be a dangerously emotional experience. I think most audiophiles do enjoy their music, even if it may not seem that way from the complexity behind some of the issues. **NK**

### MONO CARTRIDGES

One of the great frustrations of trying to decide what components might sound best is that it is almost impossible to listen and compare things. This is never more true than with analog – and of all the esoterica that we find of interest, the mono cartridge is perhaps that rarest of all items. In recent tests, you have had occasion to sample two worthy contenders, the Ortofon 2M SE and the Miyajima Zero. Please, would you comment on the strengths and weaknesses of each?

My phono stage is a cj TEA2MAX, which I believe can provide the necessary gain for either without undue noise or distortion, but if you feel otherwise, that would be helpful to know too. Thanks in advance, as always your magazine is greatly enjoyed.

Regards,  
**Bill Stevenson  
West Palm Beach,  
Florida**

Hi Bill. When looking for a top quality piece of hi-fi kit I am instantly drawn to those items that are built, from the ground up, to perform a single task by people knowledgeable about that particular task. The Miyajima Zero is one such design. This is a company who began building mono cartridges well before their stereo designs! My only question to you is your budget because the Ortofon is valued at £240 and the Zero is almost £1,000. If the Ortofon better represents your own budget then I would recommend taking a look at the Miyajima Kotetu at £295. **PR**

### WISPY WIRE

Having recently replaced a woofer inside a floorstanding loudspeaker, I feel compelled to ask a fair yet potentially contentious question. I was using said loudspeakers (costing almost £2500 when they were new about 10 years ago) with Chord Odyssey 2 loudspeaker cable to connect to my amplifier, which is currently around £25 per metre. When I opened up the loudspeakers I found them to be internally wired with what used to be referred to in the hi-fi press as "bell-wire" – which I could find at my local store for about £1 for 10 metres worth.

I appreciate that a certain level of speaker cable is necessary to handle the current from the amplifier and to cope with the required lengths needed in the home, but this left me a little dumbfounded.

This begs the question, say, for a 1m run either side and for the sole purpose



**Your local aerial – Alexandra Palace in this shot – may interfere with your loudspeakers.**

# Letters On-Line!

You can now read our Letters on-line, from the last issue back to March 2010. That's a treasure trove of information and advice to our readers, as well as a fascinating catalogue of reader's systems and views. There's mountains of buying information, all just a click away on your computer or i-Pad. Have fun!

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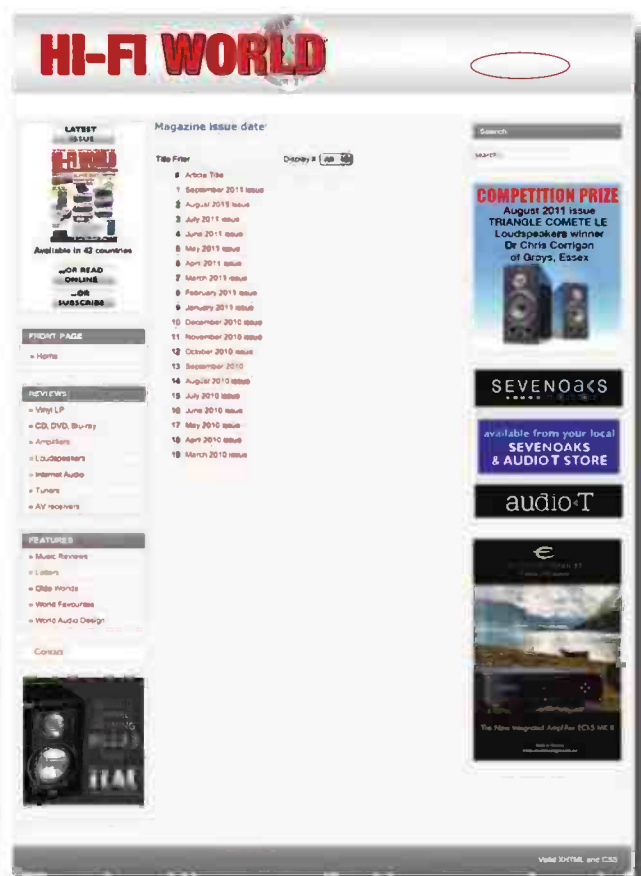
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of sound quality - surely any effect my Chord cable was having is completely negated and suppressed by the "cheap wire" inside the speakers themselves?

If so, is it really only worth using the same grade of cable that is inside your speakers as any further investment is effectively "cancelled out" once it hits those speaker terminals? I would appreciate your thoughts on this.

**Best Regards**  
**Julian Fletcher,**  
**Wiltshire, UK.**

Hi Julian. A short length of bell wire will measure out at much less than 1 Ohm whilst many metres will measure a few Ohms; there will be quite a difference, determined by length of course, the two being linearly related. So it does make sense, even from this simple view of the matter, to use better cable for longer lengths.

It is possible to get a bit more complex and start to look at the system as an aerial. In this scenario you now need to screen the main speaker cable. Ideally, the cable in the cabinet also needs screening, but its tuning will be different, better receiving high frequencies.

You could well argue then that loudspeakers should have good internal cable, connectors that don't oxidise with age, and RF screening! I'll leave you to think about this one. And don't forget that dealers will often lend out cables if you'd like to see whether a better one makes a difference. Just phone around, or phone a cable manufacturer for dealer details. **NK**

## PHONE FI

I was thinking the other day about what hi-fi really means to the everyday person in the street, and then something happened. I was sitting in my little van that I use for picking up recycling at a large school, taking a little break, and listening to a track from a band called Belly, a track I've heard many times in my van over the years.

Now, I always take these small breaks just for five minutes or so every now and again and I only have a mobile phone, supplied by my employer, to quickly play the track on, before setting off again. No hi-fi installed in the van in any shape or form.

Anyhow, Belly was rattling away on the mobile and through the mobile's own speaker, nothing more and towards the end of the track I suddenly realised that I was pretending to play along with the band. Air guitar along with air drums,

switching between the two, and also singing along a little bit. But it was also more than that. I was really enjoying it, not really noticing my surroundings, just letting the track almost take me over. I was aware of hearing things, more detailed things from this mobile than I had noticed before from other phones the school had issued me with in the past.

Now this new mobile phone that I had only recently taken delivery of, was far, far cheaper than the normal offerings, and no famous name either, unlike all of the other phones the school had elected to go with in the past. The difference was that it communicated the musical message far more believably than any other I have known. I didn't even notice I was playing along until it was too late and the gig was up. It was also strange that so much more of the whole track was also present through a speaker the size of a gnat's whatnot.

If this company can produce this, then what stops the mega companies from doing an awful lot better? Are they really doing the very best that they can? The phone also plays a lot louder than any phone I have tried at work and that was a pleasant surprise. At last a mobile that is not limited in volume.

I should state that the school does not issue Apple phones to support staff workers, so

I cannot comment on their prowess or lack of. All of this has to be seen in context of course.

The sound from all of the phones I have tried at work, through the phone's own speaker is pretty terrible, but some are so much more palatable than others, and if even cheap hardware can get it together enough to make me smile every now and again, then well, that has to be worth recognising and appreciating. I just hope they don't upgrade my phone any time soon, as lord above knows what I will end up with.

**Faithfully,**  
**Alan Pickles.**

Hi Alan. But you forgot to tell us which phone this is! It can't be an iPhone, but what can it be? I was sitting beside engineer and top chip

designer Rob Watts recently at a Chord electronics press reception and he insisted the new Chord Mojo DAC gave the best sound you could even hope for from a phone - better than that from Digital Audio Players (DAPs).

This may interest you, but you'll need headphones. Or of course send your music via Bluetooth to a small portable powered loudspeaker. **NK**

## DECIBEL FOR MAC

Mark Pearce describes a common problem with using a Mac as a digital source (November 2015, p37) in that the Mac will output at the sampling frequency and bit depth specified in Audio MIDI Setup irrespective of the source material's properties.

This isn't an issue if your music library is all derived from CD, but after years of ripping audio from DVDs and Blu-rays, and having now started buying occasional higher resolution downloads,



**"Use a player like Decibel (<http://sbooth.org/Decibel/>). Decibel works well for me" on Mac, says Jamie Atkinson.**

I have a mixture of 44.1/48/96kHz 16/24 bit music. I am also, frankly, far too lazy to keep going into Audio MIDI setup to tweak these settings.

One way around this is to use an alternative player like Decibel (<http://sbooth.org/Decibel/>) which will switch the bit depth and sampling frequency of the digital output to match that of the source material.

There are alternative players available that do the same thing such as Amarra HiFi or Channel D's Pure Music, some of which will also allow you to continue to use iTunes as your front end, but Decibel works well for me, and a free trial is available.

Whether I can hear the difference is another issue entirely, but it makes sense to me to stop music being resampled unnecessarily.

**Jamie Atkinson.**





**In the latest of our new series on systems to make your heart sing, Jon Myles picks a valve set-up with a very special pair of loudspeakers.**

# Shining Lights

**O**ur latest recommended system combines the magic of valves with an extremely distinctive sounding standmount loudspeaker. At the heart of this system sits Dutch company PrimaLuna's flagship integrated amplifier – the DiaLogue Premium HP. Priced at £2950, the DiaLogue offers tremendous versatility. As standard it comes supplied with eight EL34 output valves – but buyers can instead opt for KT88s, KT120s or even KT150s if desired, meaning the sound can be tailored to suit your personal preferences.



*Inside the PrimaLuna Prologue CD player, with sliding drawer CD loading mechanism at top.*

It also features an auto-biasing feature so changing between differing tubes means all you have to do is flick a rocker switch on the side of the chassis. Added to this is the option to run the amplifier in Ultra-Linear or Triode mode – the former offering more power but the latter sounding richer and creamier to my ears.

Partnering this are a pair of Motion 35XT standmount loudspeakers from America's famed Martin Logan and costing £1298. Yes, the company may be best known



*Martin Logan's Folded Motion tweeter allied to a 6.5" mid-bass unit give the Motion 35XT 'speakers a distinctively vibrant sonic signature.*

"The CD has a sweet midrange and obvious liking for stringed instruments which the amplifier and 'speakers both build upon"

for its hybrid electrostatic models but the Motion range is its attempt to offer a slice of that distinctive sound in a more traditional – and less expensive – 'speaker. Key to this is the use of a proprietary Folded Motion tweeter – a Heil-type ribbon design aimed at giving an extended treble response. Allied to this is a 6.5" aluminium coned mid/bass unit with a rear-firing reflex port.

The 35XTs are in fact a slightly larger version of the Motion 15s we reviewed and loved two years ago (Hi-Fi World September 2013) – but the extra size adds a handy amount of low-end punch to what was already a refined and articulate

package.

To complete the system I've gone for another rather unusual front-end in the shape of PrimaLuna's Prologue Premium CD player. This is no ordinary silver disc spinner as it relies on the use of valves to give it a signature sound character – and not just by employing a sole tube as a buffer stage. Instead the Prologue utilises a pair of 12AU7 valves per side with 5AR4 rectifiers in a dual-mono circuit.

As such it looks more like an amplifier than a CD player but in my eyes that's no bad thing.

### SOUND QUALITY

More than the sum of its parts? Absolutely. This is one system that really will appeal to both your heart and your head. One of the keys to it is the relationship between the loudspeakers and amplifier. The PrimaLuna's damping factor is rather low – which can be a problem with

the wrong loudspeaker. But with the Martin Logans it works like a dream.

There's a richness and lovely tonality to the sound that makes music flow with an easy gait. Using KT88 valves in Triode mode, the Neil Cowley Trio's 'Face Of Mount Molehill' CD was vibrant and



*The PrimaLuna DiaLogue can use a variety of valves in its output stage. We opted for KT88s mainly because of their midband creaminess, but you could go for EL34s, KT120s or even KT150s.*



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\* Model Shown: Sinfonia Anniversary (£5,000 SRP)





*Internal wiring on the DiaLogue Premium HP is neat and tidy.*

rhythmically spot-on, the Motion 35s proving able to push the music along in a vibrant fashion.

In truth, the Martin Logans have a slightly forward nature due to the Folded Motion tweeter but this does make them sound exceptionally detailed for their size. Bass was also rich and rounded in a typical valve-like fashion.

The ProLogue CD player goes about its business in a distinctive manner — with a sweet midrange and an obvious liking for stringed instruments which the amplifier and 'speakers both build upon.

Yes, there are downsides. Other combinations will pull out more detail and depth in recordings — while those craving absolute bass slam may find the Martin Logans a

little shy in that respect.

But that's not really the point of this particular system. Instead it's one for those who love to really relax into their music and revel in the warmth and emotion of their chosen tracks.

And, of course, there's one added benefit that all hi-fi lovers will really appreciate — the sight of two components with glowing tubes sitting in your living room. Turn down the lights, slot in a CD, open a bottle of wine and relax. You'll be listening long into the evening!

#### Cost:

- PrimaLuna ProLogue Premium CD player: £2,950

- PrimaLuna DiaLogue Premium HP integrated amplifier: £2,998
- Martin Logan Motion 35XL loudspeakers: £1,298 per pair

#### ALTERNATIVES

While the PrimaLuna is rich, warm and a thoroughly engaging listen, some may prefer slightly more bite and detail to their CD replay. If so, consider going instead for the excellent Oppo BDP-105D universal player — which will play just about any silver disc you can think of and is also equipped with a



*The PrimaLuna system remote is solid and well-built.*



*The Martin Logan Motion 35XTs feature a rear-firing reflex port and sturdy twin 'speaker binding posts to facilitate bi-wiring if required.*



*The DiaLogue Premium's rear panel features five line-level inputs as well as 8 Ohm and 4 Ohm 'speaker taps.*

variety of digital inputs.

Built around the renowned ESS Sabre DAC, it doesn't have quite the same lush midband of the PrimaLuna but does extract more information and have a tighter sound to it. At £999 it's something of a bargain — and can also be used to stream files over a network if you fancy going down that route.

I've used the Oppo with the PrimaLuna DiaLogue and they make an excellent combination. In the end, though, it really will depend what sort of sound you prefer.



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**HI-FI WORLD**  
VERDICT





what if you've already got a favourite pair of 'phones/in-ear monitors but still want to enjoy the Bluetooth experience? Fear not – for up-market earphone maker Noble may just have the answer in its little BTS (Bluetooth Solution) device.

It's a lipstick-sized device (14.4mm x 14.5mm x 60mm L/W/H) weighing just 10 grams that wirelessly connects mobile 'phones, laptops, tablets etc. to traditional headphones and allows control over the device being used, as well as providing provision for hands-free calling.

One end of the BTS contains the headphone socket while the other has a micro-USB for charging. Both Bluetooth 4.0 and aptX are supported while the BTS is good for seven hours of music or talk on a single charge. A spring clip on the side allows the device to be

secured to a shirt or top, while the package also includes a 1.5in two-pin connector cable for attaching to Noble's own earphones.

In use the BTS paired with a variety of iOS and Android devices without problem and sound quality was consistently good. A variety of Apple Lossless files sounded crisp and clean – with good bass weight and nice, smooth mids and treble. Indeed, on standard 16bit/44.1kHz CD rips it was hard to detect any significant quality difference between plugging a pair of Noble Savant straight into an iPhone or using them via the BTS.

At £69 the BTS is an elegant solution for people wanting to add Bluetooth functionality to a favourite pair of headphones and should find favour in situations where mobility without a long length of cable is useful – such as down the gym or when cycling or jogging. **JM**

[Noble Audio [www.nobleaudio.co.uk](http://www.nobleaudio.co.uk)]

### NOBLE AUDIO BTS £69

Bluetooth headphones are becoming increasingly popular for those looking to avoid a tangle of wires while listening to music on the move. But

# SOUNDBITES



### COWAN PLENUE M £540

Cowan's Plenu I high-resolution portable digital music player impressed us greatly earlier this year (see review *Hi-Fi World* July 2015) – right up there with the likes of the class-leading Astell&Kern I20 in terms of build and sound quality.

But with a High Street price of £740 it's obviously not within everyone's range. If you are looking for something a little more affordable, though, fear not – for Cowan have now released the Plenu M which comes in at a much more wallet-friendly £540.

Placed side-by-side the Plenu and Plenu M are virtually indistinguishable – both featuring a full metal body and 3.7in AMOLED touch screen, side mounted controls, micro USB slot for charging and loading music and a 3.5mm headphone jack which doubles as an optical S/PDIF out.

It's inside, though, where the main differences lie – the M using a Burr-Brown 1795 DAC as opposed to its more expensive brethren's 1792A, while there's just 64GB of on-board storage (the Plenu I has 128GB). Having said that, a microSD card slot allows an extra 64GB to be added – easily enough for around 1000 high-resolution tracks.

Sound quality-wise the M is a sterling performer. Like the Plenu I

it has a smooth, natural soundstage with just a hint of darkness to its overall presentation. While it doesn't quite possess the outright dynamism of the Astell&Kerns, it is well-balanced, open and spacious which ultimately lends itself to long listening sessions without a hint of strain.

Playing Led Zeppelin's 'D'yer Mak'er' via a pair of Noble Audio's K10s in-ear monitors the bass was big, deep and thunderous, while Jimmy Page's guitar work was tight and energetic. Switching to Mahler's 'Symphony Number 4' the Plenu M had no trouble delineating the various orchestral strands – and remained composed and controlled on the crescendos.

At £540 the Plenu M is still one of the dearer portable players on the market – but its impressive sound quality and premium build do more than justify the price. **JM**

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# Va Va Boom!

**A good portable Bluetooth loudspeaker for just £30? Jon Myles thought it was impossible – until he found the BoomTube.**

**P**ortable Bluetooth loudspeakers are coming at us thick and fast at the moment.

Some are small, some relatively large and they range between the decidedly cheap to the undeniably expensive with sound quality spanning a similar spectrum.

So, it's easy to be cynical when another one arrives – which was exactly my feeling when the BoomTube arrived from the rather implausibly named thumbsUp! design company. That cynicism was only increased when I looked at the price – around £30 on-line.

But my interest was piqued when I took the unit out of the box. Weighing in at 1.6kg and measuring just over 20cm long the BoomTube is a cylindrical unit which seems a lot more sturdy than its price would suggest.

What's more its specifications are also rather surprising at such a low price-point. For a start it features two forward-firing drivers at one end of the tube with a sub-woofer at the opposite end, all driven by a 7 Watt digital amp.

As well as Bluetooth connectivity there's also a line-level input, volume control, FM radio function and, perhaps most surprisingly, a microSD slot so you can input your own music selection. An internal 1000 mAh lithium battery gives a good seven hours of playback time, while recharging is via microUSB (cable supplied).

Clad in a fetching – if rather

military-looking – brown, the BoomTube also comes equipped with a faux-leather carrying handle. To be honest, I've seen units costing five times this much that don't have the same visual appeal or functionality.

## SOUND QUALITY

All that would be a bit pointless, though, if the BoomTube didn't produce a decent sound. And for £30 it astonished me in this regard.

Paired with my trusty iPhone 6 Plus (which it found in precisely seven seconds) the BoomTube shows it can punch out a tune with aplomb. Patti Smith's 'Because The Night' has drive and definition. It's not tinny or unfocussed but rather toe-tapping with a real snap to the guitar and rather decent bass.

The BoomTube sounds fast and rhythmic, which is unlike what I'm used to at this price-point where the usual fare sounds stodgy and unmusical. That's down to it producing a decent amount of bass, giving a firm foundation to the sound.

Okay, the low-end won't knock your socks off but it is clean and tuneful, which does enable the music to take on some real body and presence.

Refreshingly, you can also turn the volume up a bit before the case starts to exhibit any significant kind of rattle or shake to muddy the sound, so relatively loud volumes outdoors prove no problem.

Use it inside the home and careful experimentation can also pay dividends. I found using it on a wooden surface helped flesh out the sound while glass or laminate saw it lose a little from the low-end.

I could criticise the instructions for being rather basic or lament the fact that there's only one colour available – but that would be churlish. After all, this is a product that costs just £30 and looks and sounds like one costing a great deal more.

## CONCLUSION

As portable Bluetooth 'speakers go this is an absolute steal. It has a satisfying sound, good battery life and great design – all allied to a bargain price. An absolute delight then.



**THUMBSUP!  
BOOMTUBE £30**



**OUTSTANDING** - amongst the best.

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### VERDICT

You won't get a better portable Bluetooth loudspeaker for £30

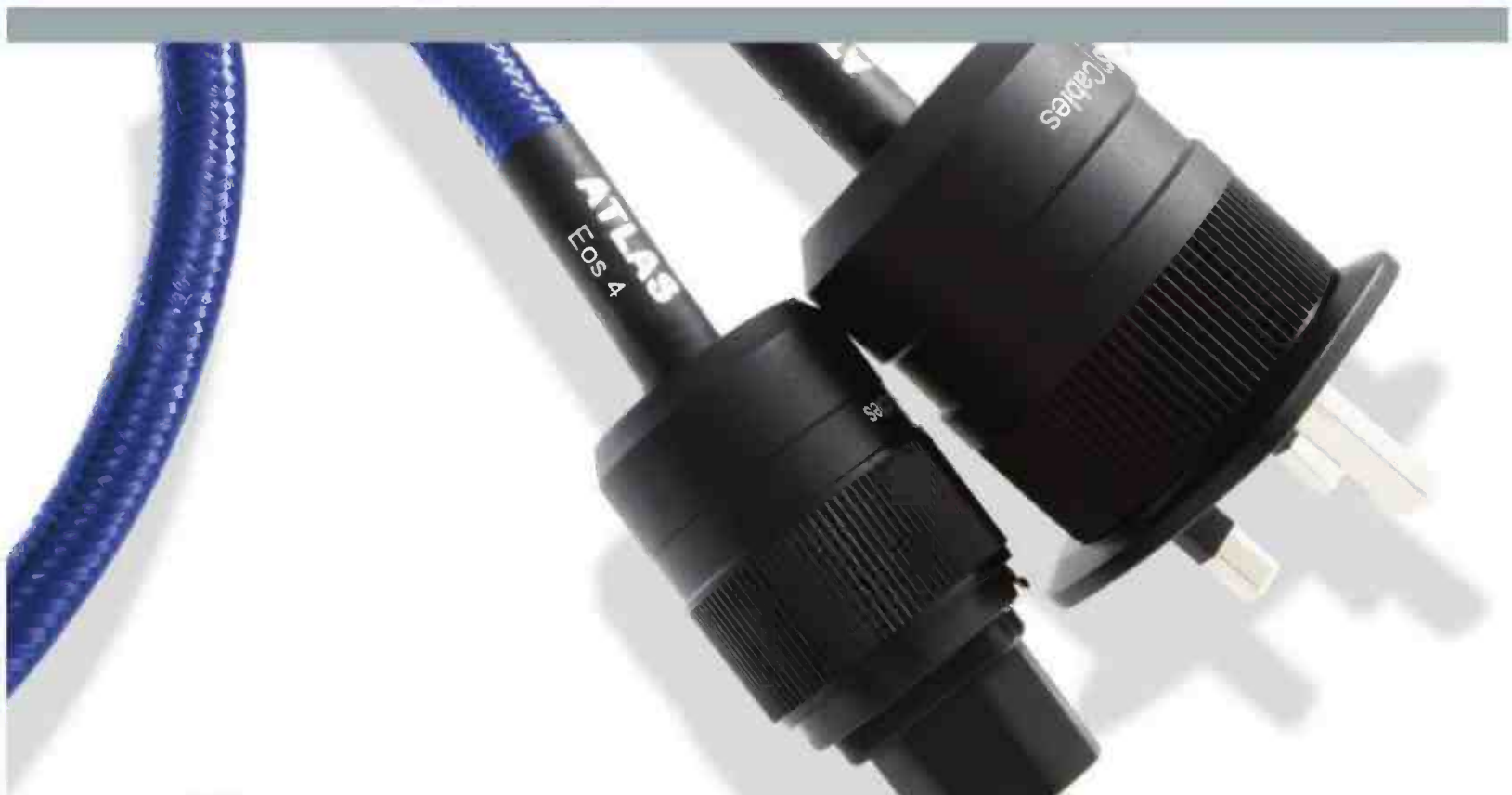
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# Moving On Up

Audiolab has revamped its groundbreaking 8200CDQ in the shape of the new 8300CD. Jon Myles thinks it might have all of your digital bases covered.



**A**udiolab faced a tough task when looking to update the 8200CDQ and this probably explains why at first sight there doesn't seem to be a great deal of difference between the new 8300CD reviewed here and its predecessor.

The 8300CD is housed in a slim aluminium chassis (black or silver) with Audiolab's trademark slim control buttons. The casing, though, has more rounded, softer lines and the fascia boasts a larger 2.7-inch OLED display. A new transport mechanism sees the previous model's slide drawer arrangement replaced by slot-loading.

Internally, the digital circuitry is based around the ESS Sabre32 9018 DAC as before, but there's now the capability to handle up to 32bit/384kHz files and DSD 64/128/256 via USB with the optical/coaxial and AES digital inputs accepting up to 32bit/192kHz. Improvements have also been made to some of the components in the power supply and signal path to tweak the sound.

Naturally, there's the full range of digital inputs – two coaxial, two

optical, asynchronous USB – as well as both RCA analogue and XLR balanced out.

Control of the unit is either through the front panel buttons or via the supplied remote.

## SOUND QUALITY

The 8300CD was pressed into service as a pre-amp, digital hub and CD player feeding a Creek Evolution

100A switched to power amp mode, as well as a pair of Quad II-eighty valve monoblocks.

The immediate impression I got was just how good this player is playing CD. There was a complete absence of digital hash to its sound, replaced by a rather relaxed and enjoyable gait. On Oasis's 'Definitely Maybe' the at-times searing quality of the guitar was subtly ameliorated so



*Audiolab fit a quality linear power supply, fed by a round toroidal transformer – top left. The slot loading mechanism is at bottom left and banks of capacitors are used for smoothing/noise reduction. John Westlake insists on all this.*

# THE VINYL REVOLUTION



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**Model shown:** Cyrus Phono Signature.

as to sound rather more musical and less divorced from the drums and bass below. Not that this robbed the sound of excitement, though. Instead it gave it a better flow and rhythmic excitement.

Trying a variety of silver discs it soon became obvious the Audiolab has a rare ability to bring the best out of them. Playing The Smiths' 'Queen Is Dead' via CD on the Audiolab was remarkably close to listening to the same track in 24/96 via my usual streamer – which is a testament to just how good the CD section is.

There was a little less bass depth, not quite the same definition to the guitar but nowhere near the absolute difference I'd expected between high-resolution and CD.

To be fair, the Audiolab doesn't have quite the overall driving quality of something like a Naim CD5i, preferring to take a step back and sound a little more considered. But then the Naim – at around the same price – doesn't have the Audiolab's pre-amp section nor its digital inputs.



*The rear panel carries balanced (XLR) and unbalanced (phono) analogue outputs, a balanced AES/EBU S/PDIF digital input, as well as electrical and optical S/PDIF digital inputs.*

On which point, switching inputs and utilising the 8300's DAC section, via an Astell&Kern AK120 hi-res player feeding the optical input, the same qualities shone through – in essence a smooth, expansive and eminently listenable sound. Again there was a slight warmth – interestingly different to the slightly more forensic sound exhibited by the Wadia di122 DAC reviewed elsewhere this issue, that also uses an ESS Sabre32 chip.

What the Audiolab does do on high-resolution material is throw up a very revealing soundstage – and here some experimentation and cable management makes a big difference.

Initial listening was done via the RCA outputs but switching to the XLR outs via balanced interconnects into the Creek Evolution 100A saw a step-up in sound quality (see Measured Performance for more details).

Now there was a little more detail to the overall sound – and my ability to hear deeper into dense mixes was improved. On Nick Cave's 'The Curse of Millhaven' bass was undoubtedly deeper and tighter while there was more atmosphere to the midband.

What didn't change, though, was the Audiolab's innate sense of timing. In this respect it's a bit of a master and shows the difference between a merely good digital decoder and one that has its handle on the essentials of music. Which is something the 8300CD does very well.

## CONCLUSION

The 8200CDQ was a superb machine. Its successor carries on that tradition. A great CD player, future-proofed DAC and pre-amp in all one slim box. In terms of connectivity, sound quality and overall ease of use it's hard to beat for the price.

## MEASURED PERFORMANCE

Via the XLR output, EIAJ Dynamic Range measured 119dB – an excellent result and as expected from the ESS 9018 Sabre32 DAC in this player. But via the phono outputs EIAJ Dynamic Range measured 103dB – the same as CD (16bit) and far below XLR – phono and XLR usually measure the same.

Noise affected distortion measurement too. At -60dB via XLR distortion measured a low 0.023%. But from the phono outputs distortion measured 0.12%, due to noise, even though the analyser was measuring only harmonics in a narrow band analysis (not THD+N).

Output was 2V with gain (volume) set to 0dB and 3V with it set to maximum (+3dB on the display) from the phono sockets, and 4V / 6V respectively from the XLR sockets – all high values. So the 8300 CD sounds as loud as a CD player when set to 0dB but louder when set to full gain of +3dB.

Audiolab offer a range of seven filters in this player, seen in earlier models, that provide interesting options affecting subjective sound quality. The filters are - Sharp roll off, Optimal

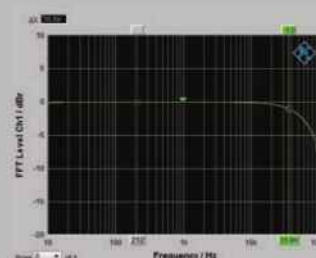
Spectrum, Minimum Phase, Slow roll off, Optimal transient, Optimal transient XD and Optimal transient DD. The first three are fast filters (i.e. short rise time) that give strongest treble and the brightest sound and best measured result in terms of frequency extension. There's a single medium speed filter, termed Slow roll-off, that under measurement is the best filter of all technically. The final three are slow filters that Audiolab place most emphasis on. They give clean transients free from filter ringing, but roll off frequency response strongly. This is inaudible with 96kHz and 192kHz sample rate files, but audible with CD (44.1kHz) where high treble is rolled off strongly in the 8300 CD, reaching just 11kHz (-1dB). For those who want good time domain damping and frequency extension, however, Slow Roll-off is the compromise to go for.

USB gave identical figures to XLR so there was no issue here. NK

**Frequency response (-1dB)**  
192kHz sample rate 2Hz-54kHz  
Distortion 24bit  
0dB 0.005%  
-60dB 0.02%

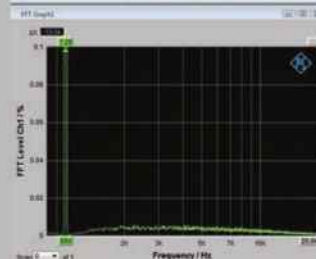
Separation (1kHz) 108dB  
Noise (IEC A) -120dB  
Dynamic range (XLR) 119dB  
Output (Phono/XLR) 3V/6V

## FREQUENCY RESPONSE



## DYNAMIC RANGE (+60) 119dB

THD+N 59.107 dB  
C/D 5.9431 mV  
C/D 0.9710 kHz



**AUDIOLAB 8300CD**  
£999.95

£

**OUTSTANDING** - amongst the best.

**VALUE** - keenly priced

## VERDICT

A worthwhile update to a groundbreaking product. Can be used as the heart of any system – just add a power amp and speakers.

## FOR

- connectivity
- exceptional CD replay
- high-resolution DAC
- digital pre-amp

## AGAINST

- best used with balanced outputs
- slight warmth

Audiolab UK  
+44 (0) 1480 447700  
www.audiolab.co.uk



# National Audio Show 2015

**Hi-Fi World takes a trip to the UK's National Audio Show, situated in the heart of England, to see what is coming our way.**

**S**aturday 19th September dawned gloriously sunny – and it stayed that way. The M1 motorway that runs past Whittlebury Hall – home to the National Audio Show – was streaming cars at 8 a.m. as we left London; Brits were back from hols. and enjoying the remains of summer. The show was busy and turned up some interesting new manufacturers and products. Here's the best of what we saw.

*From Poland comes the large, floor standing Zeta Zero Orbital 360 loudspeaker, with cylindrical electrostatic treble unit. Go to <http://www.audio-high-end.com> to learn more.*



*Chord Electronics had DAVE – Digital Audio Veritas in Extremis for Latin scholars – on show. It's their new super high-end DAC that uses a further-developed Rob Watts designed unique circuit. For more see [www.chordelectronics.co.uk](http://www.chordelectronics.co.uk).*



*This isn't Dave, it's Lee – Lee Taylor of Leema showing something loudspeaker engineers find exciting – a foil laminate with internal damping-layer (car sound proofing). Lee is using it to damp the all-aluminium fabricated cabinet of a new loudspeaker under development. See [www.leema-acoustics.com](http://www.leema-acoustics.com).*



*Ah – so that's where they went. Spotted at the show were the rare but very interesting U.S. Eminent Technology magnetic planar loudspeakers. Hi-Fi Hangar now handle them in the UK. See <http://www.hifihangar.co.uk>, showroom at Bordon near the Surrey/Hampshire border and A3.*



## THE NATIONAL AUDIO SHOW HERE SEPTEMBER 19th - 20th



*Surely some mistake! This is a 14in LP, seen on the Timestep stand. They were special pressings for longer play. See <http://www.time-step.com> for turntable able to play them.*



*German manufacturer musikelectronic geithain were showing some interesting coaxial speakers, like the ME-901K1 seen here. Go to <http://www.me-geithain.de/index.php/en>.*



*Entotem were showing their Plato streamer, with on-board conversion of LP to hi-res digital, coupled with storage to hard drive. See [www.entotem.com](http://www.entotem.com).*



*We spotted this new Roksan Blak amplifier and CD player on display, yet to be released. See [www.roksan.co.uk](http://www.roksan.co.uk) of London.*



*From Italy came the Reed Muse 3C turntable that uses idler drive – but can be converted to belt drive in minutes. Oh strange! To see more about how and why it does this go to [www.reed.it/products/turntables/all/17-turntables/muse-3c](http://www.reed.it/products/turntables/all/17-turntables/muse-3c).*



*The Inspire Vivid Carbon DC, a neat looking upgraded Linn LP12 Sondek complete with Ittok arm, seen in the Vivid room. Go to [www.inspirehifi.co.uk](http://www.inspirehifi.co.uk) to see more or visit their Chesterfield showroom.*



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# The Right Chord

**Jon Myles brings together a one-make cable system from Chord to show how just such a consistent approach can pay dividends.**

**A**part from a few vocal sceptics, most hi-fi enthusiasts accept that cables can make a tremendous difference to a system. Even a moderately-priced set of components can be given a healthy sonic boost by choosing the right loudspeaker leads, interconnects or digital links.

But there's no getting away from the fact that products from different manufacturers all have their own trademark sound. Try a set of 'speaker cables from Company A and you might get more bass compared to one from Company B – but lose out on some pace and timing.

Add in interconnects from Company C and something might change again. Then bring in after-market power leads from Company D and you can see the sonic permutations start to multiply exponentially when you mix and match (if I'd paid more attention to my Business Studies statistics module at university I could probably give you some exact figures!).

An obvious solution is to build a coherent wiring loom from one company. The advantages are there's likely to be a house sound due to the use of similar materials and geometry of construction, the products will



*Chord Signature Reference speaker cables.*

have been designed to work together and there's the opportunity to move up the company's range in stages as funds allow.

Which led me towards choosing a set of cables from the Wiltshire-based Chord company's Signature range just to see how well this can work. Specifically the Signature Reference 'speaker cable, Signature Tuned Array XLR interconnects, Signature Array Power lead and Signature Super Array streaming cable

The set-up was simple: one system comprising a Cambridge Audio Azur 851N network player, McIntosh MC152 power amplifier

and Spondor D7 loudspeakers – a combination costing a shade over £10,000.

And then, for comparison, a rather more budget but still excellent set of components comprising an Oppo BDP-105D disc player, Creek Evolution 100A amplifier and Epos K3 floorstanding loudspeakers.

## SOUND VALUE

Plugging the Signature Reference loudspeaker cables into the McIntosh/Spondor set-up immediately revealed what it's intentions are. This is a cable that majors on timing, detail and openness: it allowed the McIntosh to convey all of its controlled power to the wonderfully detailed Spondor D7s.

Streaming Primal Scream's 'Screamadelica' (24/96) via the Azur 951N the female vocals on 'Come Together' rang out as clear as a bell, while Jesse Jackson's sampled concert speech was spine-tinglingly good.

I then added the Signature Tuned Array XLR interconnects between the Azur and the McIntosh, instead of a set of stock cables, and started to see the synergy of a coherent approach. The details and dynamics evidenced by the 'speaker cables became even more sharply focussed. Jackson's voice wasn't just there – it moved



*Chord Signature Tuned Array XLR cables.*

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accuracy in sound



Q  
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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.

All Quintet cartridges use the same ABS thermoplastic bodies and neodymium magnets, but each model in the range has its own sonic expression that reflects its status. From the well-rounded **Quintet Red**, through the smooth **Quintet Blue** and spacious yet dynamic **Quintet Bronze** up to the pure audio excellence of the **Quintet Black**, this series offers something for every discerning listener at a very attractive price.

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



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forward into the listening room and out and above the 'speakers. Perhaps most impressive was the way I could hear more into the mix and feel enveloped by the music.

Next, a pair of Signature Array power cables were used for both the McIntosh and 851N, instead of their stock leads. Here the improvement was more subtle – but noticeable. There was an obvious firming up of bass notes and a smoother midband. The low-end did not go any deeper but it did sound obviously more tuneful and rounded. This was something I became more aware of when I reverted back to the original power leads, hearing the sound take a step back.

Finally, using the Super Array streaming cable to go from my router to the Cambridge Audio Azur proved digital connections do make a difference. Some people still dispute this – but there are good reasons as to why it works (see this issue's Letters for a more detailed explanation).

Again the Chord built on all the qualities of its stablemates, bringing a better sense of timing and coherence to the mix. Dave Brubeck's 'Take Five' never sounds bad – but when you hear the syncopation and drum beats at their best it moves to a different level. With the entire Chord cabling in place this is just what happened.

All of a sudden the kick-drum halfway through the piece wasn't just a thwack – it actually punched me in the chest with its power, but did not linger to slow the tempo. Instead it was there like a bolt from the blue and then gone – an absolute stunning moment that elevated the track from merely good to spine-tinglingly

#### **Chord Signature Array power cable.**



memorable.

Switching the entire cable loom over to the Oppo/Creek/Epos system proved even more instructive. It might seem a mismatch – cables costing around £3200 employed on the end of a £4000 set-up. But, actually, the increase in performance was quite startling – akin to upgrading each individual component to the next level.

The Reference 'speaker cable and Tuned Array XLR work together to give a much cleaner and sharper sound to the Oppo and Epos 'speakers. But most crucially they seemed to let the two breathe and open up. It's as though a constriction in the pipeline was removed and this let more of the essential elements of the music flow freely.

Wendy James's roar of 'Wooooaaahhh' at the start of Transvision Vamp's 'Baby I Don't Care' (a classic rock 'n' roll moment that never fails to make the hairs on the back of my neck stand up) was

visceral – her voice having just the right amount of edge.

Leading edges of guitars were also more distinct, while on massed strings I could hear the sound of bow on string, instead of just a wall of sound.

#### **TUNED ARRAY**

Chord's proprietary Tuned Array technology was originally developed for the company's digital cables – but it was soon found it also brought improvements to analogue interconnects and power leads.

It originated when Technical Director Nigel Finn was looking at ways to reduce reflections in digital coaxial cables – and found that adding a short additional tail to one end of the cable had a profound effect. An effect that was heightened when the tail was 'tuned' to the length of the cable.

It was then discovered that the same technique brought improvements to the company's RCA and XLR interconnects, streaming cables and power leads.

The beauty here is that with the Chord loom in place you can happily look to upgrade your components over time with obvious benefit.

Swap the Creek to something of the level of a McIntosh and the difference will be immediately evident, such is the transparency of the interconnects and loudspeaker leads.

On those terms, Chord's Tuned Array cable loom makes a very impressive long-term investment.

#### **Chord Signature Super Array streaming cable.**



#### **CABLES**

Signature Reference Speaker: £900 2m terminated pair  
Signature Tuned Array XLR: £1000  
Signature Array Power: £550  
Signature Super Array Streaming: £750

The Chord Company  
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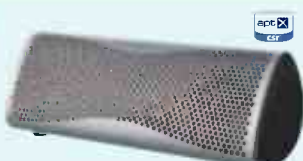


#### RUARK AUDIO • MR1 • BLUETOOTH SPEAKER SYSTEM

Standing just 17cm tall, the MR1 speakers feature 20W of Class A-B amplification, a 75mm mid/bass unit and 20mm tweeter in each enclosure. The handcrafted cabinets are finished in a choice of rich walnut veneer, soft white or soft black lacquer.

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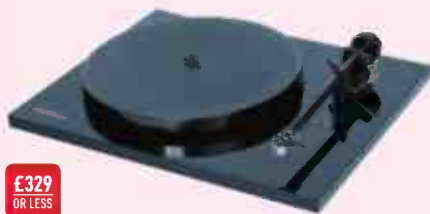


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#### MARANTZ • CD6005 / PM6005 • CD / AMPLIFIER

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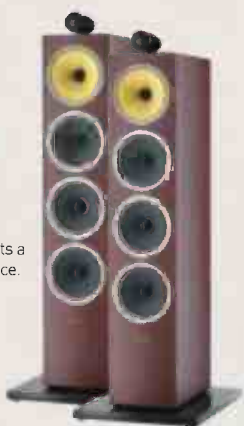
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**WHAT HI-FI? AWARDS 2014**



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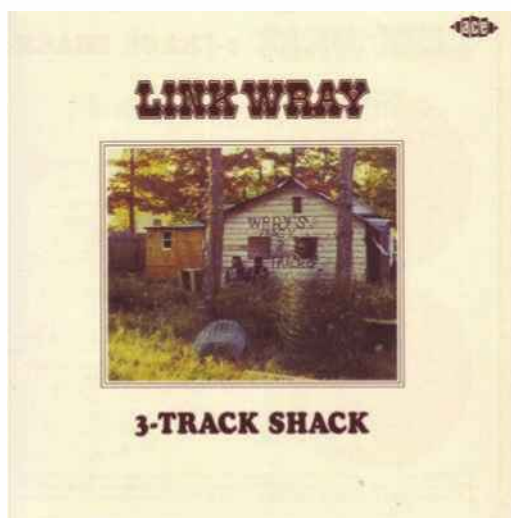
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**SEVENOAKS**  
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Link Wray

Link Wray/Mordical Jones/Beans  
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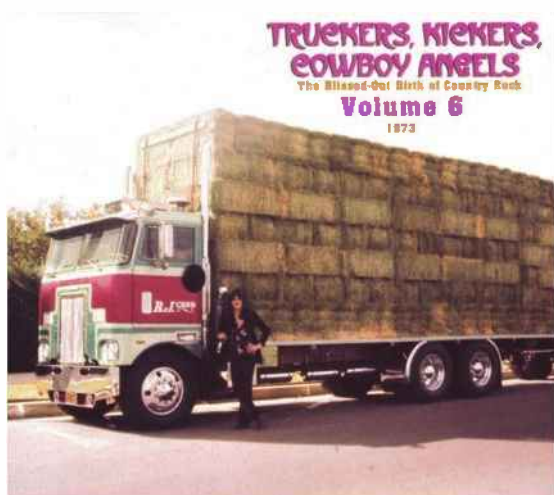
I tested each of three albums on this CD. Playing the self-titled 1971 album, 'La De Da' offers a sweepingly wide soundstage in which Wray does his best Van Morrison impression. There is a touch of compression overlaying the master which, at higher volumes, could prove slightly wearying. That said, there is plenty to admire here. The master is well ordered. 'Take Me Home Jesus' provides an up close, rootsy, vocal performance and an easy going rhythm.

'Mordical Jones' from 1972 has a clean presentation that is a touch on the clinical side. This edge is most audible in vocal crescendos and secondary percussion. The soundstage is admirably wide, though. Wray's guitar is open, detailed and incisive while bass on 'Juke Box Mamma' is punchy and tight. 'Precious Jewel' offers some precise guitar work in amongst the easy-going, almost West Coast, vocal vibe.

Moving to 'Beans and Fatback' (1972) and the first track 'Water Boy' which offers a slice of sleazy swamp blues guitar that is both damned impressive in terms of playing skill but also in terms of the overall mastering. The track and the album as a whole is both easy on the ear, full of detail, better balanced in tonal terms than the previous LPs and exhibits more air and space. There are, at times, an amalgam of strings from a variety of guitars yet this album offers admirable instrumental separation for each, adding to the depth and richness of the LP.

Other CD releases of note include volume four of 'Masterpieces of Modern Soul' (Kent) featuring tracks from Obrey Wilson, Cesar, Alvin Robinson and Harman Davies plus the compilation, 'Reaching Out: Chess Records at Fame Studios', an overview of 1967-69 southern soul sessions that includes previously unissued tracks.

# AUDIOPHILE CD



Truckers, Kickers, Cowboy Angels

The Blissed-Out Birth of Country Rock Vol  
5-7  
Bear Family

Three more volumes that move the story of the birth of country rock from 1972 to 1975, arriving in multi-gatefold two CD packs, each containing a thick booklet that provides a wealth of background information and interesting facts on tracks within the compilations. And compilations they most certainly are. There's plenty of varied artists on offer here from the likes of Willie Nelson, the Ozark Mountain Daredevils and Gram Parsons to The Byrds, J.J. Cale and Little Feat.

In terms of the sonic qualities of each, the results often depend on the original source of each track because there are variations to be heard here.

For example, Willie Nelson's track 'Shotgun Willie' (found on Vol. 6) features a series of well-lit upper midrange frequencies while, just two tracks further down the line on the very same set, Delbert

& Glen's 'California Livin' is rather more restrained in terms of upper midrange.

More than that, the tonal balance is, if anything, pushed in the other direction with quite a warm bass on offer that flows over the entire soundstage. Similarly, the very next track on the same set, Townes Van Zandt's 'Pancho & Lefty', shows Van Zandt's lead vocal placed quite forward in the mix to dominate the entire track while the backing instrumentation is set back in the depths of the soundstage. Such is the nature of the compilation: I have sympathy for the Bear Family mastering engineer who has not only got to sort the whole lot out but give the entire compilation a semblance of evenness and consistency.

That said, in general terms, Bear Family has provided a well-presented series of classic tracks that are clean and score highly in terms of musicality.



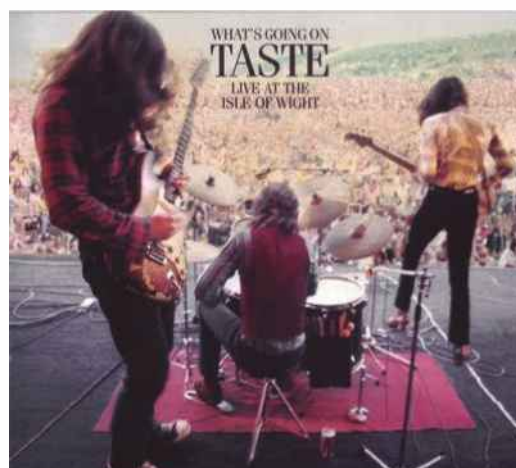
**D**espite the internal musical ructions between lead guitarist Rory Gallagher and his rhythm section (the latter had been installed by the management to replace Gallagher's original line-up) and, incidentally, Gallagher and his management over money and status and the poor quality of transport (Gallagher was proved right, the van they turned up in was broken into and drum accessories were stolen), the band put on quite a show.

In sonic terms, the compression has been turned way up. This might have something to do with the fact that this is a live gig and the master was created to make sure all aspects of the stage were noted and recorded as each element of the soundstage is rather clinically tracked. Each guitar string, every cymbal tap and each bass drum thwack is measured with some precision. Vocal and guitar crescendos can produce the odd

wince at high volumes, though.

As this is an older live recording, the soundstage is not particularly wide and neither does it offer much depth or help in terms of 3D imaging. That said, if you look at the front cover of the CD, you see that the group performed as a physical tight unit.

Live recordings are never perfect. There are always compromises but, considering its age and the circumstances of the music festival, there is plenty to like here. The balance between the musicians, their music and the audience is good. Sometimes, live concerts can place too much emphasis on the audience which degrades any audiophile elements. Here, you can hear the audience – you are aware that this is a live gig – but the musicians dominate, as it should be. In addition, this recording certainly conveys the band's dynamism, their energy, their enthusiasm and undoubted instrumental chops. It's quite a ride.



## Taste

**Whats Going On: Live at the Isle of Wight**  
Eagle

# AUDIOPHILE CD

**F**rom the smooth guitarist and ace melodist, in sonic terms, this CD set is a highlight. Taking the 'Soda Fountain Shuffle' (1985) first, Klugh offers a rich suite of bass frequencies that provide a strong foundational support for his guitar, giving the track a warming and punchy percussive base.

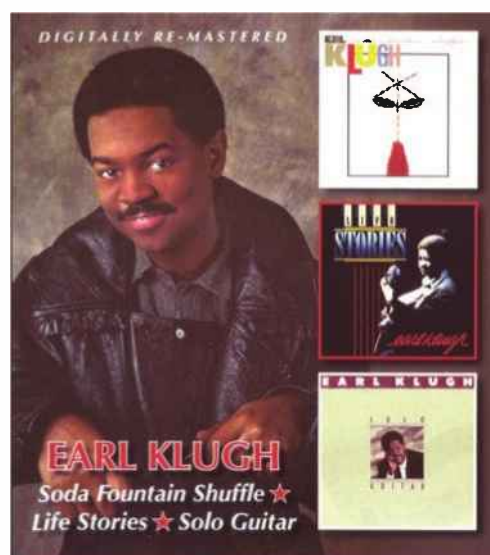
Klugh's own guitar is both detailed and precise. This is one CD where you can hit the volume button and not worry about giving yourself a headache after an hour's listening. The soundstage is broad and deep but also busy. You never hear any bloom or sonic fog. The master does a good job in separating each instrument which just adds to the sonic thrills.

Moving to the slightly better second album in this set, 'Life Stories' (1986), and the track 'The Traveller' the smooth midrange continues, powered by the rich, shiny, heavily-produced

arrangement. Klugh presents an easy-going funk that glides over the senses.

By the time we get to the superior final album 'Solo Guitar' (1989), the (sometimes) over-produced arrangements fall by the wayside alongside the electric guitar and we are left with Klugh stripped bare with only an acoustic guitar to keep him warm. The ease and the gentle vibes remain but we are allowed to get much nearer to the man with this album and Klugh has much more room to produce complex finger-picking patterns.

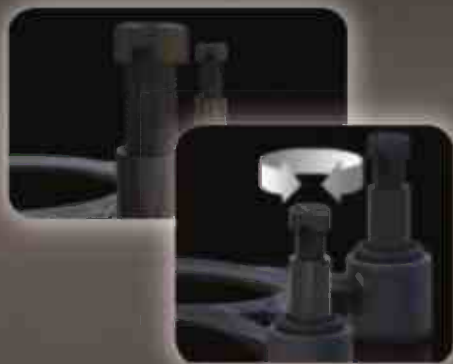
Other releases for this month includes three albums from John Steven's free-form jazz group Away. The self-titled album (1976), 'Spontaneous In Between' (1976) plus 'Mazin Ennit' (1977); Nitty Gritty Dirt Band's 'Plain Dirt Fashion' (1984)/'Partners, Brothers and Friends' (1985) and, finally, Bachman-Turner Overdrive's 'Head On' (1975) and 'Freeways' (1977).



## Earl Klugh

**Soda Fountain Shuffle/ Life Stories/ Solo guitar**  
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# "This is where Chord have had vision and made it work"



Noel Keywood

Chord's presentation of Mojo, their new portable DAC, to the press this month, caught my deep interest. I was fortunate enough to sit beside designer Rob Watts and hear in detail what was involved in this product and why it is manufactured in the UK, not China.

This brings me to the topic of electronics in the UK, compared to America and Germany, more of which later. But first Chord and Mojo.

Many of you will know that Chord electronics design their own digital-to-analogue convertors (DACs), or should I say Rob Watts designs them for Chord. Chord have used Rob's unique DAC architecture since meeting acclaim with DAC64. Chord's MD, John Franks, is an engineer and always appreciated the potential of what Rob Watts could achieve.

I explain all this because the easy and 'sensible' option for an MD is to go somewhere cheaper and more assured: to a standard DAC chip from one of the world's big component manufacturers.

That Chord chose not to go down this route is a brave decision. Unfortunately, in most cases this approach doesn't work out. I have seen many in-house technological initiatives peter out, from Strathearn direct-drive turntables to NXT planar loudspeakers; the odds of success are slim.

By way of contrast the world's electronics giants that you may never have heard of, like Texas Instruments of the USA, employ thousands of highly skilled design engineers in teams that work to strict cost controls, Rob told me, costs pared down to the last cent.

What comes out of the machine are chips, including DAC chips, that

are affordable. A Burr Brown 1792 costs £20 and an ESS Sabre32 9018 £30. Manufacturers work to a x5-x7 mark up on input price, so this equates to £120 and £180, let's say, on the retail price paid by the final purchaser, not including tax of any sort.

It makes every bit of sense for a hi-fi company building an electronic product to go down this path, because you get a dependable engineering solution at a knowable price, rather than a dodgy proposition from a maverick.

But Rob Watts isn't a maverick. There are precious few engineers around able to handle both analogue and digital audio – and he's one of just a handful.

Rob's digital designs have progressed steadily over the years since I first sat down to talk to him in 1991 and now 24 years later we have Mojo – an advanced, portable digital convertor not designed by a team working to the last cent. Consequently, it isn't pared down in crucial areas that you or I, or even most engineers, would not know about and would never understand.

This is where Chord have had vision and made it work. Hugo was the first product from Chord to take Rob's DAC into new commercial territory: the mass market. At around £1000 it was an affordable high-end product, and it sold well as a result. Hugo also started to push the idea that high-end audio technology could be wound down to the level of 'affordable' – if barely so in everyday terms – and Hugo also showed that in the modern world portability was a key feature. So Chord decided to take Hugo and make it truly portable. Hence Mojo.

All this is very well, but it is of course conventional marketing strategy. What lies behind the view and what interests me however, is

not just the technology, but the fact that Mojo will be built in the UK at a purpose-built factory in Kent, using robotic manufacture.

This, Rob told me, makes production economic in the UK, rather than China, bringing back jobs and creating demand for people with technology skills.

This is what the UK needs in manufacturing if it is to develop future technologies and products. Unfortunately, small commercial initiatives like this pale against the investment Germany makes in semiconductor education, research and manufacturing, outlined in a recent EETimes article.

The west German state of Saxony has 2200 companies employing 58,000 people, six universities with departments dedicated to electronic and semiconductor education and research, as well as 80 co-operative education facilities with the likes of Fraunhofer, Max Planck and Leibnitz Institutes etc.

In a nutshell then, Germany conspicuously invests in engineering and this area is amusingly dubbed 'Silicon Saxony', after Silicon Valley in the US of course.

Which brings me finally to an ad-hoc day tour of mine down Silicon Valley, on Cal Train to Palo Alto and bus down to Mountain View, with stop offs between. To see the real deal was stunning to the point of being depressing: it's an area of vast wealth, of haciendas in the sun and all fuelled by high-technology companies such as Apple, Google, Hewlett Packard etc. – in their thousands.

Britain is far behind, explaining why I was so cheered by Chord's conference. It wasn't the champagne or the views from the Shard that did it, it was delight in hearing about a genuinely valuable development in audio technology and what it could mean to the UK. ●

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# "This was a label that allowed the music to do most of the talking"



Paul Rigby

I don't know what it is, but there's something – well – cozy about certain record labels. There are and have been hundreds of the things out there, but when you see vinyl or even CDs toting those iconic names there's something reassuring and 'solid' about them.

I remember when I was a child, sometime in the early-seventies, receiving a bunch of 7" singles and a few albums from an aunt of mine. This was to accompany a Dansette record player that my dad had brought into the house.

Besides being entranced by the 16rpm speed option on the record player and wondering what sort of alien-inspired discs must be played at such a slow speed, I was more than curious about the records themselves.

The albums included a compilation from Nat King Cole plus the TV soundtrack from the hit TV programme 'The Beverly Hillbillies' (with surprisingly good performances from actor Buddy Ebsen, who played Jed Clampett, incidentally).

The albums arrived with their own sleeve art of course but the 7" singles, because they arrived in a die-cut paper sleeve, did not. In effect, the record label for each served as the 'art' and it is that art which became ingrained upon my memory all those years ago.

So you had the UK edition of Ray Charles' 'Take These Chains' on the black and white label His Master's Voice. There was Cliff Richard and The Shadows with 'Young Ones' on the green Columbia label. Elvis Presley was there on the RCA label with 'Are You Lonesome Tonight' and The Searchers were present and correct with 'Sweets for my Sweet' on the pink Pye label.

My favourite at the time was the blue Philips label and Jimmy Dean's

tale of quiet heroics and 'Big Bad John'. I learned the lyrics to that one.

One of the most important labels from that period was London, which would issue US singles into the UK. There was a couple of reasons for this.

Firstly, there was something rather sophisticated about the black and silver label that adorned its centre and, as I grew up, I realised that there were many significant artists appearing upon it.

Of course, many of these performers were at the height of their careers long before I was born but their influence and impact remained to such an extent that their name and the London label became a heady and influential combination.

Back in 1959, in fact, saw one of only two London singles to top the UK charts that year with Jerry Keller's 'Here Comes Summer'. The first of over twenty singles he would release, this was Keller's only hit.

Oddly, it reached No 1 in the UK in September, so maybe 'There Was Summer' would have been more apt. Keller would feel the 'warmth' of a hit as a songwriter, though, penning Andy William's single 'Almost There'.

Sometimes London would surprise. For example, to see Neil Sedaka on London raises eyebrows as his home was notably RCA/Victor. 'Ring A Rockin' (from the US label, Guyden) was his brief sojourn on this label but would disappear into obscurity when Sedaka released 'Oh Carol'.

In 1960, rock'n'roll was still alive in the UK – although it was on intensive care in the USA – so Chuck Berry's 'Let It Rock' (from the US label, Chess, that would soon move to Pye in the UK) was welcomed, although not enough to chart (none of his London discs were, for that matter).

Oddly, this track would reappear as a B-side on the flip of the single 'Memphis, Tennessee' in 1963, which sold a whole lot more than this disc. Notably, the B-side to this particular disc was a little ditty called 'Too Pooped To Pop'.

As I write these words, I am looking forward to talking to the family of legendary singer Roy Orbison about their father's life and times.

Orbison was another London artist. 'Blue Angel' (from the US label, Monument), for example, was his follow-up to the hit, breakthrough single 'Only The Lonely'.

It was a good example of the work that Orbison was doing at the time and illustrated his occupation of the charts, that never seemed to be without the great man's name in there somewhere or other.

All of these songs also appear on a very nice compilation series issued by Ace ([www.acerecords.co.uk](http://www.acerecords.co.uk)) which takes the London label on a year by year journey, packing 28 songs or so for each.

In fact, they're called 'The London American Label Year By Year'. What the series does is make you aware just how prolific and powerful the London label really was.

It issued big names and significant records seemingly every week. Seeing the track listings on the rear of the CDs also gives you some idea of just how the music industry has changed.

Now, London has been subsumed into Universal Music and is just another imprint.

But I do like to remember that sophisticated record label. That elegant font and understated design that spoke quietly of quality. This was a label that allowed the music to do most of the talking. Listening to the compilation now, you can see just why it was so influential at the time. ●

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# "I never realised just how good some of The Shadows records were...seriously"



Jon Myles

**"W**riting about music is like dancing about architecture". It's a famous quote variously attributed to Frank Zappa, Laurie Anderson, Elvis Costello, Thelonious Monk, American painter, actor and comedian Martin Mull, David Byrne and a good number of other people.

But whoever actually coined the phrase, they made a very good point. How, exactly, can anyone convey in words the beauty, power and emotional pull of music? It's almost impossible to do – much the same as it is trying to describe a truly great painting, sculpture or theatrical experience. How do you translate the sensation?

Which is probably why the majority of worthwhile books about music or the recording industry have frequently tended to be biographies of individual artists (mainly only of interest if you are a fan) or detailed histories of a band/artist's recordings (ditto).

One notable exception was Alex Ross's *The Rest Is Noise - Listening To The 20th Century*. Here the author attempted to chart the trajectory of classical music over the past 100 years by drawing together the works of the likes of Beethoven, Schoenberg, Mahler and Strauss, placing them in their social context, and then connecting them to artists such as Bjork and Philip Glass.

He did it with such enthusiasm, gusto and obvious love of the medium that even someone like myself – who grew up on pop, rock and punk – went in search of obscure twelve-tone works, discovered Berg's 'Wozzeck' and then started to realise there was an obvious common thread between that music and bands like Sonic Youth and The Jesus And Mary

Chain.

All from one book! Which is why it's gratifying that this year has seen a welcome tome that does the same for the history of pop music – and should make you scurry around to discover records you have never heard before, maybe weren't even aware of or didn't quite realise what magic was contained within their composition.

The book in question is Bob Stanley's riveting and gloriously irreverent *Yeah, Yeah, Yeah: The Story Of Modern Pop*. It's an ambitious task to take on – I mean, just how do you tell the story of modern popular music in a mere 656 pages? But the book more than lives up to its title and does something more – it actually makes the sounds come alive via the printed word.

Of course, it helps that as a member of Saint Etienne the author helped craft some of the most gloriously thrilling and intelligent pop music to come out of the UK over the past decade and a bit.

But he delves into his subject matter with such obvious relish, enthusiasm and attention to detail that you immediately get itchy fingers to go and discover the records he's talking about – whether it be via Spotify, on CD or even rediscovered in your own music collection.

For a start, I never realised just how good some of The Shadows records were before I read this book. Seriously...I didn't. And I'd never heard Dickie Valentine's 'The Finger Of Suspicion' either – but now it has a permanent spot on my FiiO portable player for when I'm commuting.

There's also a fascinating chapter on Motown which introduces you to some absolute classics that never made it into the charts but really should have done and an explanation of why Martha and the Vandellas were more exciting than Diana Ross and

the Supremes but seemed to get lost in the chaotic Tamla machine.

I've also had a brief re-evaluation of the Bee Gees output thanks to Bob Stanley's championing of their talents. Can't say I quite agree with him on this one but it was nice to be challenged and made to think.

Which is what makes reading the book such a delight. Throughout it all, the author sprinkles the narrative with fascinating facts that make it more than just a list of unknown and forgotten songs.

Who'd have known, for example, that Elvis Presley's famous reluctance to play live outside America had more to do with his manager Colonel Parker's lack of a US passport due to his being born in the Netherlands and consequent fear that he may not have been allowed back in – rather than any fear of foreign lands? Or that Jimi Hendrix took part of the riff from 'Third Stone From The Sun' from the Coronation Street theme tune? (seriously, listen again and you'll soon hear it).

Or, even more bizarrely, that Chic's original name was Allah and the Knife Wielding Punks? Which, in my eyes, is a much better name than the one they achieved fame and fortune under.

Not, of course, that any of this matters in the grand scheme of things. But it does undoubtedly show that writing about music is not quite as pointless as dancing about architecture, as the old saying implied. Well, not when the people penning the words have a real love, devotion and knowledge of their subject.

Good writing can instead open your ears to music you may never have experienced before and set you on a journey that takes you away from your usual favourites and into different sounds. Which, for me, was one of the reasons I fell in love with music in the first place. ●





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# "Great though it is, a Spotify playlist just doesn't cut it as a love token"



Martin Pipe

**T**he other afternoon, I was enjoying a BBC 6 Music session by the psychedelia-tinged New York alt-rockers Mercury Rev. In a chat before their set, the band's frontman Jonathan Donahue admitted that he was a 'cassette man'. To the purist reel-to-reeler, the word conjured up tangles, hiss and wow. To the Nakster, it meant analogue heaven at 1 7/8 inches per second. Spool's gold! C30, C60, C90 – go! But the cassette held a particularly special place in the heart of others.

Indeed, Donahue's experiences, now a lost art, of personally-selecting the tracks and (equally important!) determining their sequence for compilation cassettes – popularly known as 'mixtapes' – will be familiar to many of you...and, for that matter, the record industry, which would never cease reminding us that home taping was "killing music".

Donahue described the process of making a mix cassette as "modern meditation" and recalled that the taping of that precious C90.

Most of us will also recall expending much creativity in neatly-handwriting the cassette labels and inlay card, filling any blank spaces with highly-personal messages and dreamily-artistic doodles.

No wonder Donahue saw making a mixtape for a loved one as "almost a romantic ritual...and then making sure the girlfriend would listen to the whole thing, all 90 minutes". But it wasn't to last, thanks to technology. Just as the art of courtship has been diminished somewhat by the lesser art of thumbing through images on a smartphone dating app, the ritual of making the mixtape fell victim to the onslaught of the digital age.

Great though it is, a Spotify playlist just doesn't cut it as a love token. And in these busy times we don't, as Donahue observed, "have

the time to plan the emotional trajectory of a mixtape." So, isn't it time to make a stand for humanity? If you did want to revive mixtapes, though, you'd need to (i) find a cassette deck that still works, (ii) find a supply of blank cassettes and (iii) determine whether the target of your affections is in a position to play the damn thing.

Cassette decks are, funnily enough, still fairly common pieces of equipment – although to the best of my knowledge they're not being made any more. At the Tonbridge Audiojumble I visited for this issue, I came across a choice of worthy budget machines that could have been yours for nothing more than a pound or two in the charity box.

And despite a moderate revival in the cassette's fortunes, courtesy of the hipster brigade, even decent 3-head machines rarely top £50 on eBay. The media itself doesn't have to be that dear, either. Cheap ferric cassettes today live in three-packs at Poundland.

Better-quality chrome and metal tapes, still shrinkwrapped, tend to fetch surprising amounts of money. And you wouldn't want to come across as 'cheap' to partners by recycling used cassettes for mixtape duty! Finally, there's the issue of a cassette player. If your amour doesn't have access to such hardware wouldn't a second-hand machine be a wonderfully romantic gift?

Still on a nostalgia tip, I recently went to a Caister Soul Weekender. These three-day celebrations of soul music, which are actually held in Great Yarmouth's Vauxhall Holiday Park, go back to the late 1970s – and are as iconic to lovers of the music as the long-disappeared Wigan Casino's Northern Soul nights, and the equally-defunct Goldmine club on Canvey Island. There are two events annually – one that takes place over

the May Day Bank Holiday weekend and another in late September or early October.

Not that Caister is just about soul music. Three venues – which, between them, spin tracks from midday to 4am or beyond – host numerous different genres and sub-genres. Among them are such delights as jazz-funk, Salsoul, swing, old-skool hip-hop, mod soul, Northern soul, reggae, ska, 70s/80s funk, club classics/anthems, Motown, Philadelphia soul, classic disco, divas, vintage house and garage. They usually operate simultaneously, so you might need to plan your visit if you want to take in your favourites!

Of the venues, the largest – the 'Main Arena' – is the heart of Caister, with well-known DJs and PAs; among these was Rose Royce's Gwen Dickey, who treated fans to a selection of hits like Car Wash and Love Don't Live Here Any More.

Dickey appeared on the Saturday, on which the famous Caister fancy-dress party took place. A considerable amount of effort was in evidence here! As was a lot of fun; Caister has a friendly atmosphere. And it was a pleasure to hear and dance, alongside hundreds of like-minded people, to tracks like Glenn Jones 'I Am Somebody', D-Train's Music, Night Writers' 'Let The Music Use You' and Sugar Bear's Talking Heads-sampling 'Don't Scandalise Mine'. I'm showing my age here...

Caister is a popular event, and books up fast – especially if you want to stay on-site. This is recommended for convenience and access, although affordable (£1.25 a trip) taxi-buses run – night and day – between the camp and Great Yarmouth's hotels and B+Bs. Other Caister draws include a radio station, a BBQ and Sunday night's 'grand finale'. If you like the music, treat yourself and check it out. ●

# Fall and rise

Martin Pipe charts the fall of quadrasonic sound in the domestic environment – and how it instead eventually revolutionised movie-going.



*Four-channel surround sound may have failed in the home, but it was just about to make an enormous impact in the cinema – blockbuster film *Star Wars* was the first mainstream movie to take full advantage of Dolby Stereo, which was originally-based on quad technology.*

**B**y the mid-1970s, interest in quadrasonic sound was beginning to wane. The home audio boom had since peaked, and much of the Western world was in recession. Then there was the confusion associated with a plethora of incompatible formats. Each label offering quadrasonic 'product' tended to be associated with a specific format – normally SQ, QS or CD-4 on the vinyl side. If your choice of listening didn't coincide with the loyalties of equipment manufacturers, you were out of luck.

At least two record companies toyed with multiple formats, though. Project 3 and A&M released various quad records in all three key formats. In the early days, Project 3 dabbled with EV-4 too. It eventually settled on SQ.

That said, most decent receivers – especially upmarket models with the special demodulator circuitry

needed to play CD-4 discs – also offered support for at least one matrix format. In some cases, results with the matrix formats were rather lacklustre. My Pioneer QX-949's matrix decoder is a basic non-logic design with limited channel separation.

Comparing its SQ mode with that of a purpose-designed decoder (Sony's half-logic SQD-2020) fed in via a spare four-channel input, it quickly becomes evident just how mediocre the performance was! Other manufacturers optimised their gear for one of the matrix modes too. Sansui made sure the QS mode it developed sounded

great on its receivers.

To make things worse, there was little consistency in how records were labelled. QS releases were also called '4D' (Pye) and 'Command Quadrasonic' (ABC). CD-4 records were also tagged as 'Quadradsics', or simply labelled 'discrete 4 channel stereo'. SQ packaging was rather more consistent, and the 'single inventory' policy of some labels (notably Columbia) also helped to ensure its status as the most successful of the 'big three'. But the industry as a whole persisted in freely-throwing around terms like 'quadrasonic', 'quadphonic', 'surround sound' and 'quadrasonic'.

And as if this wasn't enough, yet more incompatible formats were on their way. For four-channel radio broadcasts the BBC introduced Matrix-H, which, thanks to the inclusion of a radical and clever idea backed by Government funding – the

## SO... the sound of things to come has come.

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*If you bought an SQ LP in the mid-1970s, chances are you would find a leaflet like this tucked inside, promoting playback equipment.*





**Yamaha was one of the first companies to release a 'Dolby Surround' decoder for domestic use. Launched in 1986, the DSP-1 leveraged Yamaha's considerable digital audio prowess.**

spherical soundfield of ambisonics – eventually morphed into the incompatible Matrix-HJ. Ambisonics is a fascinating subject in itself, and will be explored in a separate article as experimentation (and recording) continues to this day.

Then there was Denon's technically-advanced UD-4, also discussed last month, and a 1976 discrete-matrix hybrid variant of SQ (Universal SQ) for possible radio use. A firm called Tate then enhanced the SQ system with its 'directional enhancement system' (DES), leading to high-performance decoders – manufactured by sole licensee Fosgate Research – that are highly-prized among quad collectors to this day. This ground breaking product arrived in 1978 – alas too late in the day.

Confused? Everybody was! We had a lack of standardisation. Market confusion. The need to find space for twice as many speaker boxes also meant significant expense at a time of dire economics. By 1978 the UK hi-fi press declared quad to be dead.

The record industry continued to support quad, albeit with a

dwindling supply of new LPs. We may have enjoyed 'Atom Heart Mother', 'Dark Side of the Moon' and 'Wish You Were Here' in quad, but Pink Floyd fans were denied 'Animals' and 'The Wall' in this form and a 1979 Japanese version of Tomita's Bolero was the last new CD-4 LP.

Meanwhile single-inventory operator Columbia released its final SQ disc, a Masterworks Wagner title, in 1977. The last ever SQ release is said to be the 1985 Buddy Rich album 'Mr. Drums Live on King Street'.

But what of QS? As a matrix format for vinyl records, it didn't last as long as SQ or CD-4. But in the event it outlived both of them, thanks to a revival of interest in cinematic surround-sound.

Revival? Films, it should be remembered, gave lucky American audiences their first experiences of multichannel audio courtesy of Disney's Fantasia. Sound was key to this animated epic; it was built around a selection of classical pieces performed by a 100-piece orchestra. The discrete Fantasound technology conceived specifically with this film in mind was groundbreaking in 1940, but expensive and unwieldy to the point of impracticality.

A restored six-track version of Fantasound was however used for the film's DVD release in 2000.

Fast forward to over thirty years later, and QS underpinned a five-channel (5:3:5) system – known as Quintaphonic Sound – that was used for 1975's rock opera Tommy. 35mm Quintaphonic film prints had three magnetic tracks. Two of them were QS-encoded to convey four channels intended to envelop the cinema audience, while a third delivered audio

to a centre dialogue/effects speaker behind the projection screen.

Quintaphonic didn't last; retrofitting cinemas was expensive! Nevertheless, cinema sound was beginning to be taken seriously again; the previous year, cinemagoers had been treated to the 'Sensurround' joys of disaster movie Earthquake. But the most enduring cinema sound development was yet to come – and QS was at its core. Dolby Stereo took the QS encoding matrix and adapted its four channels to carry a main front left/right stereo pair, plus a centre channel and a single 'surround' channel that was fed to speakers



**The quad and digital eras overlapped – for a brief period! In 1981, a live performance by the San Francisco Swing Express jazz ensemble was mixed to quad.**



**Japanese synth wizard Isao Tomita's interpretation of Ravel's Bolero, released in 1979, is considered to be the last CD-4 LP. It was imported into the US as a 'Red Seal' Quadratic by RCA. Distribution in the UK was at best minimal as by this time quad was considered to be dead.**

located on the side and rear walls of the auditorium.

Dolby's noise reduction technology was also applied, to improve signal-to-noise ratios.

In 1978 – the same year quad was declared dead – the UK saw the eagerly-anticipated release of Star Wars. This was the first 'blockbuster' to feature a Dolby Stereo soundtrack. From then on, complex and involving multichannel soundtracks would be the norm in movies – and after refinements (like a new matrix and improved logic decoding) Dolby's became the industry standard.

**Where is quadraphonics today? This question will be answered in the final installment next month.**

# vinyl section

## contents

DECEMBER 2015

[www.hi-fiworld.co.uk](http://www.hi-fiworld.co.uk)**QUEEN BOX SET 79**

Paul Rigby listens to the new, remastered box set of Queen's studio albums. And talks to the men behind the project...

**REGA QUEEN TURNTABLE 84**

... and Noel Keywood reviews a limited edition Queen turntable to play them on.

**VIVAC LP CLEANING MACHINE 88**

Mark Osborn tests a new device to keep your vinyl in tip-top condition.

**MIYAJIMA TAKUMI MC CARTRIDGE 87**

Paul Rigby gets good results from the latest moving coil cartridge from Japan.

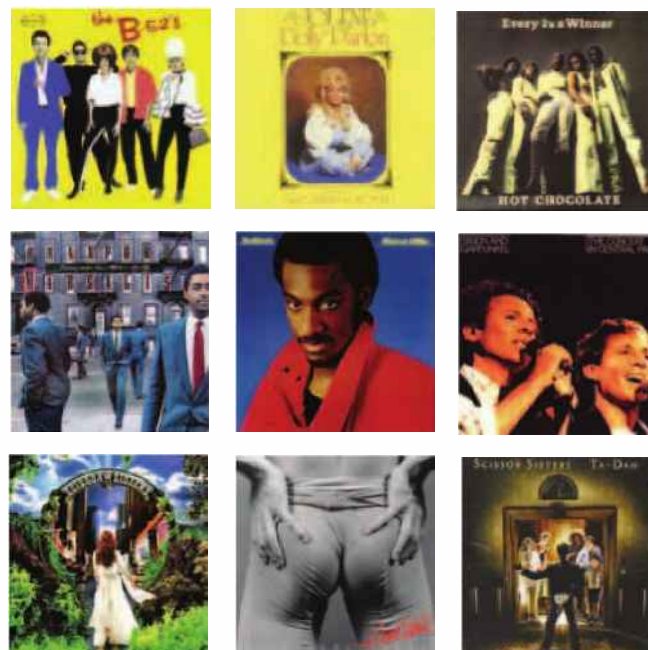
## news



### WAXTIME JAZZ

Lots of jazz on 180gm vinyl includes the wonderful 'Nice'n'Easy' from Frank Sinatra, including a selection of mid-tempo songs via Nelson Riddle. It charms the birds from the trees.

Also look out for Al Cohn, Bill Perkins and Richie Kamuca's 'The Brothers!' which swings, is fun but lacks originality; Tony Bennett's third LP, 1957's 'The Beat of My Heart' a concept piece reflected against interesting percussion plus Helen Merrill's 1954 self-titled debut whose cool jazz/hard bop vocals are never overshadowed by guest trumpeter Clifford Brown. Also Ella Fitzgerald's 'Ella Swings Lightly' featuring Marty Paich's Dek-tette band as she was reaching the mass audience by cutting pre-rock standards, plus Ray Charles' 1961 release, 'Dedicated to You'.



### MUSIC ON VINYL

Lots of goodies from Music on Vinyl ([www.musiconvinyl.com](http://www.musiconvinyl.com)) including the yellow vinyl, numbered edition of The B-52's self-titled LP (1979), brilliant angular pop/funk/surf kitsch, camp abstraction.

Classic Dolly Parton and 'Jolene' featuring the hit 'I Will Always Love You'. Parton actually sings this song properly, unlike some I could mention.

After the sad recent death of Errol Brown, lead singer of Hot Chocolate, it's great to see the reissue of that band's 'Every 1's a Winner' (1978) featuring the title track and 'So You Win Again'.

Also look out for Branford Marsalis' 'Scenes in the City' (1984) jazz album, his excellent debut as leader; jazz-fusion bassist, Marcus Miller's debut 'Suddenly' (1983) with contributions from Luther Vandross; Simon & Garfunkel's 'The Concert in Central Park', the reunited 1981 that featured Simon's solo ditties in S&G mode, plus three LPs from the Scissor Sisters: the excellent self-titled album (2004) plus the reasonable second and third outings, 'Ta-Dah' (2006) and 'Night Work' (2010).

### PURE PLEASURE

From Pure Pleasure ([www.purepleasurerecords.com](http://www.purepleasurerecords.com)), Ray Charles' 'In Person' is a live album from 1959 from Atlanta, Georgia, recorded by radio station WAOK. A technically excellent LP.

Also look out for the ever wonderful Stacey Kent with Marcos Valle on 'Ao Vivo', a live LP whose production is so good, you'll find it difficult to tell. Perfect vocalisations.





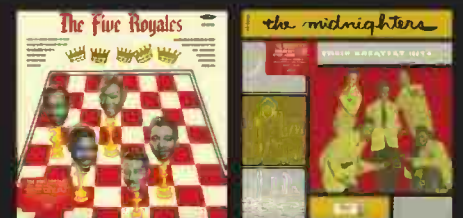


## VINYL COLLECTOR

New from this Warner Music imprint are expanded, 2 LP versions of the classic albums from Orbital: '1' and '2'. The latter contains the exclusive track 'Macro Head', only available on the vinyl format.

Next is 'Sex Packets' from Digital Underground, a novelty record that bears repeated plays. Absurdist humour in a coat of rap.

Glassjaw's 'Everything You Ever Wanted To Know About Silence' (2000) takes hardcore rock, atonal vocals and mad drumming. Multi-level fun and dense with it.



## SUNDAZED

Two from this audiophile label begins with the doo wop outfit, The "5" Royales. 'The Five Royales' (1960) was group's last for the King label. Not as impressive as earlier efforts but plenty of highlights. Also look out for The Midnighters' 'Their Greatest Hits' (1957).

## DAMAGED GOODS

Two from this reputed UK punk label ([damagedgoods.co.uk](http://damagedgoods.co.uk)). First up, Holly Golightly's new one 'Slowtown Now!', a low-key yet authoritative release, perfectly balancing easy vibes and nasty moves.

UK-based, American indie popster, Piney Gir's new LP, 'Mr Hyde's Wild Ride' has a child-like quality, an innocence that's infused with a sparkling clarity of voice.



## ...AND FINALLY

Two from Sireena ([www.sireena.de](http://www.sireena.de)). Firstly, a spin-off from Procol Harum, Freedom's 1970 LP, 'Freedom At Last' was a rather dour rock outing that lacked imagination. In contrast, Swedish outfit Tribute's instrumental prog LP 'New Views' (1984) offers many symphonic highlights. Ideal for Genesis and Camel fans.

Terminator movie fans look out for the two LP 'Terminator 2' (Silva Screen, [www.silvascreenmusic.com](http://www.silvascreenmusic.com)), Brad Fiedel's movie soundtrack.

Singer-songwriter folkie Samantha Crain's 'Under Branch & Thorn & Tree' (Full Time Hobby [www.fulltimehobby.co.uk](http://www.fulltimehobby.co.uk)). Direct socio-political content that overdoes the production.

The Flippers 'Psicodelicias' (Vinilissimo; [munster-records.com](http://munster-records.com)), Colombian garage beat punk outfit, covering many genres, covers and originals. Plenty of raw energy.

Pavement's 'The Secret History Volume 1: 1990-1992' (Domino; [www.dominorecordco.com](http://www.dominorecordco.com)). Plenty of rarities that have never before been collected on vinyl (but have on CD). Wild times.

Two from ECC100 ([www.ecc100.co.uk](http://www.ecc100.co.uk)). From Walking with Ghosts 'Source to Sea' is a mixture of new and old seaman's work songs and shanties, plus on-location found sounds. Atmospheric and dynamic. The Nightjar Orchestra's 'Synaesthesia' duplicates the found sounds but on land, this time with gentle, easy going, ambient guitar soundscapes, vocals and rhythms.

From legendary music maker Dion comes 'Born To Be With You' (Ace; [www.acerecords.com](http://www.acerecords.com)), his 1975 'lost' album produced by Phil Spector. Pete Townshend's favourite album – now you can see why. Dark, introspective and brilliant.

Jay-Z's 'Magna Carta: Holy Grail' (Roc-A-Fella). Slightly rushed with a confused message with flashes of his old self.

From the Miles Davis Quintet comes 'Live in Den Haag' (Jazz Classics). Including John Coltrane, in this excellent 1960 concert the two were not getting on and the tension oozes through the music. Exciting stuff, then.

Finally, from Skyggespill, is 'Morphing Between Spaces and Phases' that has a Biosphere or even Chris Watson feel to it. Abstract soundscapes with disturbing rhythms.





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# The Queen Studio Collection

**Newly remastered with attention to detail, Paul Rigby reviews the new Queen vinyl box set and talks to the experts behind the scenes.**

Queen is the recipient of a new vinyl box set that features each of their fifteen studio albums including: 'Queen' (1973), 'Queen II' (1974), 'Sheer Heart Attack' (1974), 'A Night At The Opera' (1975), 'A Day At The Races' (1976), 'News of the World' (1977), 'Jazz' (1978), 'The Game' (1980), 'Flash Gordon' (1981), 'Hot Space' (1982), 'The Works' (1984), 'A Kind of Magic' (1986), 'The Miracle' (1989), 'Innuendo' (1991) and 'Made in Heaven' (1995).

There are a few intriguing wrinkles to this collection. Firstly, both 'Innuendo' and 'Made In Heaven' were formatted for CD, each holding a relatively long running time, so the contents had to be edited down to fit them on to the two sides of the

original vinyl editions. Now, specially for this edition, for the first time, these two albums have been cut at full length as double vinyl LPs.

The box-set also features 'coloured' vinyl. Each album has been given a different colour, in keeping with its original artwork. The coloured discs have been custom-produced especially for this set by the German pressing plant assigned to this box set, Optimal.

When this 'feature' was first announced, it struck a certain amount of horror into my heart, plus the fans (and some people actually working on the box set, it has to be said). We'll get back to the sonic issue of the 'colour' later.

This also means the coloured vinyl headline hits an odd inconsistency because 'A Day at the

Races' has a black sleeve and so arrives in black vinyl – which is not coloured at all, of course!

Finally 'Queen II' originally never had a designated 'A-side' or 'B-side' but 'Side White' and 'Side Black'. For this new edition, the album has been cut on two separate discs, black and white, each with a custom etching on the reverse side. Again, one disc is your basic black vinyl so, of the eighteen slabs of 'coloured' vinyl seen here, only sixteen are actually coloured in anything but black.

In terms of album titles, the anomaly is 'Flash Gordon', which technically is a soundtrack (although the group saw it as a studio release – it was always under-rated), but what we don't see here are any official live albums such as 'Live Killers' (1979) or 'Live Magic' (1986), which some will



**The two Ampex machines used for playback of the Queen master tapes, the one at left being modified.**

see as a lost opportunity.

In addition to some reported intensive work seeking and tracking down superior tape sources (five tracks on the 'Innuendo' album were improved after the discovery of better sources), the mastering was completed using the original master tapes. It was then de-noised

and converted to digital files at 24bit/96kHz where more work was done. We'll learn more about this process while tackling audiophile concerns about the use of digital files during the chat with principle mastering engineer, Bob Ludwig.

The cut was performed by Miles

host of interesting information plus rare photos, memorabilia, foreign sleeves and more.

Each album is pressed on 180gm vinyl, contained in plastic coated inner and separated from any inserts to prevent damage. The thick cut sleeves are held within thin,

"to even reach across the pond to give me a try... to be working on Queen materials was Wow!"

Showell at Abbey Road using the half-speed process on a Neumann VMS80 lathe boasting cutter-head amplifiers fitted with custom designed RIAA filters. There's a more detailed chat with Showell, elsewhere.

The box itself is covered by a slip-on card sleeve with pictures of each album sleeve and their attendant discs on the rear. Slipping off this outer sleeve reveals a sturdy gold box with the Queen logo and crest on the front. The top-fitted flip lid reveals all of the albums, plus a 108-page, hardback book featuring a

resealable plastic bags. These bags are relatively fragile and easily ripped so care must be taken.

As you can see, this set does not endeavour to present to you a complete duplicate of the original releases in all their glory but a tweaked, often improved, suite of LPs. A further example of this can be seen in the packaging for the album, 'Jazz'. The original had no lyric sheet and a poster fixed inside the gatefold sleeve. The new edition puts the poster inside the sleeve and prints lyrics on the outside of the poster.

## The Engineer...

*"From my point of view, I was flattered to death. It was such a British product. There were so many great British mastering engineers to choose from so to even reach across the pond to give me a try... to be working on Queen materials was Wow!"*

So said Bob Ludwig, who was chosen as the principle Mastering Engineer for this box set from a pack of well known names who were all asked to master the Queen track, 'Another One Bites the Dust' as an audition piece. Queen then blind tested each disc and chose the one for them.

Ludwig was the winner but he thanks Tim de Paravicini, for his assistance. "I used his electronics. I think that helped, in this case. I do have lots of electronics to choose from, though: at least six different kinds here. I didn't use the Paravicini electronics for most of the songs but, for that cut? It seemed to fit."

When he set to work, Ludwig utilised both the 1/4in and, on a rare occasion, 1/2in tape. "You can't hear the defects on the master tape via vinyl because vinyl masks them immediately, but if you could hear the original master tapes in the studio you would hear little ticks, pops and little edits that normally would sound fine but if you put them under a huge microscope and cranked the power to 400 it



**Mastering engineer for the Queen box set, Bob Ludwig.**

was like 'Well, maybe we could change things a millisecond here or there.' All these things could only be fixed in the digital domain".

Ludwig mastered everything as best he could via the tape and cleaned up any imperfections that he heard. The original tapes were in good shape but Queen wanted to produce the ultimate product. Hence, after Ludwig approved his remastering, Queen transferred the new masters to the digital domain and hired another, unnamed, engineer to do nothing else but listen to the new masters at full speed, half speed or even in reverse to see if there was any tiny imperfections that he could detect that could be fixed.

Ludwig has been employed by some pretty high-flying clients from the Rolling Stones to Elton John to Frank Zappa but "I can say that no-one, no client that I have ever worked for has shined a light on a project like this one has. When I did the Rolling Stones remasters for Abkco for SACD, they were very, very picky. Queen has gone even further! They went into the whole project very deeply. I can't even begin to count the amount of teeny weeny fixes or splices that were fixed... it's countless. Some albums had not much, others had tons."

So what about that final transfer of the albums from tape analogue to 24bit/96kHz digital? Ludwig admits that



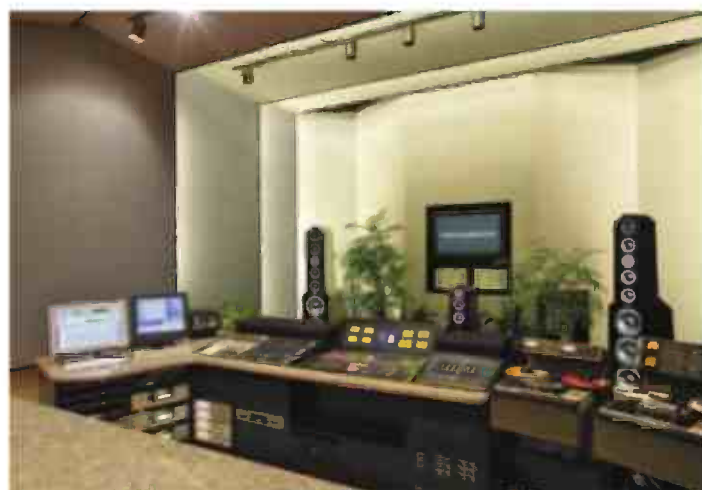
For those who do not want to purchase this mighty set, the included albums will be available, separately, to buy on black vinyl.

## SOUND QUALITY

Before I dive into the sound testing, a brief explanation of the process. There has been a variety of pressings of the Queen catalogue sold at home and abroad over the years. I'll be looking at the major UK pressings as a means of comparison here. Hence, I will compare the new box set with the original pressings, a Millennium version which covered a selection of albums which were released in 1999 and appeared to have been based upon a 1998 digital remaster, plus a later 2010 series of releases which seemed to mop up the rest of the (delayed Millennium) batch and which were also based on the 1998 masters but from a different pressing. Finally, as the box set features the new, rather contentious, Optimal coloured vinyl pressings, I'll be comparing those with the new black vinyl pressings to see if Optimal's coloured pressings are, indeed, of audiophile quality.

To begin, I listened to the 1974 original pressing of 'Sheer Heart Attack' and played 'In The Lap Of The Gods' which offered an interesting mixture of treated vocals from Freddie Mercury, some piercing Roger Taylor vocal crescendos, percussion from the same, guitar and piano.

The new master, I'm happy to report, was superior in just about every aspect. Most noticeably, the upper mids and treble were opened up dramatically. For example, the early parts of the track feature a shimmering gong affect which wafts around the stereo image. This instrument was much more characterful and offered greater amounts of information than the original. Staying in this frequency band, Roger Taylor's crescendos were clearer now with the original's slight compression removed. Because of the latter, the overall track was now easier on the ear without any of the inherent listening fatigue from the original. Moving down the frequency ladder, Brian May's rather claustrophobic guitar inserts, which previously had a muffled aspect, provided complexity



**Bob Ludwig's mastering studio.**

in terms of the plucked strings while the piano and lead vocal both had a free and natural air.

In terms of percussion, the original had a bloated, boomy lower end. Now, the percussion had a focused and tighter presentation that removed the swollen lower frequency aspect and provided a series of clean strikes.

Moving to 'A Day at the Races' and playing the 1999 release from

there might have been a slight increase in sound quality if tape only had been used. Well, a good bit of the tape...that had no issues.

There were issues, though. These issues meant that if the original master tapes only had been used to create this box set, we would now have a poorer product.

Firstly, those thousands of tiny imperfections would not have been fixed and there was a sibilance issue (see the Miles Showell interview). Also, if you use tape only, you have to firstly align the tape machine heads before you start. You cannot realign the tape machine halfway through a side (A or B). That would have been a problem with these Queen tapes because it was often the case that several tracks on one original album were mastered at different studios or even totally remixed. Hence, the tape head alignment would have been way off for these tracks. "One track might have been produced at 15ips with Dolby added and the next track might have been produced at CCIR EQ curve with no Dolby", confirmed Ludwig. "There were lots of things done at the mastering in the digital domain that you couldn't even begin to think about doing using a tape for a vinyl cut".

OK, so the digital transfer was not just desirable, it was essential. But 96kHz? Why not 192kHz? Or higher? "We started this project in 2011. Four years ago, no-one was talking about 192kHz and there were very few converters out there. Even today, producers

don't like recording at 192kHz because all the track counters are halved and a lot of plug-ins don't work. I even have white papers here written by engineers which explains why 96kHz is actually superior to 192kHz. Whether I subscribe to that or not, though..."

Forget the numbers...96, 192, 384, it all comes down to the engineering. "I've got a dCS Vivaldi DAC in my room which is what, £25,000 or something? It sounds brilliant but I can assure you that if you took an early, crappy DVD-A player from Japan and played something at 192kHz versus 44.1kHz on this Vivaldi DAC, then the Vivaldi DAC will wipe the floor with it because the dCS is time aligned, it has a huge power supply, the high end is smooth, the jitter is taken care of and so on. The software and the numbers are a tiny part of the story".

But with today's studio hardware and plug-ins, is there an appreciable difference in the studio between 96kHz and 192kHz? According to Ludwig the difference is small but audible, "It's more program dependent, though. For example, it would be more audible from an orchestra than Beyonce, for instance".

In terms of actual mastering, Ludwig offered a few specific examples. "For 'Made in Heaven', I added EQ to make it a little bit more spacious and enhance high frequencies, but in a phasey way. For a fair amount of songs I added a measure of warmth in the low end because the digital recorders back then were not as good as now. Actually, for most of the albums, there is very little

compression used in the mastering. In fact, for most of the albums there is no compression used at all".

Queen was interested in retaining the dynamics of the original cuts as much as possible. Compression is not always a bad word, though, it's often the heart of rock'n'roll, "Believe me, when they were originally mixing these Queen records they sure spared no expense with those compressors!" confirmed Ludwig. "But having done their artistic thing, the music was then left the way it was. We haven't then smashed the music to death as many contemporary things have done".

The LP 'News of the World' needed a little bit of brightening, in a subtle way, to bring out more detail. A broad effect to lift frequency detail to emphasise the kick a little bit. "We also compared different vinyl masters with our work and we noticed some recordings that ran at different speeds. We didn't have notes of the original cut so we had to listen by ear to correct any possible speed variations. For example, there was a Japanese cut of one of the albums, can't remember which album, but it was quite off speed by about 1.3%, I think. It was too fast and really noticeable".



**Bob Ludwig's ten Grammy Awards and two Latin Grammy Awards.**



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**The box set also comes with a 108-page 12 x 12-inch hardback book sourced from the Queen archive, along with the personal archives of Brian May, Roger Taylor and fans, displaying hand-written lyrics, rare photographs, memorabilia and information on singles and videos.**

the 1998 remaster of 'Somebody To Love', I was beginning to see a trend because the new master benefitted again from that open and airy suite of upper mids and treble that gave the overall presentation a rich, deep, spacious aspect that allowed vocal to sound simple and pure while cymbal strikes had a welcoming fragility. Percussion from Roger Taylor roamed around the wider and more fulsome soundstage, while the bass from John Deacon was sharper and rounder.

The 1999 release did suffer a touch from a sense of dryness, as though it had been pushed through a digital system with slightly restrictive ADC (Analogue-Digital Convertor) equipment. The music was also spare and empty in feel so that musicality suffered. Not with this new master, though. In fact, the effect was exactly the opposite. With the new master, there was a far more natural quality in both the lead guitar and Mercury's lead vocals that exuded feeling and emotion because there was space to allow the nuances and subtleties to manoeuvre.

I next turned to the album 'Jazz' and the 2010 release from the same 1998 master and 'Dead on Time'. This was interesting. If anything, this 2010 issue offered greater bass impact than the 1999 release of A Day at the Races yet this 2010 pressing of 'Jazz' had a distinctly strident air. Percussion was sharp and abrupt while parts of the Mercury lead vocal were distinctly bright in their aspect. More than that, the Mercury vocal was right up in my face, lacking emotion and relying only on impact to make a mark on the performance. The new master pushed the Mercury vocal back into the mix while the percussion was characterful and

blended into the band's overall presentation, giving a more supportive role to the music rather than adding an unpleasant edge.

What this master did do was remove distortive noise from the master, encouraging you to increase the volume to really allow the master to rock...and rock it certainly did. Now offering a more balanced sound signature, the track resembled a force of nature as the blend of manic guitar and flailing percussion supported the lead vocal. This is the first master I have heard that really allows this

Freddie Mercury's vicious letter to an old band manager.

This particular comparison is pretty short and sweet because I couldn't hear any differences at all. I did an A-B comparison, B-A, back to A-B, etc. As such, the result is, well, a result... for Optimal and their new coloured vinyl. I just hope this new technique spreads around to other pressing plants.

## CONCLUSION

In terms of packaging and presentation, the new Queen box set should really be viewed as an archival, audiophile collection. Its not supposed to provide an exact replica of the original releases. It's supposed to provide the best possible quality for the information to hand – and do

## HALF SPEED

One of the highlights of the box set has been the half-speed mastering. As you can imagine, the process demands that an album is mastered at half the normal speed using a range of specially built hardware for the process and plenty of 'mastering magic' to boot.

Aurally, the half-speed master is something to behold. Cymbals sound bronzier, voices are more lifelike and emotive and easier to understand. Bass is faster, deeper and more defined, offering improved pitch definition and clarity. Micro and macro dynamics are effortless. The silence between tracks or, especially during the quieter passages within the music, is...well, quiet. This sonic accumulation has the effect of an overall increase in clarity and realism that can't be denied.

The process itself is one that is approved by Showell as it makes it easier for the cutter head to transcribe the signal, as a consequence of reducing the accelerations and velocities. The current feed to the cutter is approximately a quarter to a third of a real time cut and the damping is reduced, which minimises overshoot and cutting inaccuracies. Also, the reduction in heating of the cutter coils improves the linearity. The high frequency phase response is dramatically improved too, which increases the accuracy of the stereo image.

For the Queen cuts "I wanted to keep the cut as pure as possible so I've gone for absolute minimal and, in most cases, no extra filtering.

Also, one of the jobs I did for this cut was remove sibilance. That meant treating every individual 's' on every song and on every album. The total time spent cutting these albums was around 120 hours" said Showell.

For a real-time, normal cut, you'd put a high frequency limiter on to catch any nasty 's' to prevent sibilance but that same limiter would also catch bright guitars, high hats and snares which destroys audio. Showell had the luxury of working from Bob Ludwig's high resolution digital files so that he could target only the sibilance on the vocals, thousands of tiny individual edits. "Everything else is intact. There's no scatter gun approach. It's a bespoke thing."

The Queen box set shows how far half speed has come, in the hands of Miles Showell, since it was created by the legendary Stan Ricker, who recently passed away, "I'm only doing what he [Ricker] started. It was his work that fired up my imagination for this".



**Half-Speed master cutter, Miles Showell.**

track to flow as it should.

So much for the new master as a qualitative item in its own right. What about the coloured vinyl aspect of the LPs? Coloured vinyl is known for lowering the sound quality of music as the cartridge tends to play the pigment as much as the music. To test this, I compared the pure black and coloured versions of 'A Night at the Opera' and 'Death on Two Legs',

so with care and attention.

As for sound quality, for any Queen fan, look no further than this box set or the individual vinyl releases for the best sounding version of the Queen catalogue. Of true audiophile quality and offering superb sound in all areas - especially that open and spacious suite of upper frequencies - this new Queen campaign is a complete triumph.



# Royal Rega

Rega has released a limited edition Queen turntable to tie-in with the new, remastered box set of the legendary rock group's studio albums. Noel Keywood takes it for a spin.



**R**ega have long reached budget vinyl buyers with their ultra low cost RPI turntable – available for £250 or so. For a 'plug-and-play' package including a cartridge, the price is peanuts.

The Queen limited edition turntable I'm looking at here is an RPI in new livery, so you're getting a basic player without tiddly bits; it's a player for those new to vinyl. Rega have more ambitious packages like the RP3 with its specialised RB303 one-piece cast alloy arm for £450 without cartridge. This is to get the Queen RPI into context. I will look at other options in more detail later.

The RPI is a two speed turntable with Rega's RB101 arm into which a Rega Carbon moving magnet (MM) cartridge is fitted.

It comes in a small light box: simply pull it out, fit the counter-

weight by screwing onto the rear arm stub and it is ready to go, after popping the clear, hinged acrylic dust cover into place and a quick set-up routine.

This entails setting the tracking force of the cartridge to the recommended 2gms-3gms. You don't get a gauge to do this so if you're a starter this is an additional purchase, costing around £10 for a Pro-ject plastic balance or £110 for a Roksan digital gauge, for example.

It's a simple enough procedure: the counterweight – a friction fit – is screwed forward on the rear arm stub until the right downforce is achieved by pushing against an end stop. Then the outward bias force is set with a small slider. The cartridge is already fitted so needs no alignment but a gauge is provided all the same. In practice the Carbon tracks well at around 2.2gms and this

is the figure I used.

The simple one-piece plinth is nicely finished in glossy black, sitting on three solid feet. As there's no suspension system the turntable should be mounted on a solid, vibration-free shelf that is unaffected by footfall; a wall shelf is best. The on-off switch is a small rocker sited underneath the plinth, at left rear close to the motor.

The motor has a stepped pulley for the drive belt, with 33 and 45rpm sectors. The short belt passes around it and a small diameter hub, attached to the main bearing shaft. On the hub sits a light phenolic resin platter that is adorned with a Queen emblem. However, it is hidden by the felt platter mat, necessary to cushion LPs. Speed is changed by removing mat and platter, and moving the belt by hand from one sector to another; you

## TAKE A GANDY

The new Queen turntable is based upon the Rega RP1 with a different plinth and Queen artwork (in performance terms, the deck is very close to the RP1). This is not a Rega turntable, per se, and it doesn't have a Rega brand, it's an OEM for Queen.

"We got involved with Queen's artistic director who gave us his parameters," said Rega boss, Roy Gandy, "at that time we were looking at a whole new plinth concept. I thought we needed something more startling, cosmetically, so we used the opportunity."

The plinth has been developed to provide a low cost with a high finish and is screen-printed instead of the normal laser printing to save money because of the large number of units that had to be produced. The new lighter, particle board plinth is of a similar density to the original. Also used on expensive furniture, it arrives with a filmed-covered, acrylic skin (the original RP1 uses a painted-on melamine), "The acrylic film helps to produce a finish which is as good as a piano-finish plinth," said Gandy.

Only 2,000 Queen Turntables will be produced this year. Queen will consider making more in 2016 but no decisions have been made yet. **PR**



Rega's head honcho, Roy Gandy

"The Queen turntable is for beginners who perhaps want to see what all the fuss is about with vinyl and a box set like this. "

don't get a handy speed change switch.

However, some of these little inconveniences are addressed by an optional Performance Pack that comes with a Bias 2 moving magnet cartridge, better drive belt and natural wool mat. You can also get a 24V motor upgrade and TT-PSU – an external power supply for this motor – but of course the cost will be spiralling up and both arm and plinth remain unchanged; the motor and PSU just smooth speed a little, because budget Regas are not strong in this area.

The RPM1 is easy to set up and to use, providing you don't want to play 45s often, including 12in 45s of course.

Whilst it is good value for money, it does have limitations, mediocre speed stability, a lively arm and a low mass suspension-less plinth being obvious weak areas, as well as a flat and light platter.

I spent a lot of time with The Beatles in Mono box set, that also comes from the German Optimal pressing plant on top quality vinyl and LPs at this quality level deserve better; the RP1 isn't the best way to hear just how good they can be.

I would suggest a Rega RP3 turntable with its excellent RB303 arm better suits a high quality vinyl box set, price £450 without cartridge. The point is it makes the most of top quality MM cartridges: think Goldring 1012GX with its superb Fritz Geiger

stylus at £250, or even the warm sounding classic elliptical-stylus Shure M97xe at just £90.

The ultimate for top quality

vinyl is an Ortofon 2M Black with its Shibata stylus – now £500. I'm ignoring more expensive moving coil cartridges here.

The Queen turntable is for beginners who perhaps want to see what all the fuss is about with vinyl and a box set like this. It isn't for those who want to tease out the full quality of what is on offer: it won't realise their full potential.

Modern high-quality LPs need better and Rega have what is required – but higher up their range.

## MEASURED PERFORMANCE

The turntable ran +0.7% fast, moving away from the +/-0.5% expected from budget turntables – and the +/-0.1% met by quality designs. Pitch sensitive piano teachers and musicians may detect this.

Speed variation – wow and flutter – measured 0.2%, a good value for a simple budget turntable, if unexceptional. Our analysis shows basic speed

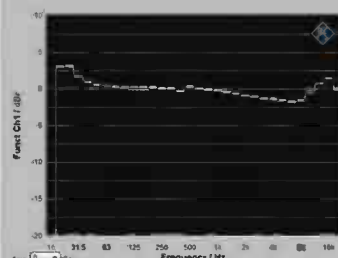
variation at rotational frequency of 33rpm was small – the Rega held basic speed well so will sound basically pitch stable. Some higher rate wow components at 1Hz and 2 Hz are evident and they may be audible as slight temporal smear or lack of solidity of sustained piano or synth notes and such like. The fabricated tubular arm proved stiff but lively under measurement.

Rega's budget moving magnet (MM) Carbon cartridge tracked well at 2.2gms VTF, managing to get through 63cms/sec on CBS STR-117 test disc without difficulty. It mistracked on the highest torture track only, so the Carbon copes with real life LPs well, and will only mistrack on rare occasions, likely large bass sounds. Frequency response showed the classic slightly warm balance exists, due to upper midrange droop in output. A capacitive load of 200pF lessened this effect, so phono stages able to switch in extra capacitance will get a brighter sound from it.

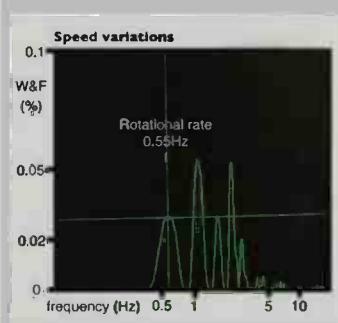
The Rega RP1 'Queen' turntable is a good, if basic design. The Carbon cartridge works well, giving the classic slightly warm sound expected from LP. In all the RP1 is a solid package, but unremarkable in measured performance.

NK

## FREQUENCY RESPONSE



## SPEED VARIATIONS



## REGA QUEEN TURNTABLE

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**EXCELLENT** - extremely capable

**VALUE** - keenly priced

## VERDICT

A good basic starter package, but not ideal for expensive LPs.

## FOR

- easy to use
- well finished
- good tracking

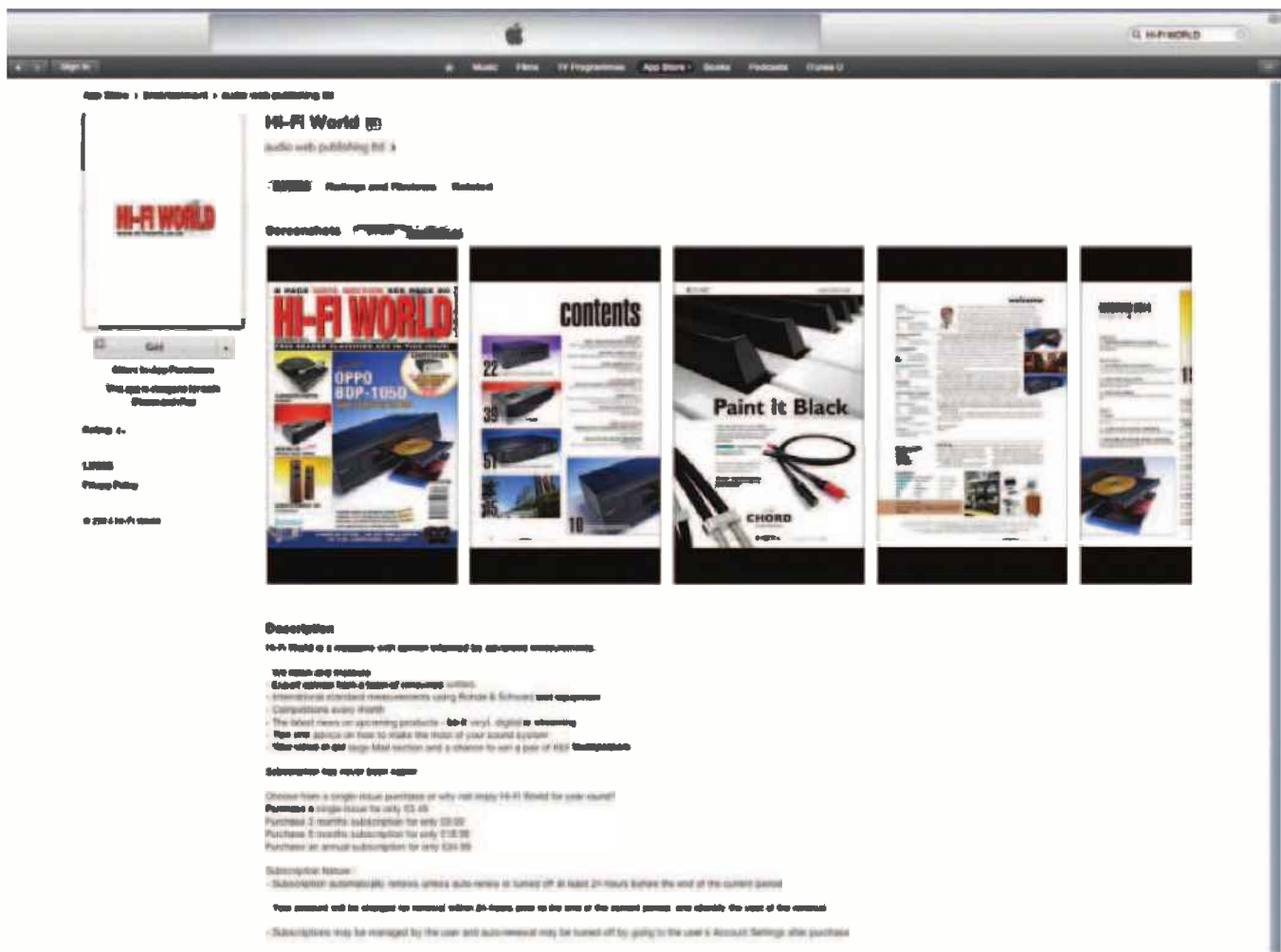
## AGAINST

- mediocre sound
- Queen hidden by mat
- manual speed change

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# Blackwood Boogie

**Positioned as the entry point on its stereo cartridge menu, Paul Rigby reviews Miyajima's own Takumi.**

**T**o this point, the only experience I've had of the Japanese specialist cartridge maker Miyajima is via its mono cartridges. Life becomes rather more competitive and hectic in the world of stereo, though. Would Miyajima reveal itself to be only a one-trick mono pony?

Up for review here is the Takumi moving coil cartridge which is made from African Blackwood, also known as Mpingo: that's the black wood that is used to make clarinets and oboes. Featuring a forgiving elliptical stylus, the chassis weighs in at a relatively light 9g. To put that into perspective, my Koetsu Black reference arrives at a relatively hulking 11g.

That said, the Takumi has a higher recommended tracking weight of 2.25g as opposed to the Black's 1.9g. Featuring the company's own 'cross ring' motor assembly, I hooked it onto my Avid Acutus and reached for a copy of the new half-speed mastered 'A Night At The Opera' Queen album and played 'The Prophet's Song'.

## SOUND QUALITY

The effect of the Miyajima was immediately apparent from the first few plucked strings. There was an almost silky smoothness from the midrange.

I am used to hearing a goodly amount of air and space from my reference system but the air generated by the Takumi, not just around the track but actually in and around each instrument, was truly impressive.

One good example of that was Brian May's subtle electric guitar noises which not only emerged from

the mix as an individual instrument for the first time but showed a tremendous amount of texture and vitality.

That smoothness in the upper mids continued through the vocals and the harmonic interplay during the mid part of the track. Air left mouths so calmly and evenly that the crucial harmonic joining, the part of the harmony when multiple voices become 'as one', could only be described as joyous.

More surprising, at least to my ears, was how the Miyajima treated percussion. The drums were opened up and, because of that, a multiple drum strike sequence became rousing and stirring.

I turned to the orchestral sounds of 'El Varon Rebuscante' from

composer, conductor and arranger Gianni Ferrio.

The melancholy, classical-oriented strings of the track 'Una Declaracion de Amor' can sometimes be slightly shouty while the banks of strings during extreme crescendos

can be prone to barking but the Miyajima managed to not only smooth those sharp upper edges but showed both detail and incisiveness within the upper mids, while the accompanying oboe had a reedy, textural nature that infused its performance with emotion.

Again, percussion was well favoured by the Miyajima. Mainly exhibited via secondary instruments, these frequencies were favoured, having enough air and space to provide a sense of clarity and fragility.

When the banks of strings heaved into view, the effect was initially quite romantic as the sweeping effect was emotionally teasing but there was more to this section of the track than just musicality, even though that effect was inordinately welcome.

My brain was also stimulated by



the instrumental separation, even within this so-called solid wall of violins, as each instrument exhibited its own personality and character.

Moving to jazz via Sarah Vaughan's album 'Sassy Swings Again' and on the track 'Sweet Georgia Brown' the Takumi not only presented an impressive soundstage but organised the same. It's almost as if the cartridge picked up the instruments and said, "Well, look, this is how I'd order the soundstage".

The soundstage sounded relaxed, sympathetic, spacious and offered a sense of efficiency, allowing me to hear each and every member of the backing band.

There is no sense of stridency – which this master can slip into – within the midrange, vocals were articulate without being bright (again, there is a tendency to this with other cartridges), while the bass was remarkably prominent, lending the entire track a new foundational grounding.

## CONCLUSION

One of the most sensible (in terms of doing the 'right' thing in terms of that soundstage organisation), fluent, eloquent and smooth cartridges I've heard for a very long time, the Miyajima Takumi doesn't emphasise or spotlight any one frequency band. There is no colouring here. The Takumi, instead, spends most of its time opening up the mix and the instruments within to provide a greater transparency and clarity over the entire frequency spectrum. A future classic? Nah. Why wait?

## SYSTEM USED

Avid Acutus turntable  
SME IV arm  
Koetsu Black cartridge  
Icon Audio PS3 phono stage  
Aesthetix Calypso pre-amp  
Icon Audio MB 845 Mk.II monoblocks  
Quad ESL-57 speakers with One Thing mods  
Vertex AQ & Atlas cabling



## MIYAJIMA TAKUMI £1,295



**OUTSTANDING - amongst the best.**

## VERDICT

Smooth and melodic with an innate sense of 'rightness', the Miyajima delights the ear.

## FOR

- frictionless mids
- open and spacious soundstage
- detailed low frequencies
- delicate treble

## AGAINST

- nothing

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# Clean sweep

Keeping your vinyl clean is an essential task – but often a tiresome one. Mark Osborn tries out a new machine from ViVac that aims to make it as simple as possible.



**T**here's no getting away from it – while for most of us the sound of needle in groove will always beat digital, vinyl does have one major drawback when compared to CD. No matter how careful you are handling your records those grooves become congested in a way that silver discs do not – often translating into a less-than-perfect sound as the diamond tip of your needle cuts through the gunk.

So keeping records clean is a vital task – but it can be time-consuming and less than easy. But Pristine Vinyl think they may have the answer in the form of their ViVac cleaning system.

Admittedly, I was initially sceptical when I heard of a record cleaning system that was well engineered, as aesthetically beautiful as a good turntable and didn't sound like a pneumatic drill. I thought this was

too good to be true until I met Jason Walker from Pristine Vinyl himself.

Jason understands what it takes to create a successful product and his attention to detail is evident when exploring his cleaning system. Everything has been considered, right down to the last nut and bolt.

I first encountered Jason's dedication to his record cleaning system at the High End Show in Munich earlier this year. His passion for well-engineered products was evident during his demonstration. Compact and elegant were just some of the words I could hear being bandied about the room when the ViVac RCS2 was demonstrated.

Completely unobtrusive in its appearance and available in a wood finish or five colour options, I could happily live with this on permanent display in my listening room. And for three months I did (and so did my wife). Occupying very little space, I

was able to clean my collection as I played. Although audible it was no worse than my German Shepherd Collie's snoring, the process taking a minute each side.

There are two ViVac models available, the RCS1 uses a separate squeeze bottle operated by hand to apply the cleaning solution. The flagship model, the RCS2 (reviewed here), encompasses an electrically-powered precision liquid pump and a separate applying arm tube to accurately control the amount of solution applied.

The entry level RCS1 model is fully upgradable to the top spec of the RCS2 for approximately £350. The ViVac system is very easy to use and practically foolproof. I was purposely careless in the respect of leaving drips of solution on the platter overnight without detriment to the wood finish. All Pristine Vinyl systems are fully serviceable.



**One arm of the machine applies the special cleaning solution while the other sucks it off and deposits it into a waste jar.**

The system utilises two jars, one that stores the new cleaning solution comprising Pristine Vinyl's own blend of vegetable-based anti-static cleaning solution with distilled water, whilst the other collects the expelled solution. These attach to support tubes on the wooden plinth that hold the main platter.

This platter has a heavy-duty bearing to take care of the extra load applied whilst cleaning. This features a torque-limiting clutch to avoid any overload, should it accidentally occur. I can only imagine that most turntable bearings would be designed to cope with the downforce of an arm and cartridge weighing only a few grams and not that of the human kind wielding a carbon brush - however careful we think we are.

Indeed, every major component on the ViVac has been specifically selected for the job, right down to the mechanically locking and quick release tubes at the point of entry and termination. A medical grade pump has been assigned for its quietness and reliability. No parts have been taken from a standard turntable, including the dual-directional platter motor. Cross contamination from the platter has been kept to a minimum by using small round contact pads that can be cleaned easily.

There are two separate arms that are fixed to the solid wood plinth. The smaller of the two applies the cleaning solution, the amount controlled by pushing the button on the right-hand side. The solution enters every groove on the disc and once the solution arm tube is

brought to the outer edge of the record by hand it continues to move automatically to the centre of the record. When it has completed its sweep the arm tube must be returned to the starting position ready for use again. The solution is then spread manually using a nylon brush working its magic and reversing the years of grime, to be extracted by the main arm tube into the waste jar.

A nylon reel is stored under the platter, from there it runs up internally through the solid wood plinth via a tube into the main arm tube. The nylon thread's purpose is to create a micro air gap to separate the record from the PTFE suction nozzle to avoid it sticking to the vinyl.

There is certainly enough nylon thread for a thousand records to be cleaned for sure. I did manage to accidentally snap the thread and was relieved at the ease with which I was able to rectify my mishap.

A new piece of thread is cocked automatically from the spool by bringing the main arm tube to the centre of the record, before setting off on its cleaning sweep towards the run-in groove finishing the cycle.

The waste jar sits hidden inside the unit although a cut out and blue light allows for monitoring solution levels until emptying is required.

I really got into the swing of cleaning records whilst playing my music

- feeling like I was at the helm of a factory record cleaning programme and quite enjoying myself.

I cleaned both old and new pressings, varying in quality and condition. This included nearly 60 Frank Zappa originals. These are some of my finest in terms of condition and cleanliness, or so I believed. But after a mass cleaning session I peered into the waste jar and there was indeed a murky solution. Surprising to me as I had always handled my prized Zappa collection with kid gloves using a clean carbon brush so they didn't appear dirty at all.

The next morning I had a second look to see if the solution had settled. Shockingly, at the very bottom of the jar was a thick tar-like substance.

I went on to clean some more varied pressings. Of which most benefited from the noise-floor significantly reducing, allowing more of the music detail to become evident. Not now disguised by surface noise. Even new pressings became pleasantly brighter.

Overall, most pressings truly benefited from the clean, all sounds had a more dynamic impact including the defects - although scratches became equally more prominent.

There are many reasons that warrant using the RCS2 on a regular basis if not only to preserve your records and cartridge life. As a serious audiophile this should be fundamental.

**Underneath the main platter is a nylon spool that feeds the main arm tube, and a waste jar that collects the used solution after cleaning.**



**RCS1 FROM £1795  
+ £350 FOR THE  
UPGRADE TO RCS2**

**RCS2  
(AS REVIEWED)  
FROM £1995**



**OUTSTANDING - amongst  
the best**

#### VERDICT

A relatively simple but effective machine for keeping your vinyl collection clean.

#### FOR

- elegant
- compact
- easy to use

#### AGAINST

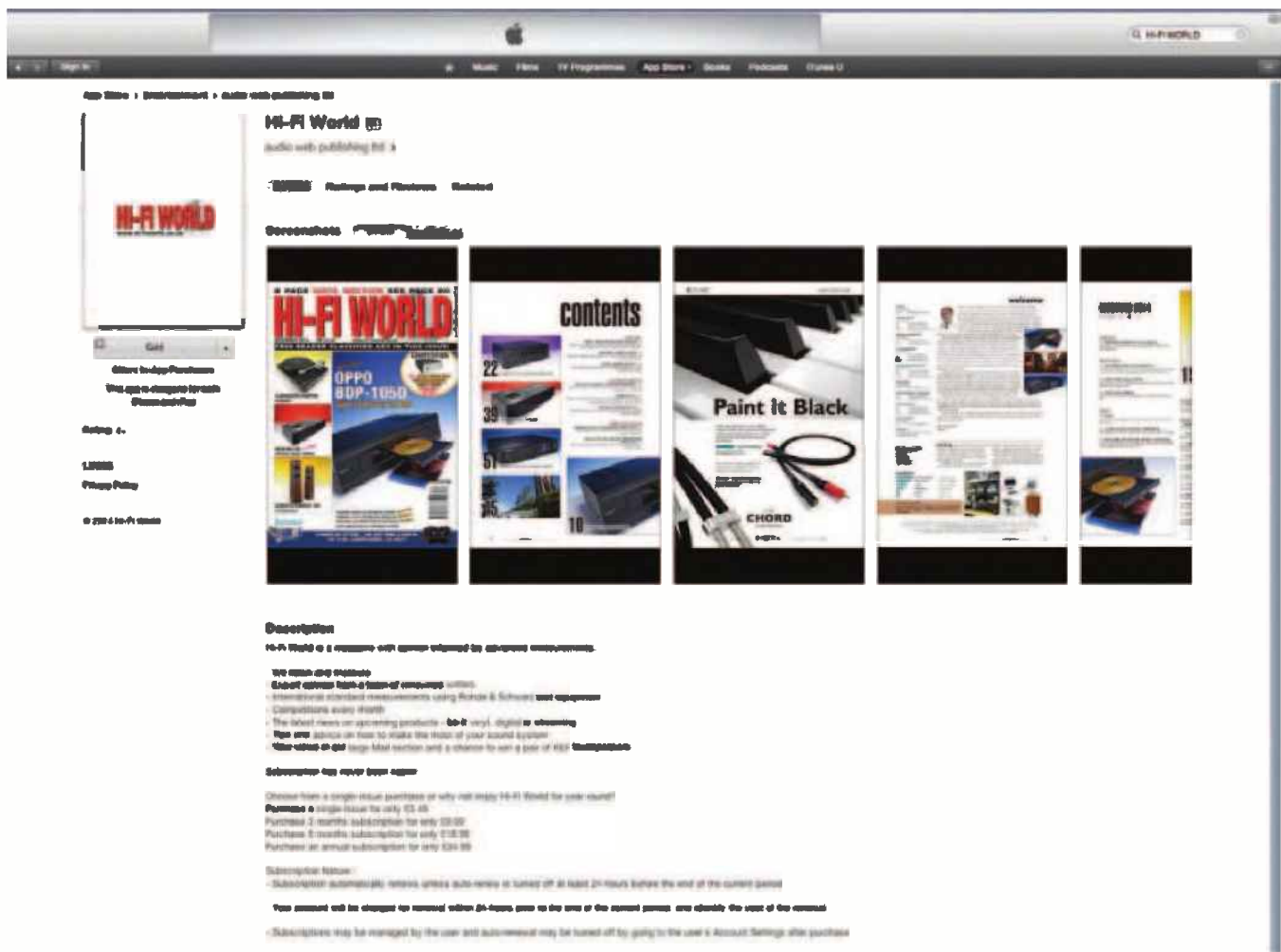
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# Jumbling for joy

**Martin Pipe hunts down the bargains at the Audiojumble again!**

**A**nd so to the second of 2015's famous Tonbridge Audiojumbles, organised by the living legend that is John Howes. These events – that take place in February and October – are a must for anyone with an interest in hi-fi, musical instruments, electronics, recording equipment, valve radios and recorded music. You're almost guaranteed to find something of interest, from long-deleted jazz LPs to the obscure spare part you need to complete that amplifier restoration. And it's a friendly show with plenty of opportunity to discuss relevant subjects with your fellow enthusiasts.

Thanks to a nasty cold that was going round the UK, rather than any economic woes, some traders failed to make the October Audiojumble. For this reason, the second hall was noticeably emptier than usual.

There were numerous bargains to

be had however, especially for those who were prepared to hold out until the end of the day! Sometimes, it's better than that; an Eltax budget 5.1 speaker system (with active sub) was being given away by 3pm – as were LPs, analogue tuners, old books, cassette decks, redundant circuit boards and even an old Portastudio. If you want a good stab at getting the better items, though, you're advised to buy a 9.30-entry 'early bird' ticket (for a £5 premium over the £10.30 'regular' ticket).

This particular Audiojumble was a veritable feast for reel-to-reel tape lovers. I spotted machines from Teac, Sony, Technics, Akai, Revox, Philips, Dokorder and Ferrograph amongst others. Some of them are rare finds in the UK: I saw a mint Technics RS1500, complete with flight case and the Philips N4520 pictured. Both belonged to an enthusiast who was 'thinning' out

his collection. That's the problem with open-reel machines – they take up a lot of room, if not as much as vintage cars!

So too do the tapes, in an age when music lives on flash memory and in the cloud. And there was plenty of quarter-inch tape, on spools ranging in diameter from 5in. to 10.5in. For a mere tennor, I snapped up four seven-inch half-track 19cm/s transcriptions of a symphony that had been specially-prepared for Yehudi Menuhin in the mid-70s.

**The next Audiojumble is on Sunday 21st February 2016 at the Angel Leisure Centre, Tonbridge, Kent TN9 1SF. [www.audiojumble.co.uk](http://www.audiojumble.co.uk).**

**Words: Martin Pipe  
Pictures: Martin Pipe and Adrian Caspersz**



**In the 1970s, KEF offered the Reference 105 loudspeakers seen here – a three-way monster with a 12-inch woofer, 5-inch mid-range driver and 1.5-inch dome tweeter. These mint examples were being offered for £500.**

**The Strathearn SMA2 was made in 1975 – the product of a state-owned hi-fi company, set up to reduce unemployment in Northern**

**Ireland. This example was on offer for £40 and was apparently in full working order.**



**Sold only in Japan, this unusual Technics SL-M3 has a distinctly high-end look to it, with its platter stroke markings, wood finish and massive build. It has the famous Technics quartz-locked direct-drive platter, plus a microprocessor-controlled linear-tracking tonearm. Its owner was hoping to fetch £495 for it.**





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www.EnjoyTheMusic.com 10:08



A product from Sir Alan Sugar's earlier days, the Amstrad TP12D turntable, that superficially at least, looks like the work of a hi-fi brand that also hails from



Essex (Regal!). This particular model was on sale for just £50. Perhaps a budding Apprentice contestant might have been tempted?

By the end of the day, there are usually tremendous bargains to be had. For a mere fiver, you could



have bought this Technics analogue tuner, integrated amplifier and cassette deck. They were working, I was told, and their physical condition was excellent.

The iconic Canadian Oracle Delphi turntable was launched in 1979, and was a challenger for the Linn LP12 and



other top decks of the era. Stunning to look at, the belt-driven Delphi was an engineering masterpiece. This one, complete with Mission straight-tube tonearm, needed some work but it was a bargain at £400.

Launched in the early 1950s, the Quad II 'proto-monobloc' power amp has followers to this day, on account of their warmth and sweetness. The amps, push-pull designs using a pair of KT66s in the final



output stage, were rated at 15W. These ones had been lovingly restored and were on offer for £500 each.

Here we have one of the 'music centres' (turntable, tuner, cassette and amp plus matching speakers) that



were popular in the '70s. But this is not just a music centre – this is a Bang and Olufsen Beocenter. B&O were one of the brands that proto-yuppies aspired to. This Beocenter 2200 was missing its cartridge but was in otherwise good working order and reasonable condition. Not bad for £110.

This Telefunken Magnetophon 36 was, I was told by its owner, one of many in a West Berlin surveillance facility. Its job was to record telephone calls



being made on the other side of the Berlin Wall during the Cold War era. The portable M36, a half-track twin-channel (stereo) machine made in 1971 or thereabouts, could record two such calls simultaneously. This £250 one was in excellent condition and lack of head-wear suggested little use.

This quarter-track Philips N4520 – and its half-track brother, the N4522 – were Philips' reel-to-reel swansongs. Enormous, heavy and expensive (£700 and £850 respectively, in 1981), these decks didn't sell particularly well in the UK owing to competition from firms like



Revox, Ferrograph and Tandberg. As a consequence they are somewhat rare; a pity as they are superb. This one, in excellent condition, was impossible to resist at £200. Sound quality is fantastic...

The early 1980s was the golden age of what became known as the 'ghetto blaster'. Sharp's enormous VZ-2000 broke new ground insofar as it inserted a



'both sides' linear-tracking turntable between the speakers. There's also a three-band tuner, mike-mixing and a cassette deck. This one was missing a couple of knobs but was otherwise in good nick. £120 was thus a fair price.

# free reader Classifieds

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This is a selection of what we hope to bring you, not a complete list. We regret that due to a wide range of issues, such as failure under review, we cannot guarantee that all products listed above will appear.

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# PAUL McCARTNEY

## TUG OF WAR

UNIVERSAL



"Paul McCartney's great idea was to rope in not just Ringo Starr but also George Martin"

"I had the title and I wanted to do the whole album around that theme. The idea was conflict – that everything was a tug of war",

Paul McCartney's great idea was to rope in not just Ringo Starr but also George Martin in the creation of this LP, eliciting more than the usual public stir. But Martin's role in this LP was more than showing his face to the cameras. He gave added credence that he was, indeed, the fifth Beatle because it's Martin that reins McCartney in and gives the man focus.

"You would give George your ideas" said McCartney, referring to Martin, "and then he'd actually write the parts up. It was always good to work with him. I just found him inspiring and, also, the main thing is, could leave it to him. You didn't have to say "Oh and by the way, you know, there should be eight strings for 'Eleanor Rigby'. It would be, like, he'd tell you".

The creative diversity and innovation heard on this album was the result of an evolution that began with his previous LP outing 'McCartney II' (1980) but developed immeasurably from it giving 'Tug of War' both ambition, but also a grand, epic quality that was miles away from 'McCartney II's experimental and intimate atmosphere. 'Tug of War' was almost a CV on wax. A sort of, "Hey! Look what I can do!" So you get a bit of balladry, folkie guitars, whimsy, sentimentality, clever jokes, silliness, hints of reggae plus works with Stevie Wonder (although 'Ebony and Ivory' can sound rather dated nowadays) and Carl Perkins.

There are real crackers on this LP, though, including the catchy 'Ballroom Dancing', which was considered as single material at one point; it reflected on the dance halls of McCartney's teenage years.

"I've got memories that go back to when I was a teenager, like when George Harrison and I used to go to the local dance and neither of us would ever dare to ask a girl to dance until the last waltz...We'd always try and grab someone for that last dance. But most of the time, we'd get refused". Both Denny Laine and (10cc man) Eric Stewart play

on this track, although Stewart is not credited.

'Here Today' was written shortly after the death of John Lennon.

"I was kind of crying when I wrote it" McCartney said. "It's like a dialogue with John. The 'I love you' part was hard to say. A part of me said, "Hold on. Wait a minute. Are you really going to do that?". I finally said, "Yeah, I've got to".

There's a section in the song that refers to 'nights when we cried' that reflects on a real event for The Beatles, "We were supposed to play a gig in Jacksonville and we couldn't get in because there was some great hurricane. So we had to spend a night or two in Key West. And at that age, with that much time on our hands, we didn't really know what to do with it except get drunk. And so that is what we did. And we stayed up all night, talking, talking, talking like it was going out of style. And at some point early in the morning, I think we must have touched on some points that were really emotional and we ended up crying, which was unusual for us, because as members of the band and young guys, we didn't do that sort of thing".

Featured violinist on this track, Jack Rothstein, also played on the Lennon-penned Beatles' hit 'I Am The Walrus'.

Other notable songs are 'Wanderlust' and the hit single 'Take It Away'. The video for the latter saw the first time that McCartney had performed in front of an audience for six years (1979-1985) as 600 fans gathered at EMI's Elstree studios on 23 June 1982. While the band were there, they also performed an impromptu concert including 'Twenty Flight Rock', 'Cut Across Shorty', 'Lucille', 'Send Me Some Lovin' and the unique track, the improvised 'Elstree Blues'!

The album (and, incidentally, the album released after this, 'Pipes of Peace') has now been released as a multi-CD/DVD box set featuring a remixed version of the LP, demos, B-sides, video footage and hi-res downloads plus excellent accompanying books.

The reissue was carefully considered using vintage gear including, said engineer Steve Orchard, "Paul's vintage valve Studer J371" tape machine, which sounds truly awesome".

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