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MARCH 2020

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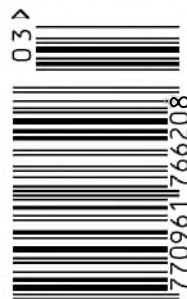
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# welcome

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David Tutt



**P**hew! I started this magazine 30 years ago and am still alive today. Better, so is the magazine. I remember being told prophetically by our first distributor that most new magazine start-ups last at most three years. It was sobering to hear, leaving me wondering what fate would bring.

Publishing back then was tough and it has only become tougher.

Remember lads magazines? Gone. Computer magazines. Gone. Even larger publications like Marie Claire, that had strong bookshelf

presence, have called it a day. But Hi-Fi World trundles on with one of the steadiest readerships of all magazines out there, our distributor and subscriptions house tell me. We won't be challenging The Sun anytime soon but stability has its plus points in a market that can see drastic plunges in circulation.

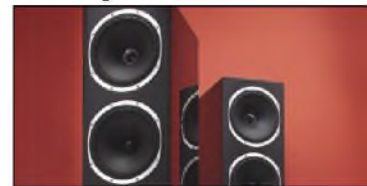
Not really being a publisher, although that's my title, it sort of comes as a welcome surprise. In truth I am a dedicated engineer and always have been, designing and building radios and amplifiers through my teens. The bible back then was Wireless World magazine, an extremely serious electronics publication that I aspired to understand. Before the internet, magazines were the only source of up to date information available on a subject that was always fast moving. As sources of information, magazines reigned supreme.

The 'net has taken over – and as a distributor of information is beyond amazing. But it is a weird place. Some of the tech videos on YouTube are quite disturbing in their amateurishness and naked diatribes. I'm shocked at times, a lot of the talk revealing the narrow view and particular outlook of the presenter, with no feedback from the outside world. Bubble talk.

Hi-Fi World is no bubble. We talk to and are harangued by manufacturers – but this is how it should be. I've had the pleasure – honour – of meeting and talking to a lot of brilliant hi-fi engineers, including Peter Walker, founder of Quad, and Raymond Cooke, founder of KEF – both intellectually intense, confident and vigorous people. Best to hear what others have to say and learn.

Thirty years later Hi-Fi World still brings you an informed view, one I hope you enjoy.

**Noel Keywood**  
**Editor**



## 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.

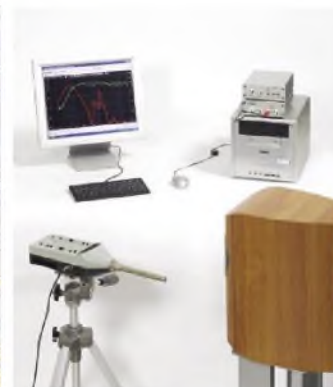
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## verdicts

●●●●●	<b>OUTSTANDING</b>
●●●●	<b>EXCELLENT</b>
●●●	<b>GOOD</b>
●●	<b>MEDIOCRE</b>
●	<b>POOR</b>
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amongst the best  
extremely capable  
worth auditioning  
unremarkable  
flawed  
keenly priced



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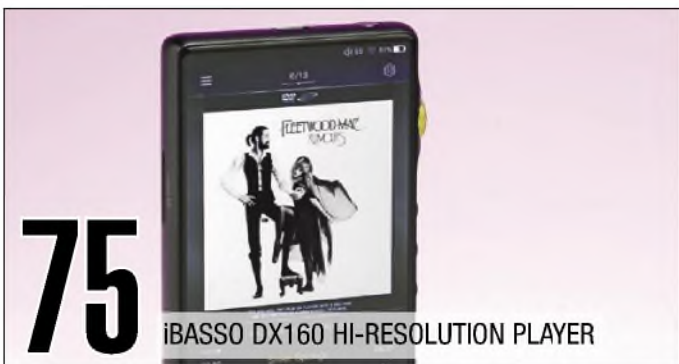
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# contents



## LOUDSPEAKERS

### FYNE AUDIO F502SP LOUDSPEAKERS 11

A big floorstander from Fyne Audio with point-source behaviour. Noel Keywood listens.

### THONET & VANDER KUGEL LOUDSPEAKERS 24

A powered loudspeaker from Germany with multiple inputs and low price, checked out by Jon Myles.

### QUADRAL BREEZEQ 45

Quadral's small, rechargeable Bluetooth loudspeaker. Will it maintain their high standards? Jon Myles finds out.

## DIGITAL

### EXPOSURE XM CD PLAYER 36

A top loading CD player with linear power supply impresses Jon Myles.

### IBASSO DX160 HI-RESOLUTION PLAYER 75

Small, inexpensive but better than most else. Noel Keywood is wowed by this new portable.

## AMPLIFICATION

### AUDIO ANALOGUE PUCCINI ANNIVERSARY AMPLIFIER 47

A transistor amplifier without feedback gets Noel Keywood's close attention.



# MARCH 2020

VOLUME 30 : NO. 1

## CABLES

### 43 CHORD EPIC XL SPEAKER CABLE

Chord Company produce a new loudspeaker cable and Jon Myles listens.

## FEATURES

### 20 HI-FI WORLD 30 YEARS

Jon Myles looks back at 30 years of Hi-Fi World.

### 40 BRISTOL SHOW FEATURE

Jon Myles on forthcoming attractions at the Bristol Hi-Fi Show, due February 21st-23rd 2020. We will be there as always!

## OLDE WORLDE

### 52 CREEK CAS3040

Martin Pipe looks at an old classic, Creek's CAS3040 tuner.

## VINYL

### 80 NEWS

All the latest and greatest vinyl releases for you, from the pen of Paul Rigby.

### 83 REGA PLANAR 10 TURNTABLE PACKAGE

A high-end turntable with Apheta 2 moving coil cartridge impresses Noel Keywood.

### 86 RPM WOW & FLUTTER APP

Measure turntable speed, wow and flutter, with a phone app. Noel Keywood explains.

### 89 SUMIKO AMETHYST CARTRIDGE

A new high-end MM cartridge from Sumiko gets Noel Keywood's attention.

### 93 AUDIOPHILE BOOK

Paul Rigby reviews Time is Tight, from Booker T Jones.



## HEADPHONES

### 16 OBRAVO CUPID IN EAR MONITORS

Martin Pipe plays Cupid with new in-ear monitors!

## REGULARS

### 7 NEWS

Words from the world...

### 15 COMPETITION

Your chance to win a Arcam CDS50 SACD player worth £699

### 27 MAIL

Seven pages of your views, wonderful as always...

### 22 SUBSCRIPTIONS

Ensure your copy every month and save money too!

### 62 AUDIOPHILE VINYL

Paul Rigby rounds up the latest audiophile vinyl releases

### 56 WORLD CLASSICS

Brilliant designs that have stood the test of time...

### 65,67,69,71,73 OPINION

The team get to grips with matters music, hi-fi and life!

### 88 DIAL-A-DEALER

A comprehensive guide to UK hi-fi retailers.

### 95 CLASSIFIEDS

Second-hand bargains.

### 96 NEXT MONTH

What we hope to bring you in the next sizzling issue...

### 97 ADVERTISERS' INDEX

### 98 CLASSIC CUTS

Madonna's Like a Virgin, explained by Paul Rigby.



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email:news@hi-fiworld.co.uk

# news

## 123...YOU'RE IN CONTROL

We note with sadness that Sidney Corderman, longtime McIntosh engineer and a "cornerstone of the company", died recently at the age of 94. In 1951 Corderman joined McIntosh – where he remained until retiring in 1993. In between, he had "direct hands-on involvement with nearly every product McIntosh designed and became famous for". He also contributed to some McIntosh valve amps after retirement.

McIntosh announced in October the MX123 AV processor (£10k). This comprehensive 13.2-channel beast now has another string to its bow. Thanks to its implementation of 'Simple Device Discovery Protocol (SDDP)', it has just been granted 'Connects with Control4' certification by the SnapAV smart-home brand. Those able to afford such a system would probably be looked after by a custom-install specialist. Its lucky users will be able to enjoy, in every appropriately-equipped room, compatibility with "all the leading home theatre surround sound and object-based 3D audio formats" (including Dolby Atmos, DTS:X and Auro-3D) and flexible source/display/audio connections (among them seven HDMI inputs and three HDMI outputs – all conversant with up-to-date tech like 4K Ultra HD, HLG and HDR). The MX123 will, we are told, work with a Control4 system with no need for a firmware upgrade – the system will automatically recognize it after connection. Awesome modern tech!

Contact: *Jordan Acoustics (UK distributor): (01202) 911886. www.jordanacoustics.co.uk. www.mcintoshlabs.com*



## COMES A TIME...

And waiting in the wings is a new NAD BluOS streaming DAC amplifier that's presumably ready for Neil Young Archives, should it arrive here. The key selling point of the £3999 NAD Masters M33 would seem to be its "ultra-quiet" and "ultra-low distortion" 'HybridDigital Purifi Eigentakt amplification'. We're told that its "measured performance...nears the limits of even the most sensitive and sophisticated test equipment available". The "cutting-edge" HybridDigital Purifi Eigentakt is likely a Class-D variant. This amp is allegedly capable of "superb audiophile

sound" and a "lifelike performance" courtesy of its "minimum 200W per channel" output.

Features include 7in. widescreen colour touchscreen controls protected by Gorilla Glass, aptX HD Bluetooth, Wi-fi, 32-bit ESS Sabre DAC, full MQA decoding (certification pending), four analogue inputs including MM/MC phono stage, six digital inputs, headphone amp, mike-based Dirac room-correction, compatibility with Amazon Alexa/Google Assistant and smartphone integration. Streaming music services supported include - NYA access apart – Tidal, Deezer, Qobuz, Amazon Music/HD, Spotify, Slacker, TuneIn and nugs.net. The Masters M33 will be available here in March.

Further details: [www.nadelectronics.com](http://www.nadelectronics.com), [www.bluos.net](http://www.bluos.net)

## FOCAL POINT

French speaker specialist Focal used the Las Vegas CES technology fair as a springboard for new additions to its Chora range – the Chora 826-D, Chora Center and Chora Surround. They are Focal's first Dolby Atmos-ready models – and Dolby was using them to demo Atmos at CES. The 'reference' Chora 826-D incorporates an Atmos speaker driver, installed above the enclosure, that "directs the sound towards the ceiling at a carefully-calculated angle". Thanks to this, the audio signal is reflected around the entire room; the result "has the listener wrapped in the sound, and immersed in a highly realistic 3D world". Meanwhile the Chora Center, for which an optional stand is available, is said to reproduce "voices and dialogue with clarity and precision".

Then there's the wall-mountable Chora Surround, which is "ideal for rear- and side-channel action...bringing movie action-scenes and concert performances to life". The 165mm Chora bass/mid drivers have innovative 'Slatefiber' cones manufactured from "ultra-lightweight recycled non-woven carbon fibres" working alongside 25mm aluminium/magnesium TNF tweeters. Cabinet finishes (black, light wood and dark wood) and slate-effect cones will, according to Focal, complement contemporary decors. A natural partner is the 600 Watt Sub 600P active subwoofer, with Polyflex-coned driver. Pricing for the foursome has yet to be confirmed, but will "fit with the positioning of the wider Chora range" (i.e. £600-£1299).

Contact, Focal 0845 6602680. [www.focal.com/en/](http://www.focal.com/en/)



## HEART OF BLU

In the 2019 book he co-authored with electronics whizz Phil Baker, Neil Young documents his mission to bring high-quality audio back to music-lovers. A worthy aim, of course. These efforts culminated in 2012's \$399 'PonoPlayer', an Android-based portable music device that was optimised for the lossless hi-res music files. What better way of hearing the lovingly-curated Neil Young Archives (NYA)? Production of the PonoPlayer ended in 2017, Young citing the high price of hi-res content for its demise.

The Neil Young Archives can now be streamed in hi-res to the BluOS multiroom platform developed by NAD parent Lenbrook. Owners of BluOS-enabled products from NAD, Bluesound, and DALI will be able to install an update allowing them to "sample the NYA's 'song of the day' and 'album of the week' in full resolution".

The full NYA service can also be accessed, with necessary subscription purchased via the BlueOS app. At the time of writing, this feature is only available to North American users. VPNs and proxies, as NAD's UK PR reminds us, are however useful things...

Further details: [www.neilyoungarchives.com](http://www.neilyoungarchives.com), [www.bluos.net](http://www.bluos.net), [www.lenbrook.com](http://www.lenbrook.com)



## SPHERICALLY YOURS

The "ultimate expression of Cabasse's world-leading technology," La Sphère (fabriqué en France!) uses composite materials originally conceived for the European space programme. It is the "culmination of many years' research into the importance of point-source audio reproduction from loudspeaker drive units". La Sphère boasts a co-axially mounted and digitally-controlled three-way Tri-Coaxial Aramid drive unit and 55cm woofer in a 70cm enclosure.

Your £197,500 also buys the necessary Cabasse digital amplifiers (a total of 4,800W), digital signal processor and high-resolution audio streamer, plus a Parasound pre-amplifier, a custom Quadraspire equipment rack and cabling from Kimber Kable and Russ Andrews. The system will be installed by a Cabasse acoustician. Standard finishes are pearl, black pearl or glossy black. You can find it at Harrods.

Contact: *Connected Distribution (UK distributor), (01242) 511133. [www.connecteddistribution.com](http://www.connecteddistribution.com)*



## HONEY, I SHRUNK THE JBL...

JBL's big and beautiful L100 is a domesticated version of the 4310 professional studio monitor remains the biggest-selling JBL speaker of all time. It now has a smaller brother. JBL's L82 Classic is said to deliver the "iconic styling and thrilling audio performance of its forebears... presented in a more compact cabinet". It even has that famous 'Quadrex' foam grille (available in a choice of black, orange or blue).

Also shared is the bass-reflex design, with front-firing tuned ports. Despite a similar spec (a -6dB point of 44Hz, as opposed to the L100's 40Hz) one cannot expect the original model's bass performance. The L82 has a single 200mm bass-mid driver with a cast frame and white pure-pulp cone. But the L100's 25mm titanium-dome tweeter, working in conjunction with a waveguide and acoustic lens, is however employed here. As a result treble response is, like that of the L100, -6dB at 40kHz. The 12.7kg L82 has a sensitivity of 88dB (2.83V/1m) and is - JBL tells us - suitable for use with amps of between 25 and 150W RMS. Expect to shell out £2,000 for a pair, when they arrive in April; the stands are an extra £175.

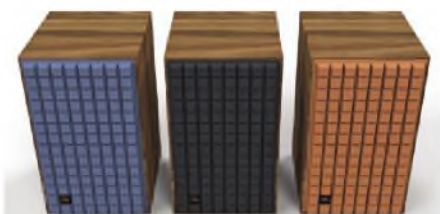
Contact: *JBL, [www.jblsynthesis.com](http://www.jblsynthesis.com)*

## STRINGS AND THINGS

New from Russ Andrews are the Evolution PowerKord cables. Research by technology consultant Dr. Craig Sawyers showed that "by taking the earth out of the centre of the braided mains cable and moving it to the outside, noise picked up by the earth was significantly-reduced". Also, "positioning the earth in a helix around the outside of the cable reduced induced noise by a factor of up to 50".

The PowerKord Evolution range embodying all this work currently comprises three cables. The Evolution-100 (£216/1m) - with eight VariStrand copper conductors, a high-performance mains plug with Russ Andrews fuse and a WattGate 320 EVO IEC connector - is "best suited for use with pre-amplifiers and components". The Evolution-300 (£366/1m), which has double the number of conductors, is suitable for use with pre/power and integrated amps as well as sources. The Evolution-500 (£650/1m), with its 24 conductors and rhodium-plated WattGate 350 RH IEC connector is intended for "current-hungry components like large power amplifiers".

Contact: *Russ Andrews, 01539 797300 [www.russandrews.com](http://www.russandrews.com)*





## FORM AN ORDERLY Q

New from Q Acoustics is the £329 3030i standmount loudspeaker. It slots comfortably into the award-winning 3000i range, between the 3020i bookshelf speaker and 3050i floorstander. The goal of its designer was to provide "more powerful bass performance, in an elegant and conveniently-compact enclosure".

The 3030i's 165mm woofer features a "new motor with copper-clad aluminium windings". Optimised for use in smaller cabinets, it allows the low-end of the 6.4kg 3030i to go all the way down to 46Hz they say.

Also contributing to this characteristic is a bass-reflex enclosure that boasts "more than double" the internal volume of the 3020i's. For rigidity and low distortion, it features "Point to Point" (P2P) bracing, as pioneered in the Hertfordshire firm's £3,600 Concept 500 flagship. The 22mm tweeter and mounting arrangement can deliver a "class-leading" high-frequency performance. Sensitivity is 88dB (2.83V/1m) suited to stereo amplifiers between 25 Watts and 75 Watts. Available in Arctic White, Carbon Black, Graphite Grey and English Walnut finishes.

Further details: [www.qacoustics.co.uk](http://www.qacoustics.co.uk)



## CART SHOPPING

Described by Rega as the "perfect partner" for their Planar 3, Planar 6 or Planar 8 turntables, the £750 Ania Pro is the latest addition to the Essex firm's MC cartridge range. It uses Rega's advanced "Vital-profile" nude-diamond stylus. Inherited from the costlier Apheta 2 model, it is "designed to extract as much detail from the vinyl surface as possible". Working in conjunction with a "super high-powered, neodymium magnet" and a coil "meticulously hand-wound onto an iron micro-cross", the Ania Pro is said to deliver "tight bass, warm midranges and accurate top-end frequencies".

The body boasts Rega's three-point fixing system that automatically sets overhang (Rega arm only). The transducer's delicate coils are protected by a rigid cover that makes fitting "safe and risk free". Intended to track at between 1.75 and 2g, the Ania Pro has an output impedance of 10 Ohms (phono stages of 100 Ohm input impedance are recommended) and a "nominal" output voltage of 350µV.

Contact: Rega, (01 702) 333071. [www.rega.co.uk](http://www.rega.co.uk)



## MAKE MINE A BUD...

Audio Technica's noise-cancelling and "truly wireless" ATH-ANC300TW earbuds are said to be its "most advanced" yet. They have a Zippo-like USB-C charging case and a £209 asking price. Features include 'Quietpoint' hybrid technology (two mikes in each bud and digital processing to eliminate ambient noise), four silicone eartip sizes to fit different ears and a 'Connect' mobile app with three presets to tailor the noise-cancelling effect for 'Airplane', 'On-the-go' and 'Office/Study' environments. Their 5.8mm diamond-like carbon coated drivers are compatible with Bluetooth 5 and aptX HD. You can get 4.5 hours of noise-cancelled listening from a single charge, 13.5 hours of 'reserve' being available from the charging case.



Audio-Technica also reveal their latest 'premium' turntable, the £379 AT-LPW50PB. The fully-manual AT-LPW50PB's "professional-grade anti-resonant aluminium" platter is belt-driven from a servo-controlled two-speed (33 1/3 and 45rpm) motor. The carbon-fibre tonearm is fitted with an AT-HS4 universal headshell and AT-VM95E MM cartridge. The plinth features height-adjustable isolation feet and is built from 30mm anti-resonance MDF to "isolate it from low-frequency acoustic-feedback". There's also an integral MM phono stage and accessory kit including RCA cable, 45 RPM adapter, rubber mat and hinged dust cover.

Contact: Audio-Technica, (01 132) 771441. [eu.audio-technica.com](http://eu.audio-technica.com)

# STOP PRESS: ST40 MKIV voted Hi Fi World "BEST VALVE AMPLIFIER 2019"



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\*Limited stock subject to availability UK only. Some models show upgraded valves. E&OE

# Northern Song

From Scotland comes a loudspeaker that sings differently. Noel Keywood investigates.



**W**e expect big bass from big loudspeakers – and you get both here! Fyne Audio (Scotland, so as in Loch Fyne) build 'em big and strong, the F502SP I am reviewing here standing 1110mm tall – a tad higher than most. The company being formed from ex-Tannoy personnel, you can expect similarities with Tannoys of the past, this loudspeaker having a large bass/midrange unit with treble unit placed at centre, firing out through a small horn, for point-source dispersion that gives stable and concise imaging. This is a loudspeaker with presence, price £3499.99 in gloss white or black, £3999.00 in gloss Walnut.

Let us talk bass, since it forms a weighty part of this 'speakers design essence and sonic character. The fibreboard cabinet, braced for rigidity, has a "conical Tractrix profile bass diffuser" we are told, that fires downward to a port on the bottom panel – think downward firing cone. Like all loudspeakers with downward firing ports the F502SP has a plinth that lifts it off the floor, in this case a substantial one of cast aluminium with adjustable spikes, twiddled by a supplied tool. 'Tractrix' refers to a horn profile developed long ago as optimal by Paul Voight and we described it in our Nov 94 DIY Supplement; Wikipedia has a very interesting explanation with animated diagrams. Klipsch also like to mention use of the Tractrix profile, so it well respected.

Fyne Audio are saying then that they use this optimum profile for bass port that loads the lower 200m drive unit.

Above the bass unit lies their 200mm Isoflare concentric drive unit with magnesium dome treble unit at centre, firing out through a short horn. The treble unit plays a strong role in the F502SP I found, coming in at 1.7kHz Fyne say – and our measurements show the 'speaker is forward at this frequency and above, making for strong projection of detail. Think vivid vocals.

Our pictures show the F502SPs are well finished and at rear have sturdy gold plated bi-wire terminals with removable straps that, in place, allow mono-wiring. The plinth



***The downward firing bass port with a diffuser on the plinth that contributes to Tractrix behaviour.***



***At rear sit bi-wire terminals with connecting links. They accept bare wires, spades and 4mm banana plugs.***

spikes have optional metal cups to prevent damage to wooden floors.

Counter-intuitively, large loudspeakers need less power than small ones. The Fynes are massively sensitive, needing just 20 Watts or so to go very loud. A 40 Watt amplifier would be more than enough for most rooms and listeners.

## SOUND QUALITY

The F502SPs proved to be charismatic loudspeakers. I first drove them from Audio Analogue's Puccini Anniversary amplifier and got more than expected. There was great clarity and stage depth, plus massive opening plucked bass in Loreena McKennitt's Gates of Istanbul (CD). But with Willy DeVille's Spanish Harlem the brightly projective midband of the F502SPs moved into edginess as Willy DeVille spat the word "Spanish" into the microphone – not something I recall hearing before from this uncompressed CD track I often use for sound quality assessment. Pondering this I realised that I was hearing distortion from the Puccini Anniversary, being emphasised by the loudspeaker's horn loaded tweeter: so, two culprits as it were.

I moved on to our trusty Creek Evolution 100A for a softer sound – and that is what I got. Gone was some of the Puccini Anniversary's

glorious clarity and detailing, but retained was massive bass, on Gates of Istanbul in particular – but without treble edginess. Bass quality was fulsome rather than tight.

Not entirely happy about this either, I hooked up our Icon Audio Stereo 30SE single-ended valve amplifier and this largely sorted out the unusual and obvious issues I had bumped into. Back came glorious clarity and stage depth – and now Willy DeVille could spit the word "Spanish" into the microphone and get away with it. Bass quality changed completely and largely for the better, becoming lighter but more fluid and communicative. And to explain this I need to get a tad technical.

The F502SPs draw heavy current from a transistor amplifier at low frequencies (very low impedance), fully driving the bass unit. The Stereo 30SE, even on 4 Ohm tap, could not deliver as much, so the deep rumbling I heard with the Audio Analogue and Creek was missing – for the better I felt.

There's a lot to say about all this. First is that the forward and highly projective sound of the F502SPs emphasises and projects problems from elsewhere, making them engaging but overly critical. Willy DeVille at the microphone was powerfully delivered by the Puccini Anniversary amplifier – I enjoyed that bit – but I did



**The Isoflare drive unit (top) has a tweeter at centre, so is two drivers in one. Below sits a bass unit.**

not enjoy hearing its distortion harmonics.

Most potential listeners will not be using such an amplifier and here our Creek Evolution 100A brought everyday balance to the issue. Think massive rolling bass and forceful midband projection but without edginess – but these 'speakers will still jump out in a showroom demo. The tweeter is fast but quite hard in rendition, made obvious by its enhanced contribution to proceedings.

Massive sensitivity suits low power amplifiers and our Icon Audio Stereo 30SE had no trouble driving the F502SPs, in particular showing they resolve detail and stage depth superbly – even dramatically. It made the point that this loudspeaker is amplifier critical and needs a great source. Bass wise, the Stereo30 SE reduced low-end rumbling, improving temporal resolution. I felt it got it right, but this will not be the everyday experience; most people use transistor amplifiers after all.

After running through amplifier options to find out how the F502SPs interface, I stayed with Creek's Evolution 100A to hear what most listeners would hear. With Classical and Nigel Kennedy playing Vivaldi's Spring (CD) his

violin was brightly lit and forward, strings sounding a tad metallic. Since violin strings can be metallic this may have been correct, the F502SP making this obvious through deeper insight into Nigel's

of the piece.

As with Rock, singers like Renee Fleming were forward on the stage, with clear but sharp presence.

Summarising, the F502SPs have

"these 'speakers will jump out in a showroom demo"

Stradivarius and his string choice, helped by raised midband output. It's impossible to be certain. Whatever, Mr Kennedy's violin was certainly prominent and vivid here, given different treatment to the XStat electrostatic panels of our Martin Logan ESL-X reference loudspeakers that offer a smoother rendition.

Orchestral scale wasn't in doubt, the London Symphony Orchestra playing Mars, from The Planets, filling our room with a thunderous performance. Strings were forward and sheeny, but well delineated, solo horn and backing trumpets given a firm and obvious presence. Backing timpani had great weight, laying down a thunderous presence, in keeping with the spirit

strong bass able to move any room; they are for larger rooms rather than small ones, meaning less than 16ft long as a rough guide. They are also mid-band forward, projecting vocals with force. Putting these traits together the speakers deliver a sound with massive power and presence, beyond most else.

**CONCLUSION**

Fyne Audio's F502SPs are a vivid listening experience. Massive bass and a fast, forward midband make for a sound few other loudspeakers come close to. More charismatic than smooth they offer an alternative to the commonplace. Being very revealing though, as well as demanding, they do need careful amplifier matching.

**MEASURED PERFORMANCE**

Our analysis of frequency response (green trace) shows a peculiar dip around 250Hz, likely due to the use of a slow first order high pass filter feeding the upper Isoflare 200mm point source driver. Below 250Hz the lower bass unit takes effect, lifting output back up quite strongly to a peak at 60Hz before a slow roll down to 30Hz.

The downward firing port (red trace) is tuned high to 100Hz, providing some fill-in in this region it appears. The 'speaker has very strong bass, but weaker upper bass, divorcing one from another.

The upper midrange is very strong around 4kHz which will add some bite to the sound. Higher treble rolls down slowly. Our response shows grille on, but removing the grille made little difference. Needless to say the 'speaker, being a point-source, has good lateral and vertical dispersion so will give a consistent sound whether seated, standing, walking around.

Sensitivity was high, 91dB sound pressure level (SPL) from one nominal Watt of input (2.84V), so amplifiers of 20 Watts or more will be enough to go very loud. With a low overall impedance of 5 Ohms, measured with pink noise, and a very low DCR of 2.5 Ohms the F502SP draws current and needs a sturdy amplifier, or a valve amplifier set to 4 Ohms.

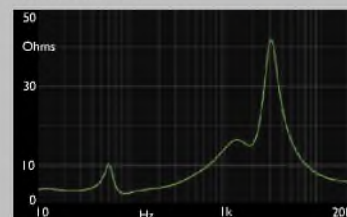
There may be slight lack of lower midband warmth with the F502SP but bass will be strong and the midband forward. **NK**

**FREQUENCY RESPONSE**

**Green - driver output**  
**Red - port output**



**IMPEDANCE**



**FYNE AUDIO**  
**F502SP £3999.00**



**EXCELLENT - extremely capable.**

**VERDICT**

A big, detailed sound, but forward and a bit hard.

**FOR**

- powerful bass
- revealing midrange
- need little power

**AGAINST**

- overly forward
- not for small rooms
- need an appropriate amplifier

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# WIN ARCAM'S SUPERB CDS50 SACD PLAYER WORTH £699 IN THIS MONTH'S GREAT GIVEAWAY!

**H**ere's your chance to win an Arcam CDS50 CD/SACD player we reviewed in the January 2019 issue. Read the review excerpt below and answer the questions.

"Arcam use an ES9038PRO Sabre32 series DAC chip (2015) in this player – top of the ESS range and expensive. Most others use the now not-so-young (2009) ES9018 because it makes CD sound good.

Whilst ESS chips handle DSD from SACD extra chippiness is needed

to make this happen. Those with SACD collections will be delighted because few manufacturers these days bother with this obsolete silver disc audio format, making players rare.

There's much more to Arcam's player than SACD however. With a fabo chip from ESS on-board it's only right – and now customary of course – to fit digital inputs so other digital sources can be run through it. Consequently, the rear panel carries both optical and electrical inputs, with TOSLINK and co-axial phono socket connectors as usual.

There's no AES/EBU balanced and – surprisingly – no USB B for direct computer connection. Instead Arcam put an RJ45 ethernet connector on the rear so the CDS50 can be connected into a home network (or the internet router direct). It allows the player to read music from a computer if it has a DNLA server – think PC here – or from streaming services via the company's MusicLife App, giving access to Napster, Deezer, Tidal, Qobuz and Internet Radio no less, providing you have an account".

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## QUESTIONS

**[1] What DAC is used?**

- [a] PCM1702
- [b] ES9018
- [c] AK4499
- [d] ES9038PRO

**[2] Those with SACD will be –**

- [a] distraught
- [b] delighted
- [c] depressed
- [d] suicidal

**[3] There's no –**

- [a] On/off button
- [b] disc tray
- [c] USB B
- [d] power input

**[4] It reads music from –**

- [a] a computer
- [b] books
- [c] comics
- [d] ancient manuscripts

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# Hybrid theory & practice

Martin Pipe falls in love with oBravo's unusual earbuds

**A**s I commit these words to permanence, it's mid-January – and chances are you'll be reading them close to Valentines day. How appropriate, then, that I should be reviewing the

Cupid Basic planar-dynamic earbuds (£170). They're made by Taiwanese firm oBravo, a relatively-new entrant (2015) into a highly-competitive market.

More expensive 'Prime' and 'Ultimate' versions are supplied

with esoteric silver-plated OCC balanced cables. The Cupid Basic has a lesser 3.5mm stereo jack plug terminated OFC cable designed to be compatible with standard unbalanced headphone amps, which make up the vast majority. The 1.2m





cables, colour-coded so you know which bud goes into which ear, are detachable; you can upgrade a Cupid Basic to Cupid Prime by simply buying the fancier £150 flex. No 6.3mm adaptor is supplied.

Each tiny brass bud includes two transducers. A 6mm-diameter 'dynamic' type is what you'll find in most headphones. Also on board is an 8mm transducer of a very different 'planar' design, also found in headphones from Audeze and others. Here, a flat diaphragm is embossed with a pattern of thin conductors. Transient response and performance at the lower reaches of the audio spectrum all benefit from the approach, although they're not the most efficient of transducers. oBravo quote a high efficiency of 105dB for the 16 Ohm Cupids.



***oBravo have packed two transducers into each of these 8g brass capsules: a 6mm dynamic driver and an 8mm planar driver. Ear tips haven't been fitted in this picture, but three pairs are supplied, ensuring a good fit for all ears. The gold plated outlets accept a small, lightweight proprietary cable connector.***

"The Cupids delivered the goods with tautness, verve and panache. A slightly bright character aids cymbals"

**USE AND SOUND QUALITY**

The 8g (each) Cupids proved comfortable to wear; they didn't fall out during a vigorous treadmill workout. They did have to be pushed back a few times though. There are 'Comply' silicon earphone tips – three sets to suit different auditory canals.

The tangle-free cable rustled on quieter musical passages when I was moving. A decent seal between ear and 'phones ensures the Cupids keep at bay noise from outside.

I could get decent level yet a clean sound out of a FiiO X3 portable player; needless to say, they were easily driven by Chord Hugo TT and Prism Callia 'desktop' DAC/headphone amplifiers.

Clarity was startling, especially when it came to rhythmic progression. Whether it was the Latin flavoured percussion of Stevie Wonder's Don't You Worry 'Bout A Thing (Innervisions, FLAC CD rip), the snappy polyrhythms of Talking Head's Born under Punches (Remain in Light, 24-bit FLAC) or the cymbals riding the crest of the dense mix that characterises Mogwai's Party in the Dark (Every Country's Sun, FLAC CD rip)

the Cupids delivered the goods with tautness, verve and panache. A slightly bright character aids

cymbals and – to name one specific example – the tubular bells of ELO's Mr. Blue Sky.

Stereo imaging also worked well, instruments being locked into position and definable within the performance space. This was equally true of studio productions and live concert material, such as my capture of Dvorak's New World Symphony, as performed during the 2017 Proms by the Halle Orchestra under Sir Mark Elder. Tonal definition was satisfactory,

strings and brasses emerging with their characteristics intact. Also conveyed was the unique timbre of electronic string instrument (possibly an Optigon or Mellotron) used in the Chemical Brothers/Beck song Wide Open (Born in the Echoes, 24-bit).

I found that flaws like tape hiss were ruthlessly exposed. Wide Open has a deep bassline, and it's there that criticism must be made: visceral impact was missing. Other bass-heavy offerings, including Jamiroquai's Canned Heat and Tame Impala's The Moment (both FLAC CD rips), also suffered in this regard. But then these are tiny 'phones, not big 'over-the-ear' models.

**CONCLUSION**

On the whole it's impossible to dislike the Cupid Basics that, in terms of musical satisfaction, rank among the best 'earbuds' I've tried. oBravo's technically-complex dual-driver approach has paid off.



***The proprietary colour-coded 'locking' connectors of the supplied lead mate with similarly gold-plated receptacles on the buds; a standard 3.5mm stereo jack plug terminates the other end.***

**OBRAVO CUPID BASIC £169**



**OUTSTANDING - amongst the best.**

**VALUE - keenly priced.**

**VERDICT**

These dual-driver in-the-ear 'phones are comfortable and revealing.

**FOR**

- exceptional clarity
- easy to drive
- comfortable

**AGAINST**

- rather bright
- poor recordings laid bare
- lack bass impact of full-sized headphones

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# A Happy 30th

**Hi-Fi World celebrates 30 years of publishing in 2020. Jon Myles looks back at its three decades.**

**T**hirty years ago the internet was a nascent idea being developed to help scientists share data and mobile 'phones were just that, telephones you could carry around – a world away from the smart 'phones most of us now use. As for apps, well they hadn't even been thought of.

But into this environment came something new

services such as Spotify, Tidal et al.

We've also seen the once go-to publications for reading about music disappear. NME, Sounds, Melody Maker no longer populate magazine stands where once they were ever present. I vividly recall running down to the local newsagent every Thursday to pick up the latest edition of NME and devouring every word; I'd given up on Sounds when it seemed to decide it didn't like punk and, to my teenage mind, Melody Maker seemed to have a bizarre infatuation with Emerson, Lake and Palmer. Into this environment came something new, something different – Hi-Fi World.

As founder, editor and publisher Noel Keywood explains, its ethos was to fill a gap in the market. "Magazines at that time and even now were limited in coverage of hi-fi and too commercial. I was editor of Hi-Fi Answers in 1973 then freelance so I knew the people and the business, as well as the manufacturers. Missing was enthusiast interest, such as recognition of the fact that because old product had ceased manufacture it was not worthless, the Garrard 401 being a prime example. The mags were not written by hi-fi enthusiasts, nor by people with technical knowledge, able to appreciate the real ability of what they were reviewing.

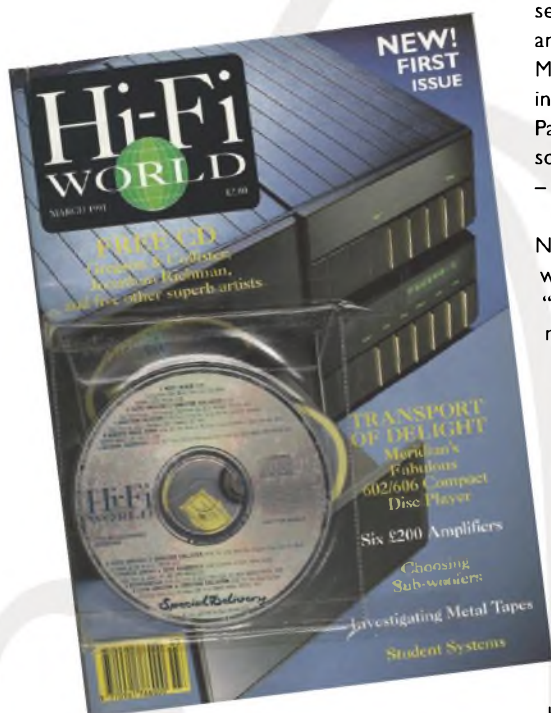
Also, when I worked for Hi-Fi Review the other mags boycotted me, so when Review closed it was the right time to start Hi-Fi World" he says.

Hi-Fi World wasn't the only publication to use measurements as a cornerstone of its content. As Noel says "I had been using measurement in my reviews from the start, working for Hi-Fi News for many

years in the 1970/80s, when John Atkinson was editor. Measurement had been established by Gordon King, then Angus McKenzie and Martin Colloms, so it was not new or unknown. Measurement was essential when building Mullard amplifiers and radios in my teens, so I learnt it long ago".

Another key element of the magazine has been its expansive Letters section – often running to six or seven pages in length. Here readers can ask questions and receive informed answers, state their opinions or criticise content and contributors (believe me, I've been on the end of some stinging rebukes!).

No letter is rejected because it is critical. Indeed, Letters keep the editorial team on its toes – from Noel to in-house photographer David 'Nobby' Noble to design editor Faiza Chunara and



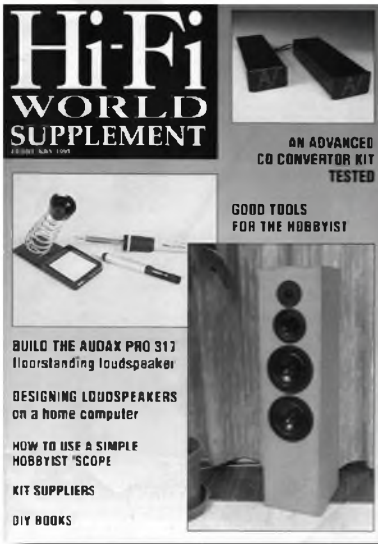
*The first issue of Hi-Fi World 30 years ago.*

– a magazine devoted to the enthusiastic hi-fi listener. One that allied state-of-the-art measurement to subjective reviews of how a product actually sounded.

Yes, I'm talking about Hi-Fi World that celebrates its 30th anniversary this year. Much has changed over those three decades – the rise and fall of CD, the resurgence of vinyl and, of course, the heady domination of streaming



*Times have changed but Hi-Fi World has stayed true to its roots – enthusiasm for music and the equipment that provides it.*



Some Hi-Fi World specials: an early DIY Supplement on how to design your own loudspeakers and a review from Computer Audio World no less!

contributors.

From its very inception Hi-Fi World has moved with the times, changing its layout, embracing new technologies and aiming to give correct advice on getting the best sound within a reasonable budget.

As to the future for the next 30 years, that same ethos will apply. Like many other publications we have a dedicated website but the print edition is available on newsstands across the world.

What the next 30 years will bring

"Where is hi-fi going in the next 30 years? Probably somewhere none of us can imagine at the moment."

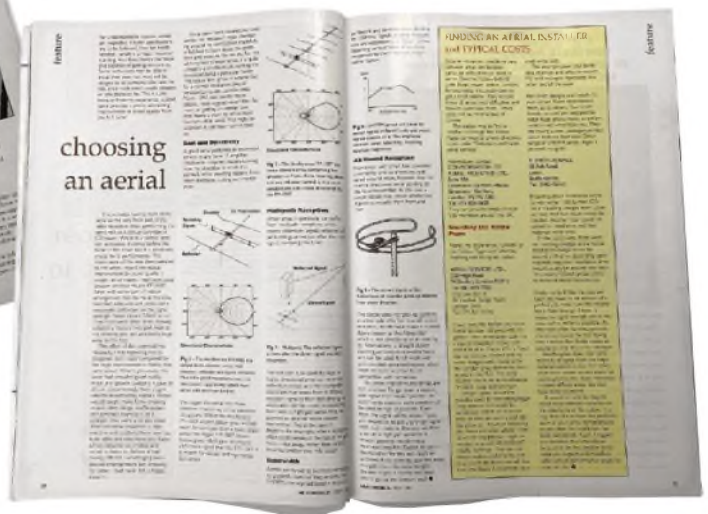
Compact Disc was in its infancy. Yet today people consume more music than

thousands. Where is hi-fi going in the next 30 years? Probably somewhere none of us can imagine at the moment.

But Noel says: "The whole room interface is completely haphazard, even though there are numerous acoustic tuning systems. A simpler, better method of room sensing and tuning, applied within a powered loudspeaker could happen. A smart mini-mic at the listening position perhaps, re-charged at the loudspeaker by standing on top for example, or perhaps a mic in the loudspeaker sensing pulsed calibration tones. Intelligent powered loudspeakers without cables will likely become more popular and someone may well come up with powered isobaric internal compensation to reduce delayed forward waves – a big yet

ignored problem. Sound comes out of box loudspeakers up to 0.5 secs after the music stops. Open baffle loudspeakers don't suffer this and may become better developed, when someone properly understands their room interaction through computer acoustic analysis".

Whichever way it goes though, Hi-Fi World will be covering it.



remains to be seen – after all MP3 didn't exist when the first issue of Hi-Fi World was published and the concept of high-resolution audio seemed like science fiction. Even

ever before and the cost of a decent hi-fi system has probably never been cheaper. I've heard some fantastic equipment costing just a few hundred pounds where 30 years ago it would have cost

**How to set up a turntable and choose an aerial - three decades on turntables survive but roof top aerials are slowly fading away.**

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Jon Myles is impressed by Thonet & Vander's King Kugel Bluetooth loudspeakers.

# King Kugel



**T**honet & Vander might not be a household name in the UK but they make a range of interesting products ranging from portable Bluetooth loudspeakers to soundbars and high-end equipment. This German company majors on a natural, smooth sound, with ease of connectivity a major factor.

Hence the Kugels - a pair of active loudspeakers giving 70 Watts per channel - so all you need is a source for a complete system. As for sources they'll accept Bluetooth and have a pair of RCA inputs, as well as optical digital S/PDIF.

Driver-wise these 'speakers feature a built-in 5.25 inch mid/bass unit made entirely of Aramid fibre to enhance bass, as well as a one inch (25mm)

silk dome tweeter for high tones. The suspension ring of the mid/bass unit is made of highly flexible rubber, allowing large displacement and accommodation of strong bass beats. The bass reflex port system at rear increases the low-end response of the bass/mid-range unit, optimising efficiency and performance at low frequencies - as do all reflex ports of course.

The right loudspeaker contains all the controls and is connected to its partner by a supplied screw-in lead. Operation comes from a supplied remote - which is my one real gripe. It's about the size of a credit card and contains all the functions - unfortunately though it fails to indicate which input is in use. Some small LEDs above the input selections would have been useful, but they do exist on shadow

controls on the loudspeaker itself.

Still, that's a minor gripe compared to the simplicity of the Kugels. Unbox them, plug the right hand 'speaker into a power outlet and then use the supplied chord to connect the pair before switch-on.

The supplied grilles were acoustically neutral. I invariably audition loudspeakers with the grilles off on the basis that they can colour the sound but with the Kugels, grilles on or off seemed to make no difference so I left them on.

Another feature is a set of tone controls for altering bass and treble. They're subtle but do have an audible effect that can be set according to personal choice.

The one thing I couldn't help notice is the colour of the main mid/



bass driver - a vivid yellow that, to my eyes, was a good reason to keep the grilles attached!

I positioned the Kugels on a pair of sturdy stands and - as they are mainly positioned as Bluetooth loudspeakers despite the RCA/ digital inputs - relayed music from an iPhone 8 Plus. Pairing was quick and easy and stayed robust throughout, with no drop-outs throughout hours of use.

**SOUND QUALITY**

Immediately it was clear that these loudspeakers elevate Bluetooth playback to a different level. Forget the somewhat closed-in, occasionally rattly sound of some lesser Bluetooth 'speakers - the Kugels were more expansive and hi-fi sounding. In fact they put me in mind of good studio monitors.

Much of this can be attributed to the specially-designed reinforced wooden cabinet that is solid and sturdy, allowing the drivers to do



*The silk dome tweeter is housed in a wave guide to broaden high-frequency response.*

their job unimpeded.

With New Order's 'Blue Monday' I could hear every nuance of the track. Dialling in bass boost, Peter Hook's bass line gained a sense of power - without being overly dominant. The internal amplifiers were crystal clear and there was wide dispersion to the sound.

It was the same with Mahler's 4th by the San Francisco Symphony orchestra. This is a powerful piece yet the Thonet & Vanders captured all its glory. Instruments were precisely placed with good weight and height - and with an air of separation rarely displayed by Bluetooth loudspeakers.



*The right-hand loudspeaker has volume bass and treble controls. A supplied cable connects it to the left 'speaker. A standard size rear-firing port helps reinforce low frequencies.*

The main driver does an excellent job. In truth - due to its size - the bottom octaves of James Blake's shuddering 'Limit To Your Love' were missing but the spirit of the song remained intact so it didn't seem compromised. Switching to the RCA inputs driven by an Exposure XM CD player the presentation was much the same - if with a touch more refinement.

On 'Wonderwall' by Oasis, vocals were well projected into the room while acoustic guitar had bite and realistic decay. Pushing volume up, the 'speakers went loud with little input (see Measured Performance for full details). That's what makes the Kugel ideal as a Bluetooth loudspeaker

for use with mobile phones, tablets, laptops and desktop computers.

As such these are probably the finest Bluetooth loudspeakers I've heard - easily matching pure hi-fi loudspeakers of the same price. They are truly different, offering convenience allied to good sound quality and easy set-up.

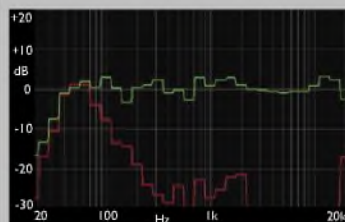
**CONCLUSION**

The Kugels by Thonet & Vander take Bluetooth loudspeakers to a new level. They are handsomely built but more importantly sound authoritative and expansive. The tone controls also allow users to tailor the sound to their taste. I can't help but think anyone would be impressed.

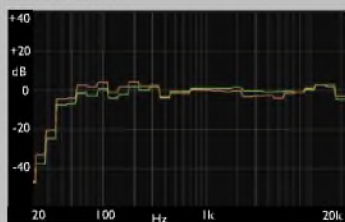
**MEASURED PERFORMANCE**

Via its Aux input, frequency response of Kugel measured flat from 60Hz to 20kHz our third-octave analysis of pink noise shows (green trace), measured on-axis. The grille did not affect this result so can be used on or off. Moving the

**FREQUENCY RESPONSE**  
Green - driver output  
Red - port output



**BASS LIFT**



measuring microphone to 30degrees off-axis laterally changed response little too, again grille on or off, so the Kugel is consistent.

Vertical dispersion was reasonable, the large fabric dome tweeter being too far from the centre of the bass/midrange unit for no affect to be apparent, so listening height is best with ear roughly at the centre of the speaker.

The tone controls subtly trim level in five steps up or down, giving 3dB lift/cut maximum. Thonet&Vander have retained the speaker's basic accuracy here. Pressing Reset pulls changes back to zero.

At full volume the Kugel needed 150mV input (pink noise) into the analogue Aux input to produce a loud 90dB at one metre, so they are sensitive and can be run from a mobile 'phone or portable player.

These are well engineered loudspeakers in measured terms, being reasonably accurate but usefully adjustable. **NK**

**THONET & VANDER KUGEL £369**



**OUTSTANDING - amongst the best**

**VALUE - keenly priced.**

**VERDICT**  
Bluetooth loudspeakers at their best. Demand to be heard.

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  - looks
  - RCA inputs
  - tone controls

**AGAINST**  
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# Mail



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 Q150 bookshelf speaker

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

## LETTER OF THE MONTH PRIZE



### KEF Q150 BOOKSHELF SPEAKER

<https://uk.kef.com/products/q150-bookshelf-speaker>

[subject to availability - Satin Black / Satin White]

**A PAIR KEF Q150 LOUDSPEAKERS are on their way to DAVID PRIOR, Letter of the Month winner in our February 2020 issue.**

## Letter of the Month

### ANALOGUE V DIGITAL

The review of Prima Luna's Evo 300 integrated amplifier in January 2020 Hi-Fi World was a nice example of your esteemed publication continuing to review 'real world', that is, affordable, equipment that readers can sensibly aspire to. Long may it continue! That said, given the Evo 300's output impedance, I wondered how it would have performed with a less idiosyncratic speaker than the Martin Logan ESL-X. Did you try a purely passive speaker of good repute?

Being retired, I now have time to reflect on two of the Mysteries of the Universe untouched by Professor Brian Cox: why is it that a significant minority of music lovers favour, in the main, valve amplifiers over solid state, and analogue over digital? Any 'golden ears' I did possess have over the years become tarnished, but this is still my preference.

I wondered if I (and others) were deluded, so I was pleased when a new colleague (who, unusually for a music lover, is also a qualified electronics engineer experienced in setting up sound systems for public concerts) joined me for an extensive listening session.

My much younger colleague, impecunious, and still in the process



**Our review of the Prima Luna Evo 300 amplifier was "a nice example of your esteemed publication continuing to review 'real world', that is, affordable, equipment that readers can sensibly aspire to" says Dr Roger Simmonds.**

of home building (we've all been there) confessed his main listening is to MP3 files via ear buds or satellite speakers attached to his computer, so I was eager to hear what he thought of my system, which includes: SME 15 turntable with 309 arm, Ortofon Black cartridge, Luxman EQ 500 for playing records, Esoteric X-05/T+A DAC 8 for digital replay, KR 88 amplification and

Audio Physic Tempo 25 floor standing speakers.

Initially he thought my system quite 'crisp' – despite the Tempo 25s being one of the few modern speakers whose treble is not emphasised – but as he became accustomed to the sound he realised he was listening to more clarity – in voices especially – than he was used to, and confirmed his golden ears



**"The Audio Physic Tempo 25s are one of the few modern 'speakers whose treble is not emphasised" Dr Roger Simmonds notes.**

status by distinguishing between the T+A's digital filters.

Between us, we had a number of records, CDs and digital downloads of the same music, so we were able to compare a variety of formats with, to me, some surprising results that may be of interest to readers. In short, these were:

- 1) MP3 gives a very 'flat' and lifeless image, especially with complex recordings.
- 2) Hi-res downloads, for example of Harry Belafonte at the Carnegie Hall (192kHz sample rate), were crystal clear with better imaging but were, observed my friend "curiously clean, almost antiseptic". A record of the same was, we agreed, more lifelike and engaging and capable of sending shivers down the spine. This was unexpected.
- 3) CDs were more involving than downloads – they seemed to possess more presence and 'air' (to use a hi-fi cliché).
- 4) SACDs of piano music got the thumbs up and we moved on to the next piece of music with some reluctance. That we both liked the SACDs, but really preferred records to any other format, is not too surprising, but that CDs, albeit through the most 'analogue' filter of the T + A DAC, came a close second was surprising, and one that I am at a loss to explain.

Record players, and valve amplifiers to some extent, are subject to distortion and acoustic feedback. Does this make the music more 'lifelike or natural' – the experience being closer to what one would hear at a concert venue?

Are silver discs immune to acoustic feedback?

I have read that nothing - not records, not silver discs, nor hi-res digital files however coded or whatever sampling rate - compares to listening to an analogue master tape (or an analogue copy thereof) but no discussion as to why this is so.

Though one's ears can be deceived and the accuracy of a hi-fi system demonstrated, in the end listening to music is about enjoyment and emotional involvement. For me, and my friend, whose ears are thirty years younger, records, some produced many years ago on equipment a technophile would label primitive, still 'hit the spot' more often than 'hi-res' and technically perfect recordings. Would a touch of acoustic feedback (if this were possible) or a smidgen 2nd order harmonic distortion restore some magic to my digital downloads?

**Dr Roger Simmonds**

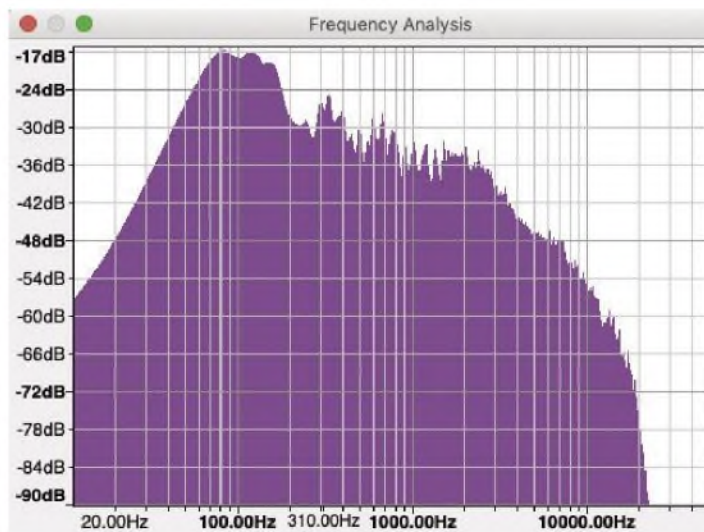
Hi Roger. Professor Brian Cox is insufficiently challenging huh!? I won't claim any salve here; I struggle to find my socks in the morning, let

so poorly did they convey musical content. At least someone had ears.

You listened to a hi-res file against an LP with Harry Belafonte. But how was the hi-res file produced? The issue of provenance comes up here. I put around 50 hi-res files through the spectrum analyser recently, via an Audiolab M-DAC+ and most cut off sharply at 20kHz, suggesting old CD files converted to hi-res format. Perhaps your hi-res file wasn't hi-res.

You can check this with Audacity, a free music editor – no spectrum analyser needed. Open the music file in Audacity, go to Analyze and select Plot Spectrum. Use Log frequency scale, Blackman-Harris window and 8192 line analysis. Look at a few CD files first to see how they cut off sharply at 21kHz or so, then look at your hi-res file to see whether it has similar 'brick-wall' filtering at 21kHz. If it does then it is likely an old digital transcription for CD. You can have fun with all this! See my analysis as an example of CD masquerading as hi-res.

You can listen to an analogue



**Spectrum of The Eagles 'Back In The Fast Lane', billed as 24/96 but looks like a 44.1kHz sample rate file purposed for CD, due to sharp cut-off at 21kHz.**

alone sort out what the universe is up to. But here are some thoughts on your thoughts (for which I thank you).

MP3 was always flat and papery in its sound, more a method of conveying info in a tiny file suitable for storage and transmission systems of the 1990s. MP3 players were once a big deal – how things change! Brilliant that America's Library of Congress refused to allow MP3 files to be the basis of any musical record,

master tape with 'Big Band Spectacular' LP from the Syd Lawrence Orchestra. It comes as a live direct cut and as a 30 ips master tape copy. You will hear quite clear differences, the tape sounding smoother and easier. But both are sonically spectacular and give you plenty to enjoy. This twin LP, recorded recently, is a must have. 1940s Big Bands were never my thing until I heard this wonderful display of live musicianship



**"I heard vinyl though a Creek 100A played into Epos K1s, and a Quad Artera playing through Quad S1s. Both sounded really impressive; very smooth, rich and detailed" says Andrew Entwistle.**

committed to vinyl at a quality level that demeans digital. Sonically, high speed analogue tape offers best quality by an easy margin. Think big, open and relaxed: totally natural. But like valve amplifiers, when measured, tape recorders don't look as perfect as 24bit PCM digital or DSD. However, at present I am uncertain I have ever heard 24bit digital from a good modern ADC; we could well be hearing the faults of digital within old files from Neolithic ADCs. Provenance again: what we are told and what we get are two different things with digital.

Also, as I write this I realise that my own measurements are to some extent misleading. DACs are tested with perfect digitally generated test signals and come up with amazing figures. But what we hear comes from an imperfect ADC, so measurements of hi-fi replay items like DACs don't truly represent the digital listening experience that also includes the ADC. The problems of digital are buried into the recording and great replay equipment can't eliminate this.

To check out acoustic feedback into a valve amplifier (microphony) simply move the speakers to another room. I've found it makes no difference. More likely the valve sound comes from secondary emission from the glass envelope that's continuous and carries a small time delay.

At ordinary music levels valve amplifiers produce less than 0.1% distortion nowadays – and they still sound like valve amps. Also, transistor amps with more than 0.1% second harmonic distortion don't sound like valve amps!

Pay no attention to all the apparently informed comment about this, 'cos it isn't informed by either experience or measurement. In fact a lot of it is absurd, such as the sound of valve amplifiers comes second harmonic distortion where in

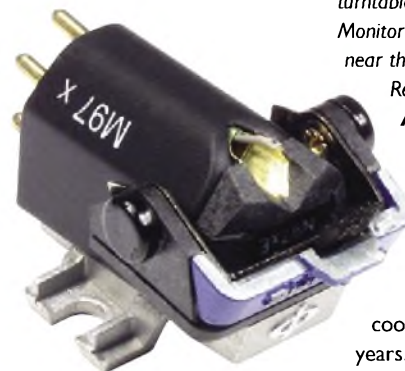
practice third harmonic from transformer magnetic hysteresis exists.

I don't think your ears are deceived, even if they aren't as young as those of Brian Cox or your colleague. You are perceiving real problems – likely discordant ADC quantisation noise with digital – that your/ear brain signals as unnatural. As you say, go with what you find natural and enjoyable; pay no attention to all the 'experts'. They probably can't find their socks in the morning either. **NK**

#### THE BRIGHT SIDE

Thank you for responding to my letter (Nov 19). You provided much food for thought. I will see if I can audition the Audio Technica VM95SH cartridge you recommended.

However, this may not be the best solution bearing in mind my request for a musical cartridge erring on the warm side but with clarity. With this in mind the available choices seem to be reducing, as almost every review I read of the latest hi-fi it is 'analytical', 'clinical' and in your review of this cartridge, 'forward and cool'. Even the Goldring's, which you suggest have a richer sound, have changed to become more detailed and cooler than before, according to



**"If you want a good MM cartridge with a warm sound Shure's M97xE (£150) is the one to go for" we suggest.**

your review of around ten years and three years ago. I wonder if this is a side effect of improving technology, or a planned change to try and match modern tastes (possibly driven by living with poor digital for 20+ years)?

To widen the question: if we like a 'warmish but clear' sound, how many items in the hi-fi chain need to exhibit these traits? I imagine that if every item, from transducer to transducer, was chosen to be warm, then the overall sound may become very rich but less clear.

I have a lovely and warm sounding late 70s Trio receiver. It exhibits great depth and space, throwing the soundstage behind my Monitor Audio speakers, the way I like it. I find that singers joining me in the room of a forward projecting system to be quite disturbing! Will my receiver be sufficient to tame a 'forward and cool' cartridge played on an analytical turntable (Technics SL1210 Mk2)?

Two systems at Bristol Hi-Fi exhibition in 2018 really impressed and provided my ideal sound. I heard vinyl though a Creek 100A played into Epos K1s, and a Quad Artera playing through Quad S1s. Both sounded really impressive, very smooth, rich and detailed. Will the sound of the Audio Technica cartridge on the Technics turntable through the Trio receiver and Monitor Audio speakers get anywhere near this type of sound?

Regards,

**Andrew Entwistle**

Hi Andrew. You raise some interesting issues here. You are right in suspecting pickup cartridges have become cooler in their sound over the years. There is a good technical reason. In a nutshell, as magnets get stronger and magnetic core materials improve, fewer coil turns are needed on the signal coils and this lessens high frequency generator loss. Cartridges of old had a warm

sound because of such loss; today's cartridges are more accurate – but that also means less warm and more revealing.

If you want a good MM cartridge with a warm sound Shure's M97xE (£150) is the one to go for. Or Ortofon's Quintet Black and Cadenza Black moving coils that are more easy going than warm.

Modern moving magnet (MM) and moving coil (MC) cartridges have a tonal balance closer to that of CD because of their flat frequency response. Also, the best diamond styli are now shaped by laser to have a profile not easily matched by old grinding techniques. These new shapes give clearer and slightly more incisive treble. So there's no getting away from cooler sound balance unless you use an old design like the Shure.

If your Trio receiver is warm sounding then I believe you'll be happy with the balance of Audio Technica's VM95 SH (Shibata profile) MM cartridge (£160). Or perhaps consider the popular Denon DL-103 (£300) also available with Shibata tip, but it is a moving coil.

Both the Creek Evolution 100A and Quad Artera you heard at the Bristol Hi-Fi Show are classic modern British amplifiers, with big linear power supplies and no crossover distortion. Together, these properties give a full bodied yet smooth sound.

Unfortunately, you don't identify what vinyl system was playing into them at Bristol. All the same I suspect your Monitor Audios and Trio receiver will get close, although do bear in mind that a 1970s receiver won't have the component quality of modern amplifiers and is likely to sound a tad diffuse in comparison. Its electrolytic capacitors may be on their way out too, as these things age. **NK**

### I'M A WINNER

As the winner of your September competition, the Pro-Ject Phono Box S2 Ultra, I would like to thank yourselves, Henley Audio and Pro-Ject for supplying such a great prize.

However, you have now started the inevitable itch. I have a modest starter music system comprising a Pro-Ject Debut 3 turntable with Ortofon 2M Red cartridge, Pro-Ject Speedbox, Cambridge Audio 640P phono stage, 640A amplifier, 640T tuner, CXC CD transport, DAC Magic 100 DAC, JVC KDA55 cassette deck and KEF Q5 floorstanding speakers. The S2 ultra has



**Pro-Ject's Phono Box S2 Ultra. "How good a cartridge will my Pro-Ject Debut 3 turntable take?" to get the most from it, asks Paul Asbrey.**

slipped into my system a treat.

Thing is, I feel it is capable of much better. The Debut 3 was a solid performer in its day. My question is, how good a cartridge will it take before money is better spent? With a budget of around £600, is it worth looking at a high quality MM or even MC cartridge, or is it time to update the turntable for something newer?

Could I expect an increase in performance at this point or do I need to spend more? Or would a new amp bring more benefit? My music tastes are mainly 70s & 80s rock music.

Thanks again for the prize: it's only taken 10 years of postcards for me to win!

**Paul Asbrey**

Hi Paul. Thanks for your thanks – it's nice to hear that a prize is appreciated.

With regard to upgrading the Ortofon 2M Red, I would say "yes". It is rather bright in its sound, where a budget cartridge should – I feel – be warm in its sound to not highlight distortion from challenged LPs (meaning old and grotty ones).

A good replacement would be

Ortofon's excellent 2M Black MM, but it needs a low 1.6gm tracking force and your arm will need to be in still-good condition for this low-ish value. It probably is, but best to check by fitting stylus guard, balancing the arm out and checking that it floats vertically and laterally without hindrance. If it does then go for a 2M Black. Alternatively – and better – you may like to consider an Ortofon Quintet Bronze moving coil cartridge that tracks at 2.3gms, since both turntable and your Pro-Ject Phono Box S2 Ultra will work well with it. At £550 or so the Quintet Bronze is just within your budget.

**NK**

### GIVE AN EAR TO EAR

I am currently listening to an album bought for me by my son Tom in Brighton, a young musicians' album *Apricot Princess*. It is superb and my system sounds great – not surprising as I am now finding most records sounding great; my Martin Logan Classic ESL9 hybrid electrostatic loudspeakers seem very happy these days.

Currently I am only able to listen to vinyl as I am waiting for delivery of



**EAR834 valve amplifier. "Vocals and acoustic instruments are natural" says John Speight. "We should be shouting from the rooftops recommending them".**



**Copland DAC215 "I have never heard such a big difference before, it really has closed the gap with vinyl!" says John Speight.**

a Copland DAC215 and so unable to listen to CD currently.

This brings me on to the subject of this letter. I recently bought an EAR834 amplifier, chosen after listening to many of the recommended brands as I looked to upgrade from a super amp, the Sugden a21se. The EAR sounds great and is only getting better as it settles in.

I have also been listening to DACs, being unhappy with sound of CD v vinyl and believed something was wrong. The Copland DAC I tried was such a big jump in sound quality from prior DAC. This was not subtle and really surprised me. To be honest, I have never heard such a big difference before, it really has closed the gap with vinyl and easiest order I have placed (have to explain to the long suffering wife now!).

So why do I rarely, if ever, see these manufacturers' items being reviewed or recommended? Also what about Audio Note, Harbeth, Mhdt labs (their DACs sound interesting) or Border Patrol or Canary Audio? Just because some are old products or from small firms they should not be ignored or forgotten.

My system is rocking – never sounded better with products which I feel are a step up from anything I have had or heard. EAR is a UK firm and manufactures products here. We should be shouting from the rooftops recommending them. Bass which was initially blowsy seems to be improving, vocals and acoustic instruments are natural and I find even older albums sounding ok/good/very good.

Next album to go on...either Sam Cooke, Lori McKenna or maybe Lambchop...would consider Hazyjain but don't have them on vinyl at the moment.

Last point: what are your views on record cleaners such as Project Vic-s2 alu etc. as wife asking what I want for Christmas...

Kind regards

**John Speight**  
East Sussex

Hi John. Not all manufacturers want their products reviewed, Audionote and EAR being reticent, shall I say. It can be quite hard work with some of these guys, even though I know them, and have known them since they started – and that especially includes EAR. We have reviewed their products in the past however and recommend them.

It does not surprise me that your EAR834 is impressive – but I did tell you the Martin Logans will benefit from a valve amplifier and the 834 is superb, like all EAR products.

The Project VC-S2 ALU record cleaner is a good little unit that would make a fine Christmas present. Apologies that this issue arrives after Christmas so you may have suffered washing up instead of washing LPs!

**NK**

### DEFINITIVE LP

It is indeed a shame that finding a definitive version of an LP is so hard, there being so many variations of EQ etc used on master tapes sent out. Fleetwood Mac's Rumours LP that you have talked about in Letters in past issues may be an extreme example, but as other albums often used as hi-fi demos (Dark Side Of The Moon, Tubular Bells, etc), although good, were just not recorded using the equipment that today's technology/software (40+ years on) is capable of. Also finding a mint condition of such an old album is, naturally, difficult these days.

The Beatles remasters/remixes show that this updating job can be done, but takes a lot of care (plus time and money) and often remasters are little more than adding a few dB here and there (especially higher up the frequency range) then calling it a fresher and sharper release.

You also have albums remixed for 5.1 which again can be effective when

done well, but often just boosting the back-in-the-mix instruments to bring them out in the opened-up sound can severely alter the balance of an album's sound – almost producing a remix album in the process – so these are out. Then there are the Mobile Fidelity remasters/releases which, while impressive, are very expensive and often limited edition, thus being out of reach of most audiophiles (unless well-heeled) to get hold of, or even justify. And as for having an album on reel-to-reel tape – well, open up your bank account and say "help yourself"!

Yes, DSD releases are digital, as indeed is the questionable 24/96 Rumours FLAC release you mention (which I have, along with three copies of Rumours on CD and a poor condition textured sleeve LP with 'R/S Alsdorf 56344 A2' on side 1/same but 'B8' on side 2), but this need not be a problem – again, the magic words are 'if done well'!

The poor quality of early ADCs is well known, but using modern software very good results can be obtained (time and money again!), and I hope the industry produce a reference quality version of this timeless album (Warner Brothers or Mobile Fidelity are you listening?) as a lot of people know and like it, so it would be a good 'standard' disc for testing/listening/showing off.

The Pink Floyd's Dark Side of the Moon was once the hi-fi shops' favourite, and still sounds good to me (I do like the surround mix from the SACD and Blu-ray) but Rumours seems to be the current standard – what modern album



**"The questionable 24/96 Rumours FLAC release you mention I have, along with three copies of Rumours on CD and a poor condition textured sleeve LP" John Malcolm says. "I hope the industry produce a reference quality version of this timeless album".**

*will be still talked about over 40 years on? "I'd rather Jack than Fleetwood Mac" sang The Reynolds Girls in 1989. "Who?" is a simple word that makes my point nicely.*

*Yours sincerely*

**John Malcolm**

Hi John – and thanks for your observations. I am finding with my increasing number of Mobile Fidelity LPs, bought to better hear originals I already possess, and also as review tools, that sound quality is pretty so-so. I don't blame Mobile Fidelity, nor do I regret buying the LPs, but what I am hearing is old, old recordings from way back when open-reel tape recorders were not so good.

There are exceptions, like Elvis Presley who went into America's top Westrex equipped studios. But with Janis Joplin's classic Pearl LP (1971) from Mobile Fidelity for example (45rpm), sound quality is good, but not up to modern standards. Perhaps this is why people tell me modern re-masters are a "rip off".

Our Rumours re-master certainly is poor and Warner Brothers could well do that one again – and better I suspect. But it is difficult to be certain; perhaps the master tape is in poor condition, making a better Rumours impossible to achieve. Yet Abbey Road have extracted fine sound from Beatles tapes – and they don't get much older than that, Please Please Me was recorded in 1963; likely Fred Flintstone manufactured the tape.

Dark Side of the Moon does sit in our collection of review LPs – and very good quality it is too. Again, like Elvis, The Pink Floyd went into a good studio and were handled by top recording engineers of the time. But whilst Time is a classic show track, with the clocks chiming away, I do not use it for review purposes simply because it is too electronic. There must be acoustic instruments at least, to better match sound to reality, which is why I am so taken with Big Band Spectacular – an all-acoustic direct cut that is eye poppingly spectacular and a true show case for LP. Since the big band sound has been around longer than me – and that's saying something! – I guess it will also outlive The Reynolds Girls. **NK**

### DECODING SQ

*I have many SQ discs in my collection as I have been interested in multi-channel recordings since the 1970s but I no longer own an SQ decoder. However,*



**"The digital output is fed to my Oppo BDP 205 universal player and by using the built in DTS Neo6 I can achieve a four channel output" William Dudman explains.**

*I have managed to utilise my present system to produce good results decoding these discs.*

*I take the output from my turntable (Garrard 401/SME 300/Ortofon 2M Black) into my Luxman 590 amplifier and the line output from the Luxman is connected to my Tascam MD02 Minidisc used as an A to D convertor. The digital output is fed to my Oppo BDP 205 universal player and by using the built in DTS Neo6 I can achieve a four channel output.*

*As a check to see if I am only getting synthesised multi channel I compared a stereo pressing of Pink Floyd WYWH with my SQ version I purchased new in the 1970s (?) and the rear information is a lot more effective and directional coming from the SQ disc.*

*I may well still be fooling myself but it is a good listen and great fun.*

*Regards,*

**William Dudman**  
**Ealing**  
**London**

### FINGER LIFT

*In your review of the Blue Aura PG-I turntable, you criticised the supplied finger lift. Ever since my first tonearm, an SME 3009 on my Garrard 401 turntable, I have never hand cued,*

*always preferring to use the lever. If the tonearm is mounted on the turntable suspension, then hand cueing always looks a matter of luck due to the bounce of the turntable's suspension system. As you know there is no such problem with the 401.*

*The other point about a finger lift, that its presence on the headshell makes alignment a tad more confusing if a card protractor is used. As some discs now cost a pretty penny, lever cueing is the safer option.*

*At the end of the day it's down to preferences. Finger lifts should always be option, not part of the tonearm's casting.*

**Mike Bickley.**

Hi Mike. Tonearm finger lifts are a funny old subject. I love 'em and use them too: putting cartridge onto record is one of those engaging little experiences with vinyl where you get to actually feel (and hear!) what is going on. But I am always a little bit apprehensive about making an issue out of it, since a good, damped cue platform is arguably the best way to do it.

But if there is to be a finger lift then at least it should curve up and over to give enough clearance for a



**If you use a finger lift its shape is important. They must be curved upward for clearance above the LP and fit over a finger without sliding off. SME and Rega do it well.**



finger to get underneath, the curve back down preventing sideways slippage. Flat lifts suffer inadequate clearance and slip out of tremulous fingers. Then a disaster happens! So I'm always a bit critical – but it's not an issue for most users I guess.

Only Rega cast in such a finger lift and I like it. Rega's lift fits my finger well and, being rigid, has no affect upon sound quality – something that the sensitive complain about with flimsy lifts that can vibrate. **NK**

### AUDIOLAB 6000N

*I'm new to streaming – interesting about the 'phone problems with Audiolab's 6000N streamer – but I will only connect the Audiolab (or another) to router by ethernet cable – and stream only HD (16-24 bit / 44.1kHz) – and use iPad or MacBook as screen. So, will this eliminate the problems you wrote about?*

*Also, I will use my current external DAC, Metrum, to Rega amp. So, I guess the Audiolab (or other) would just be a transport?*

*Thanks,*

**Russell Scott.**

Hi Russell. We connected and used the Audiolab 6000N streamer via ethernet only. The point was and still is that DTS Play-Fi routes all music through the control app on the 'phone via its wi-fi link and it has been suggested what we experienced was an audio data rate limitation with Apple Airplay on an iPhone 6S that made 24/96 shaky and 24/192 impossible in high-quality Critical Listening mode (see below).

Audiolab told us that in their experience it worked fine with a Samsung phone, but that does not use Airplay. If you use an external DAC then the 6000N would be a transport – but it is unlikely it would give better results than the on-board ESS DAC fitted.

To get these issues into perspective, it will run 24/96 just about in Critical Listening mode with an iPhone, but run 24/192 with a Samsung phone. If you play 'CD quality' Play-Fi will work fine in Critical Listening Mode.

To recap, what we said was – "With an iPhone 6S Plus sited within 6ft of router and Audiolab 6000N, Play-Fi in standard mode streamed all files from our Melco N10/100 server, including 24/192. Its response to play commands was acceptably fast.

With Critical Listening mode,



**"I will only connect the Audiolab 6000N to router by ethernet cable. Will this eliminate the problems you wrote about?" asks Russell Scott.**

for top quality, this all changed. CD files and 24/48 hi-res files played, most 24/96 music files played but with some hesitation – I had to repeatedly select and wait for play to start. When the files ran, however, they gave full hi-res sound quality, measurement showed. Some 24/96 test files, those with high data rate (white noise), refused to play and 24/192 files would not play at all. So Critical Listening mode works up to 24/96, but only just. This appears to be phone/wi-fi critical.

Play-Fi is not a system optimised for hi-res audio. In standard mode it plays everything; in Critical listening mode it will play hi-res – but with hesitation. When it does play, you do get fine sound. In standard mode you get quality slightly below that of CD".

I hope this clarifies the issues.

**NK**

### AWARDS ISSUE 2019

*It seems to have become an end-of-year tradition. The 2017 Awards Issue featured the Cowon Plenue 2 digital audio player (DAP), the 2018 Awards Issue the Plenue V. The 2019 Awards Issue has just fallen through my letterbox, and there is the Plenue D2.*



**Cowan Plenue V. "It's a fabulous little player, prompting my wife to buy the Plenue D for herself" says Graham Gough.**

*And deservedly so, I feel. Cowon have produced some fabulous yet affordable DAPs.*

*I took retirement from work towards the end of 2018 and in response to a request from my colleagues for leaving gift ideas I included the suggestion of a Plenue V – admittedly more in hope than expectation, and based largely on your review as first-hand knowledge of DAPs proved hard to come by. Well, my wonderful colleagues obliged! It's a fabulous little player, prompting my wife to buy the Plenue D for herself.*

*Without your reviews of Cowon and other brands, it would have been much harder to know where to begin. Thanks for all of them.*

*Best wishes*

**Graham Gough  
Bladon,  
Oxfordshire**

Hi Graham – and thank you. I am glad our reviews were useful to you. DAPs are a high technology box of tricks that perform wonders and Cowon do a great job. You just need good 'phones to hear what they are truly capable of, or they can be connected up to the hi-fi to act as a high quality CD player. **NK**



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# MC901 <sup>new</sup>

The McIntosh MC901 is a monoblock amplifier that drives a single speaker. But it is unlike any other monoblock amplifier. What makes the MC901 so unique is that it's two amplifiers combined into one. Adding to the uniqueness is that each amplifier is of differing design philosophies: the MC901 consists of a 300 Watt vacuum tube amplifier attached to a 600 Watt solid state amplifier on one unified chassis. **Stunning, in every sense of the word.**

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# Total Exposure

**Exposure have added a CD player to their XM series of specialist units. Jon Myles likes its sound.**

**E**xposure's XM series has built a loyal following – both for design and sound quality. Half-size shoe box units (think Cyrus), their range includes an

Unlike most CD players nowadays Exposure has eschewed slot loading or a flimsy slide-out tray. Instead it's a top loader – slide back the panel, place the CD on its hub then place the supplied puck on top before closing and you are ready to go.

Exposure believes this provides a more solid, stable platform for digital replay. Inside, the CD XM is built around a Burr Brown PCM 1716 24-bit DAC with multi-level delta-sigma modulator architecture and 8x

Play/Pause and Forward and Back buttons. All these are replicated on the supplied remote control which is uncomplicated and easy to use.

Taken as a whole, Exposure have to be congratulated on producing something more sophisticated than the standard CD players seen from many other manufacturers. That top loading mechanism alone would have involved a fair amount of mechanical engineering. It also makes the loading of a CD feel a little bit more special. No OEM slot loader or sled bought from China for pennies here. Loading a CD is a bit of a joy – the digital equivalent of dropping a needle onto



integrated amplifier, phono amplifier, pre-amplifier, mono amplifier and headphone amplifier.

One glaring omission, however, has been a CD player/transport. So cue the XM silver disc spinner I'm reviewing here – a model that takes its design cues from the rest of the range.

It features all aluminium casework with an extruded front panel said to control resonances and stray electromagnetic fields. It's also compact at 218mm x 94mm x 348mm (WxHxD). Put it together with the XM integrated amplifier and they blend in seamlessly.

oversampling digital filter. It's an interesting choice when most other players now go for the almost ubiquitous ESS Sabre DAC. Double-sided printed circuit boards are employed with special attention applied to minimising resonance and the influence of electromagnetic fields – a growing problem with the number of gadgets in households today. There's also a large toroidal transformer with separate windings for the CD transport mechanism and audio stages.

Around at back there are standard RCA phono-socket outputs, plus coaxial and digital outputs for connection to an external DAC.

The front panel carries a slim display window indicating track and elapsed time as well as Stop,

a slice of vinyl. OK, it's not as simple as a slot-loading device but it feels more satisfying.

So build-wise and operationally the Exposure is something different. But it's ultimately the sound that counts. So how does it fare?

**SOUND QUALITY**

The XM CD has a truly engaging musical sound with a smooth tonality and thoroughly toe-tapping rhythm. With Daft Punk's 'Get Lucky' the various strands of the track were easy to follow, yet the Exposure knitted the whole piece together perfectly if you just want to kick back and let the music wash over you.



*A fully featured remote control comes as standard.*

THE ALL-NEW

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**Ditch the plastic and experience vinyl the way it is supposed to be enjoyed.**



There was an impressively wide and spacious soundstage through a pair of Spondor A1 standmounts via a Creek Evolution 100A integrated amplifier. I heard a smooth tonality without any artificial warmth or hardness to the sound. Instead it came over as perfectly natural.

With the guitars on Oasis's 'Possibly Maybe' there was real bite with no attempt to gloss over the harsh nature of the playing. Leading edges of notes had a rasp to them, and decay lasted that little bit longer than on other machines at the price.

Dynamics were another standout of this machine. With an up-tempo track like The Jesus And Mary Chain's 'Something's Wrong' the Exposure pushed it along – but not at the expense of detail. Each instrument could be clearly made out and followed.

Overall the sound was never come alive. It lacks that smidgen of detail that makes more expensive rivals sound more insightful but then again it doesn't cost as much and that top loading mechanism makes playing a CD more of an experience.

Overall the sound was never

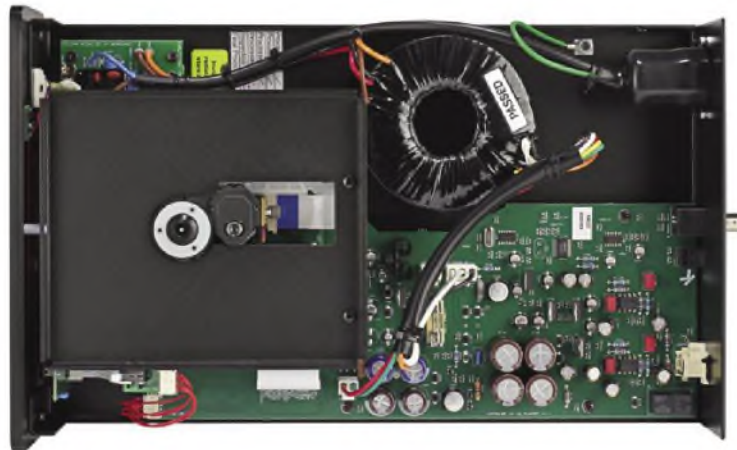
short of musical with just the right amount of detail allied to a thrusting presentation when needed and a true delicacy if the track demands.

It all came to the fore on Keith Jarrett's 'The Koln Concert' where piano veered between quiet, contemplative passages and hard-charging rhythms. Throughout the Exposure never missed a beat, drawing me into the performance.

**CONCLUSION**

Small in stature but potent in performance. The Exposure XM CD player is a real joy to listen to I found. Its compact form factor also makes it easy to accommodate – especially if paired with other XM series components. Digital outputs give it the ability to be used as a standalone transport. Highly recommended.

*Despite its compact size the Exposure has a hefty linear power supply that contributes to its overall sound.*



**The rear panel has standard RCA outputs plus digital connections if you wish to use the unit as a transport connected to an external DAC.**

There was light and shade on offer, the player managing to charge hard when needed but bring out the subtleties in something like Sinead O'Connor's vocals.

I queued up The Velvet Underground's 'All Tomorrow's Parties' and the iciness of Nico's voice was perfectly underpinned by the basic, ringing guitar tones. As I said, light and shade in perfect harmony.

Criticisms? Well, the Exposure XM CD did not have the outright bass slam of some rivals. It trades that for an easier presentation - which to my mind is no bad thing. Also you can pay more to achieve greater detail and insight. Other players give a more enveloping 3D soundstage where the XM sounds a little flatter.

To be honest, though, this is being a little churlish. I've yet to hear a CD player that ticks all the boxes – especially at £1395.

What it does do is make music

**MEASURED PERFORMANCE**

**FREQUENCY RESPONSE**

**DISTORTION**

THD at 0dB	Level 0dB	Frequency
0.2424 %	2.7309 mV	999.92 Hz
OFF	OFF	OFF

<b>Frequency response (192kHz,-1dB) 4Hz-21kHz</b>	<b>0.24%</b>
<b>Distortion (-60dB, 24bit)</b>	<b>99dB</b>
<b>Dynamic Range (EIAJ)</b>	<b>-123dB</b>
<b>Noise</b>	<b>Output</b>
	<b>2.2V</b>

**EXPOSURE XM CD**  
**£1395**

**OUTSTANDING - amongst the best.**

**VERDICT**  
 An excellent CD player that does everything right and virtually nothing wrong. Strongly recommended.

**FOR**

- smooth, musical sound
- compact size
- digital outputs
- top loading

**AGAINST**

- bass could be stronger
- nothing else at the price

Exposure Electronics Ltd  
 www.exposurehifi.com

# Meet us at BRISTOL!

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**T**he UK's biggest and most popular hi-fi show is gearing up for another great year. More than 182 brands will be exhibiting their products at the Marriott City Centre Hotel in Castle Street, Bristol, from 10am to 5pm each day between Friday 21st and Sunday 23rd February.

As always Hi-Fi World will be there on Stand 4A in the Bristol Suite so don't forget to pop along and meet the team. Come and see us with your questions, stories and systems – or just for a friendly chat about all things hi-fi and music-related.

We'll also be hosting a special free question and answer session on the Saturday for all attendees – featuring the Hi-Fi World team and some special guests (think: Abbey Road).

For show details including ticket prices, click on [www.bristolshow.co.uk](http://www.bristolshow.co.uk). It is held at the Marriott City Centre Hotel, 2 Lower Castle Street, Old Market, Bristol, England BS1 3AD.



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# SPECIAL EVENT

**Meet: Guy Hayden - Universal Music, Beatles catalogue  
& Miles Showell - Mastering Engineer**



If there's something you'd like answered or just fancy a chat, then meet the Hi-Fi World team in Room 411 on Saturday 22nd February 2020 at 2.00pm. We have special guests Miles Showell, mastering engineer, and Guy Hayden who has special responsibility for The Beatles catalogue at Universal Music Group.

Both are experts in their own fields, Miles having remastered albums by the likes of Eric Clapton, The Rolling Stones, ABBA, The Who and so many more... He is an enthusiastic advocate of half-speed mastering.

Guy works closely with him and is tasked with keeping the legacy of The Beatles alive. If you want to ask about The Beatles, better turn up, because Guy is your man!

The session will be hosted by Hi-Fi World publisher Noel Keywood and admission is free. So come along armed with your questions for some expert opinion. No booking required, but arrive early as this is sure to be a packed event.



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# An Epic Affair

The Chord Company's new Epic XL loudspeaker cables are a class act, says Jon Myles.

It's fair to say the Chord Company covers just about every cable on offer - from digital to interconnects to the plain old loudspeaker lead. Except not all loudspeaker leads are built the same. You can go from one costing a few pounds per metre to something like their flagship Epic XL.

And when I say flagship I really mean it. They will set you back £600 for a set of two 1.5 metre terminated pairs (although, as ever, shop around and you can find them at a lower price).

The reason? Well the Epic XL combines elements of Chord's Epic and Signature Reference/XL speaker cables. A specially chosen soft PVC internal jacket is added to correctly space the shielding and minimise mechanical noise. A high density braid and foil shield is applied to each set of conductors and this in turn is protected by a translucent outer jacket, again chosen to reduce unwanted mechanical noise.

The conductors are also twisted together in a braid-like construction - and if that makes them sound a little

unwieldy then fear not. I found them easy to route even in the tightest of spaces and the quality of the banana plugs is exceptional - gripping tightly to an amplifier's 'speaker outputs.

At this price the Chord Epic XLs deserve to be used with top-notch electronics - so I plugged them into an Icon Audio Stereo 30SE valve amplifier feeding our resident Martin Logan electrostatics (a match made in audio heaven) with sources including CD, a high-resolution DAP (digital audio player) and streaming via Spotify, Tidal and tracks stored on my laptop computer.

## SOUND QUALITY

The first thing I noticed when plugging in the Chords was the quality of the bass. No, it's not overpowering nor overly potent but simply potent and tuneful. It provides a solid foundation for all the instruments that float above.

Which means the guitars and vocals on 'Debaser' by The Pixies took on a greater presence - indeed Black Francis' lyrics were more intelligible with a less shouty character.

That's not to say the track loses any potency - it just sounds more together and characterful. Indeed the overall character put me in mind of my current cable of choice - Tellurium Q's Silver Diamonds.

No cable is devoid of an influence on the sound but - like the Telluriums - the Chords impose as little as seems possible and so let you know exactly what your amplifier, loudspeaker and source are actually doing.

Playing Arvo Part's 'Requiem For Benjamin Britten' the decay at the end seemed to go on longer than I remembered on previous hearings but retained its perfect tonality.

This is what the Epic XLs do so well - they allow the music to flow without imposing too much of their own character. As such they represent an excellent buy.

## CONCLUSION

I've no hesitation in saying these are some of the best cables I have heard from the Chord stable. No loudspeaker lead is perfect but these will certainly bring the best from your system. Plug in, listen and enjoy.

**CHORD COMPANY  
EPIC XL £600 PER  
1.5 METRE PAIR**



**OUTSTANDING - amongst  
the best**

### VERDICT

Open, tuneful and devoid of artificial sound. Rather hefty but easy to route.

### FOR

- open
- tuneful bass
- lack of colouration
- construction

### AGAINST

- not cheap
- stiff competition

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# It's A Breeze

Jon Myles is impressed by Quadral's new Breeze Q Bluetooth loudspeaker.

**S**mall Bluetooth loudspeakers are all the rage at the moment and it is easy to see why. Walk in the house, turn it on and then stream music direct from your smart 'phone, computer or laptop.

Which brings me to the new Breeze Q from German company Quadral. The £100 Breeze Q is a compact Bluetooth loudspeaker with wireless connection to devices such as smartphones, tablets and computers. It plays any music collection saved on the device.

Breeze Q boasts a passive membrane to boost low-frequency response and is small enough (7.8cm x 20.2cm x 7.8cm W/H/D) to be

carried around – used in the garden, local park or simply on a kitchen shelf perhaps.

Inside there are two 12 Watt amplifiers. It might not sound a lot but it is more than enough to get a decent volume.

A nicely sculpted rotary control at the top turns the unit on. There are two finishes available, standard black and a more unusual fleece version. Volume controls are on the side and, while a little plastic, they have a firm action and work well. Playback time is around 6 to 8 hours with a fully charged battery and charging the battery from empty takes between 4 to 5 hours.

Frequency range is quoted as

65Hz to 20kHz - but personally I think Quadral are being a little conservative here. Because once placed on a solid surface the low frequency response seems to dig very deep (more of which later).

## SOUND QUALITY

Having fully charged the Breeze Q, placed it on a desktop and paired it with my iPhone 8 Plus (which took a matter of seconds and held steady throughout the review period) I was gratified at just how punchy the 'speaker sounded.

Led Zeppelin's 'When The Levee Breaks' is a dirty, dark mix with pulsating bass - just the sort of track that can make many Bluetooth loudspeakers rather rattly and closed in. But the Quadrals sounded just the opposite - open and airy with a good degree of punch down below. That 65Hz measurement seemed conservative to me when I heard drummer John Bonham and bassist John Paul Jones operating together. Turning volume up it was gratifying just how stable the Breeze Q remained. Extraordinary how a few Watts can produce so much volume.

OK, the Breeze Q is not going to shake the walls of your listening room - be it kitchen, living room or bedroom - but nor will it wilt into the background.

Any downsides? Well no, not really. The Breeze Q does exactly what it was intended to do – and does so in impressive fashion. I'd advise, though, that you don't let the battery run flat as that four to five hours charge time can seem interminable when you just want to listen to music.

## CONCLUSION

Sleek, portable and easy to use. There's nothing to materially criticise about the Quadral Breeze Q Bluetooth loudspeaker. You can pay more and get a lot less for your money. As such it comes highly recommended both in terms of value for money and sound quality.



**QUADRAL BREEZE Q £100**



**OUTSTANDING - amongst the best**

**VALUE - keenly priced**

### VERDICT

Elegantly engineered Bluetooth loudspeaker that sounds excellent and is eminently portable. One of the best of its kind.

### FOR

- design
- sound quality
- portability

### AGAINST

- nothing at the price

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# Open Performance

**A powerful transistor amplifier with gloriously open sound. Noel Keywood enjoys Audio Analogue's Puccini Anniversary.**

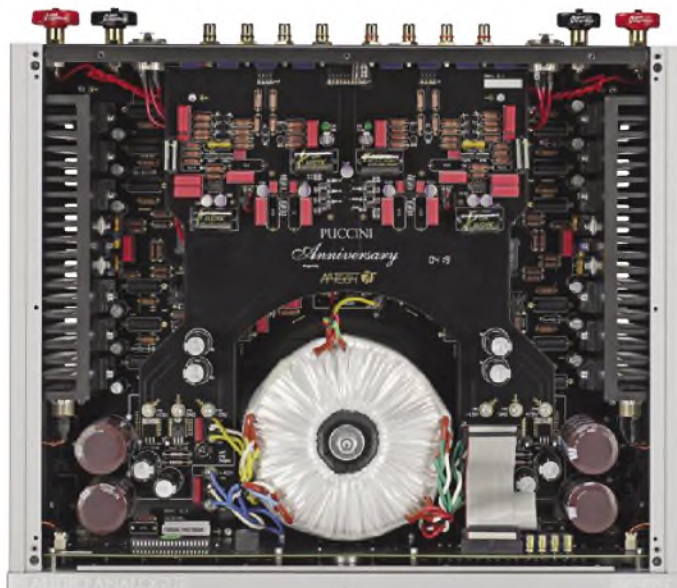
**A**udio Analogue's Puccini Anniversary 80 Watt amplifier is almost bizarrely simple. I barely knew what to plug in. No digital, no phono stage, just a few analogue Line inputs. Very little to see or play with on the front panel too. Price £3000. This is a stripped down

audiophile design, reminding me of early Naim and Exposure amplifiers that similarly sold on such an approach, relying in particular on massive power supplies that gave conspicuous low end grunt. Audio Analogue similarly focus on low end performance here, but additionally claim this is a "zero-feedback integrated amplifier", suggesting sound

like that of a valve amplifier – more later.

The Puccini Anniversary is big, measuring 445mm wide (17.5in), 390mm deep and 120mm high, its weight a sturdy 15.5kg. It will fit a 19in rack OK, but with not much to spare. The thick brushed aluminium front panel may look barren but in fact to right of the central control





**A big white toroidal transformer of the linear power supply lies just behind the front panel, with brown smoothing capacitors at either side.**

**Along the left and right side panels sit heatsinks to keep the ON Semiconductor output transistors cool.**

**At rear lie a single pair of loudspeaker terminals able to accept bare wires, spades or 4mm banana plugs.**

disc lie a horizontal line of white LEDs showing volume, whilst at left five LEDs show selected Line input, of which four relate to normal phono socket inputs and one to balanced XLR inputs.

A sturdy little remote control changes volume and inputs too, like the control disc. There is no headphone output, nor loudspeaker switching, but the amplifier can be muted, LED brightness altered and the volume control over-ridden for fixed gain, known as Direct Mode. Inter-channel balanced can also be

adjusted.

Feedback is necessary in transistor amplifiers to lessen distortion, widen bandwidth and – especially – compensate for variability in operating parameters. It's unrealistic to operate transistors without feedback; the term 'zero-feedback' usually means no loop feedback but feedback can be applied in other ways, such as degeneration and/or servo-feedback of individual stages.

Valve amplifiers by their nature cannot use heavy feedback and,

moreover, can be used without feedback at all – especially triodes. Some feel this benefits sound quality – and I certainly hear a tight, arguably over-controlled sound from high feedback transistor amps. My 300B World Audio Design triode amplifier meanwhile, with switchable feedback, shows that zero feedback offers the most spacious sound, but it also results in loose bass. There does seem to be optimum between no feedback and high feedback. A little feedback is best to tidy things up.

This is all very well with valves, that are reasonably consistent in their device parameters (gain, bandwidth, linearity etc) but less so with transistors, that are inconsistent. Also, most are not designed for audio work. Sanken (Japan) make matched, thermally tracked audio power output transistors, as do ON semiconductor (USA) who, Audio Analogue say, supply the output transistors within this amplifier.

But feedback is still necessary even with dedicated audio devices – and the Puccini Anniversary suffers by lack of it, with distortion levels up to 0.8% our measurements revealed – high. Harold Leak (Leak amplifiers) said long ago that around 0.1% is a threshold and this still applies today.

### SOUND QUALITY

I hooked up the Puccini Anniversary to our Martin Logan ESL-X hybrid electrostatic loudspeakers, using Chord Company Signature Reference cables. CD was fed in from an Oppo BDP-205D via Chord Company Epic balanced



**Four pairs of Line inputs (unbalanced), through RCA phono sockets, sit on the rear panel, with below a master power rocker-switch. The remote also has standby/on button. XLR sockets provide a fifth balanced Line input.**





**A simple but solid remote control, honed from aluminium. It alters volume, selects inputs and can put the amplifier into standby power mode.**

cables, and hi-res from an Astell&Kern AK120 portable player connected to the Oppo via a short optical digital cable.

This is a very, very, very good sounding amplifier. Sorry for the repetition but as transistor amplifiers go the Puccini Anniversary was immediately and obviously striking. Unlike most solid-state amplifiers it had stage depth, a strong sense of perspective being brought to the choir behind Mercedes Sosa singing Misa Criola (CD). This certainly brought the Puccini into valve amplifier territory. But in addition to stage depth the Puccini had powerful bass delivery, the Chieftains bodrans jumping at me in the opening of Sinead O'Conner's Foggy Dew (CD), taut and dynamic with vivid sense of resonance from the body of the instrument.

With hi-res (24/96) Fleetwood Mac's Silver Springs opened with deliciously spacious sound stage, Mick Fleetwood's solid drumming having organic presence and resonant heft. Stevie Nicks' microphone caught both her vocals and surrounding ambience, a facet of the song commonly missed (by feedback?), bringing this track alive.

Whatever I played through the Puccini Anniversary, I was greeted by a powerful yet open sound that was both lovely and exciting at the same time. This amplifier goes one step beyond most other all-transistor designs. The only

"as transistor amplifiers go the Puccini Anniversary was immediately and obviously striking"

drawback being – distortion. At times, with the lacerative steel strings of Nils Lofgren's guitar in Keith Don't Go for example, a smidgeon of edginess was apparent through our revealing electrostatic panels. Hard hit cymbals were less than pure in their brassy shimmer. Not a big issue at first listen but in the long term some may not be so happy. Trade offs here – and a personal decision on acceptability.

In my Fyne Audio loudspeaker review I also note that Willy DeVille spitting the word "Spanish" into the mic from the song Spanish Harlem (CD) was edgy, due to the forward upper midrange of the Fyne adding emphasis to distortion harmonics. I think here the Puccini Anniversary

needs careful auditioning: it certainly grabbed my attention straight away with its dramatic sound quality, but there is a drawback: you can't have it all with transistors!

**CONCLUSION**

In sound quality Audio Analogue's Puccini Anniversary amplifier was impressive. This is an amplifier worth hearing. Massively powerful bass, fast and tight yet with glorious sound staging, the only drawback being some edginess at times, evident with strong treble. It's a purist design and achieves its designer's aims as such, I suspect. But bereft of facilities and costing £3000 this stripped down amplifier is a speciality product.

**MEASURED PERFORMANCE**

The Puccini Anniversary delivered 80 Watts into 8 Ohms and doubled this to 160 Watts into 4 Ohms, with distortion of around 0.2% (8 Ohms), just before output clipping. It has a very sturdy linear power supply with good regulation, explaining its weight and the ability to double power from 8 Ohms to 4 Ohms, suggesting strong transient bass delivery.

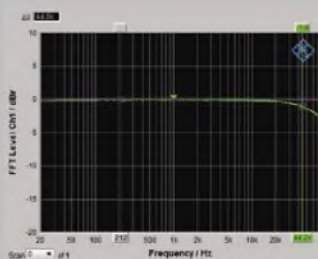
Output impedance measured 0.23 Ohms, giving a damping factor of 35 – satisfactory for good electrical damping if on the low side as transistor amplifiers go, possibly because Audio Analogue choose not to use heavy feedback.

I say this because distortion levels were on the high side, 0.4% third-harmonic at 1 Watt into 4 Ohms at 1kHz and 10kHz, our analysis showing the latter. At high power distortion rose to 0.8% at 10kHz, into both 8 and 4 Ohm loads.

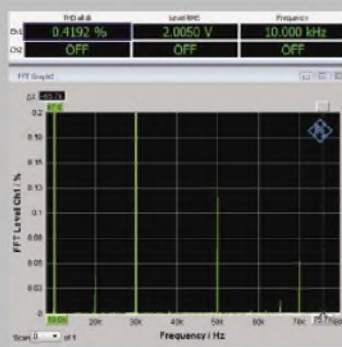
Frequency response measured flat from 3Hz to 44kHz (-1dB), a good result. Sensitivity was adequate at 0.5V for full output, fine for silver disc players (2V out) if a little low for low gain phono stages (0.2V out).

Audio Analogue's Puccini Anniversary has strong current delivery from a sturdy power supply, but distortion levels were on the high side. It is likely to sound vivid, if not as smooth a some. **NK**

**FREQUENCY RESPONSE**



**DISTORTION**



<b>Power (8 Ohms)</b>	<b>80 Watts</b>
<b>Frequency response (-1dB)</b>	<b>3Hz-44kHz</b>
<b>Separation</b>	<b>76dB</b>
<b>Noise (IEC A wtd)</b>	<b>-100dB</b>
<b>Distortion (10kHz, 1W, 4Ω)</b>	<b>0.4%</b>
<b>Sensitivity</b>	<b>0.5V</b>
<b>Damping factor</b>	<b>35</b>

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ANNIVERSARY  
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- build quality

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ON DEMO



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**Solid State Preamp**  
**McIntosh C53**

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- 9 analogue & 7 digital inputs



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**McIntosh MC2152**



- Commemorative system marked with matching serial numbers
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- (8) KT88, (4) 12AX7A and (4) 12AT7 vacuum tubes

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**McIntosh C70**



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**Stereo Integrated Amplifier**  
**McIntosh MA352**

- 200 watts per channel
- Retro all analogue design
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- Includes Sentry Monitor™



ON DEMO



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**Stereo Integrated Amplifier**  
**McIntosh MA9000**

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- DA1 digital audio module
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ON DEMO



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**McIntosh MC611**

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- Eco-friendly power management
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**Series V**



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**Series IV**



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**Series V-12**



**£7,550**

**AT-6006R**

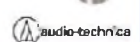
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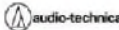
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# Creek mythology

Martin Pipe finds much of virtue in a modest tuner from the 1980s, the Creek CAS3040.



Creek Audio System's first product was the no-nonsense CAS4040 amplifier. It was a roaring success and by 1985 Creek was selling over a thousand a month – despite a price increase from £90 to £120. Next on the Creek Audio System road map was a matching VHF/FM tuner – the CAS3040 I feature here that appeared on dealers' shelves in the summer of 1983, price £120.

Hard to imagine now, with the numerous pains-in-the-ear spread across the dial, but when the CAS3040 was conceived in the early 1980s FM radio was a worthwhile audio source. CDs were still to come, and the pressing quality of the then-dominant LP frequently left much to be desired. With FM, there was an abundance of worthwhile listening 'on tap' – and, best of all, it was free!

A perfect visual match for the CAS4040, this tuner's front panel was dominated by a green fluorescent frequency display. I'd guess Creek were compelled to provide such a feature as by this time the tuner market was dominated by Japanese digital synthesiser designs.

However, the CAS3040 is pure analogue – without the complex and expensive multiple-ganged

variable-capacitors of earlier gear. Its front-end, built onto the circuit board and covered by a screening can, is instead varicap-tuned by a DC voltage derived from a multi-turn pot that's coupled to the front-panel tuning-knob.

The front-end's local-oscillator signal, whose frequency depends on the tuning-knob, is fed via a prescaler chip to a frequency counter. This drives the display's clear green digits; in other words, it registers the frequency to which the CAS3040 is tuned.

From the screened front-end also emerges a 10.7MHz intermediate-frequency (IF) signal that is bandpass-filtered by a ceramic filter to achieve the tuner's selectivity, meaning rejection of unwanted adjacent stations.

The signal is then passed to a Philips TDA1576 chip, whose job is to amplify the IF signal and recover the raw multiplex data. Creek's decision to employ a carefully-tuned circuit, with two LC sections in the demodulator, kept distortion to a minimum.

The multiplex signal (mono+stereo component) fed another Philips chip, a TD1578A switching multiplex decoder, from which the stereo audio emerges,

with no 'nasties' like residual 19kHz or 38kHz tones to interfere with the bias oscillators of analogue tape recorders.

After frequency correction (de-emphasis) the audio is simultaneously-routed to phono and – for CAS4040 owners – DIN sockets.

It may sound fiendishly complex, but at heart the CAS3040 is a fairly standardised but well-engineered design.

Features are the bare minimum. A Mute button cuts out inter-station 'mush' while tuning – although when this function is engaged you can miss weaker stations that may sound hissy in stereo, but can still be enjoyed in mono.

Forcing the latter mode is the job of another switch – above which is a green LED that confirms if the currently-tuned station is transmitting in stereo.

For stronger but nevertheless borderline stereo broadcasts, there's a Blend button that mixes together the treble frequencies of the left and right channels to reduce hiss, albeit at the expense of stereo separation.

The final button, AFC (automatic frequency control), betrays the non-synthesiser nature of the CAS3040. It essentially prevents the tuner drifting away from the currently-selected

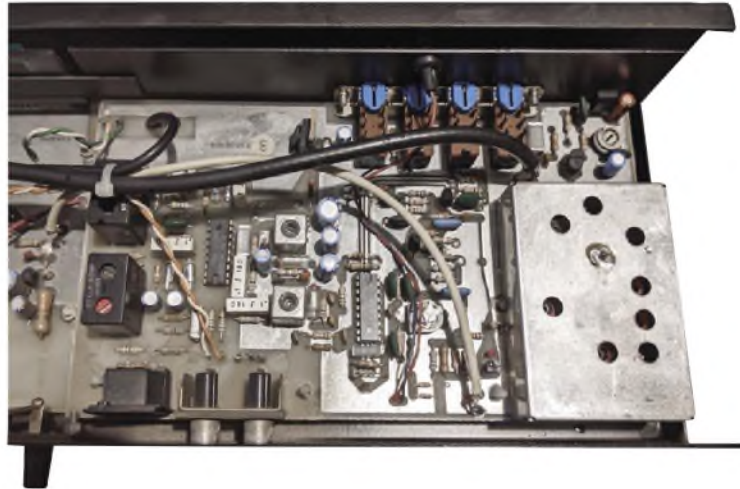
station. Synthesiser tuners did not drift.

The simplicity of the CAS3040 made it a worthy partner for the Creek amplifier that inspired it. And, like the amplifier, it can deliver the goods sonically. A good aerial was, and remains, essential for the best possible FM reception and it makes all the difference with the Creek CAS3040.

Rock and dance music from Radio 1 and the various Heart clones is a fairly horrible experience – harsh treble and squashed dynamics. To make the most of the CAS3040, I needed to look elsewhere on Band II. Nowadays that generally means Radio 3 – to which, thankfully, the BBC applies the minimum of mangling. Large-scale orchestral performances and choral works were, I found, dynamic, tuneful and of palpable dimension.

And opera? David Lang's take on Beethoven's Fidelio was given plenty of space and vocal differentiation. I was startled by the clarity of the percussion of Susumu Yokota's Traveller in the Wonderland, as broadcast on the 'Night Tracks' programme.

Other types of music were not compromised by the CAS3040 either – it really depends how they're broadcast. Tony Blackburn was regularly-playing soul music on the air when the CAS3040 was born, and it's good to hear him still doing his stuff on BBC Radio London. I received it in stereo clearly and cleanly, here in Southend. Cuts by Alexander O'Neal, Harold Melvin and the Bluenotes and Earth Wind and Fire were all marked by a pleasing tonal balance and surprising bass articulation. I also found that the rhythm guitar of Shakatak's Easier Said than Done were easy to follow, not being beaten into submission by the prominent piano.



**To the right is the varicap-tuned front-end. Its IF (intermediate frequency) signal is sent to the first of the Philips chips, a TDA1576. This demodulates the incoming signal, recovering baseband audio. Next in the chain is a Philips TDA1578A, which decodes the stereo audio.**

In Southend and with my aerial, LBC struggled and while I could find Capital, its stereo was too mushy even for the Blend button.

Unfortunately, the CAS3040 isn't the most selective tuner around. A powerful local weekend pirate bled onto Radio 3, spoiling my enjoyment of a Saturday-evening concert. Interestingly, its successor, the CAS3140, had the ability to select a narrower IF bandwidth (ceramic filters of different characteristic, basically). This would have helped under such circumstances, albeit at the expense of slightly-worsened distortion and stereo performance. But on the whole, the CAS3040 works very well – as does the CAS3140 that followed.

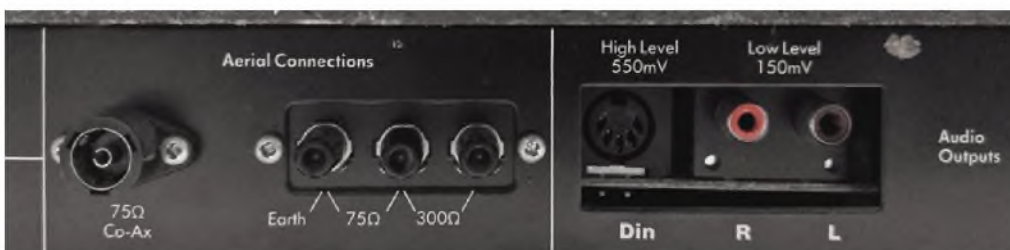
Although Creek Audio Systems sold one tuner for every four amplifiers, there are plenty out there – not least because they are well-built and reliable. The only problem – aging electrolytic capacitors and



**The push-button controls are AFC (automatic frequency control) to prevent drift, Mute to kill noise between stations, Stereo/mono – the latter for weak stations, and Blend to reduce hiss on stereo.**

displays losing emission apart – is the tuning pot.

If you're after a decent FM tuner for little money – typically less than £50 – the CAS3040 is worth seeking out. You get lovely analogue sound from VHF/FM if all is working well, when using a decent aerial.



**The FM-only CAS3040 will accommodate unbalanced (75 Ohm, Belling-Lee coaxial or screw terminals) and balun-balanced (300 Ohm, screw terminals only) aerial connections. In the UK most aerials are the former, 300 Ohm is for 'ribbon' indoor aerials.**

There are phono-socket audio outputs (a low 150mV), as well as a 'high-level' 5-pin DIN for the CAS4040 amplifier.

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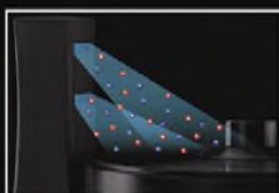
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# HI-FI WORLD

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The screenshot shows the App Store page for the Hi-Fi World app. At the top, the navigation bar includes 'Sign in', 'Music', 'Films', 'Programmes', 'App Store', 'Books', 'Podcasts', and 'iTunes U'. The app's name 'Hi-Fi World' is displayed with the developer 'audio web publishing ltd'. Below this are tabs for 'Details', 'Ratings and Reviews', and 'Related'. The 'Screenshots' section shows three preview images: the app's logo, the magazine cover for March 2020 featuring 'REGA PLANAR 10', and a 'contents' page with various articles and prices. To the left of the screenshots, there is a 'Get' button and a list of 'TOP IN-APP PURCHASES' including monthly and yearly subscriptions. Below the screenshots, the 'Description' section states that the app provides expert opinions and international standard measurements. The 'Information' section lists the developer, category, update date, version, size, rating, and compatibility requirements.

App Store > Entertainment > audio web publishing ltd

### Hi-Fi World

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

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Developer	audio web publishing ltd
Category	Entertainment
Updated	7 Dec, 2014
Version	1.0
Size	9 MB
Rating	Rated 4+
Family Sharing	Yes
Compatibility	Requires iOS 5.0 or later. Compatible with iPhone, iPad, and iPod touch
Languages	English

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# WORLD CLASSICS

Here is our list of the great and good from audio's glorious past, products that have earned their place in hi-fi history. You'll also see some oddities which aren't classic as such, but are great used buys. The year of introduction is given, alongside the original UK launch price.

## TURNTABLES

**EAT FORTE** 2009 £12,500  
Lavishly finished two box, two motor turntable with gorgeous Ikeda 407 tonearm bundled. Exceptionally stable and unfussy performer with a relaxed but highly enjoyable gait.



**FUNK FIRM VECTOR II** 2009 £860  
Innovative engineering gives a nimble, pacy and musical sound that's one of the best at the price.

**REGA P2** 2008 £300  
Excellent value for money engineering, easy set up and fine sound.

**MCINTOSH MT10** 2008 £8,995  
Big, expensive, controversially styled and glows more than some might consider necessary, but an astonishingly good performer.

**REGA P3-24** 2008 £405  
Seminal affordable audiophile deck with fine bundled tonearm. Tweakable, and really sings with optional £150 outboard power supply.

**ACOUSTIC SOLID ONE** 2007 £4,050  
Huge turntable, both in terms of sheer mass and sonic dynamics. Fit up to three arms and enjoy, just don't damage your back moving it...

**AVID VOLVERE SEQUEL** 2007 £4,600  
Stylish high end vinyl spinner with industrial strength build quality and a sound to match. Sound is edge-of-the-seat stuff.

**MICHELL GYRODEC SE** 2005 £1,115  
Design icon with superlative build. Sound is beautifully smooth, effortless and exceptionally expansive.

**MARANTZ TT-15S1** 2005 £1,299  
Cracking all in one deck/arm/cartridge combination, this must surely be the best sound/plug and play package at this price point.

**MICHELL TECNODEC** 2003 £579  
Superb introduction to Michell turntables - on a budget. Top quality build and elegant design mean it's still the class of the mid-price field.



**MICHELL ORBE** 1995 £2,500  
The top Michell disc spinner remains a superbly capable all rounder with powerful, spacious sound that's delicate and beguiling.

**SME MODEL 10A** 1995 £4,700  
Exquisitely engineered deck and SME V tonearm combo that's an extremely accomplished performer with classical music.

**LINN AXIS** 1987 £253  
Cut-price version of the Sondek with LXV arm. Elegant and decently performing package. Later version with Akito tonearm better.

**ROKSAN XERXES** 1984 £550  
Super tight and clean sound, with excellent transients. Less musical than the Sondek, but more neutral. Sagging plinth top-plates make them a curious used buy.

**DUAL CS505** 1982 £75  
Simple high quality engineering and a respectable low mass tonearm made for a brilliant budget buy. Polished, smooth and slightly bland sound.

**MICHELL GYRODEC** 1981 £599  
Thanks to its stunning visuals, this bold design wasn't accorded the respect it deserved. Clean, solid and architectural sound.

**TOWNSHEND ROCK** 1979 £ N/A  
Novel machine has extremely clean and fluid sound. Substantially modified through the years, and capable of superb results even today.

**MARANTZ TT1000** 1978 £ N/A  
Beautiful seventies high end belt drive with sweet and clean sound. Rare in Europe, but big in Japan.



**REGA PLANAR 3** 1978 £79  
Brilliantly simple but clean and musical performer, complete with Acos-derived S-shaped tonearm. 1983 saw the arrival of the RB300, which added detail at the expense of warmth. Superb budget buy.

**SONY PS-B80** 1978 £800  
First outing for Sony's impressive 'Biotracer' electronic tonearm. Built like a tank with a clean and tidy sound, albeit lacking involvement. Scarcily complicated and with no spares support - buy with caution!

**TRIO LO-70** 1978 £600  
The best 'all-in-one' turntable package ever made. Clean, powerful and three-dimensional sound, ultimately limited by the tonearm.

**ADC ACCUTRAC 4000** 1976 £300  
Bonkers 1970s direct drive that uses an intra red beam to allow track selection and programming. More of a visual and operational delight than a sonic stunner.

**PIONEER PLC-590** 1976 £600  
Sturdy and competent motor unit that performs well with a wide range of tonearms. Check very thoroughly before buying due to electronic complexity and use of some now-obsolete ICs.

**PIONEER PL120** 1973 £36  
When vinyl was the leading source, this bought new standards of noise performance and stability to the class, plus a low friction S-shaped tonearm. Later PL112D was off the pace compared to rivals.



**TECHNICS SP10** 1973 £400  
Seminal Japanese engineering. Sonics depend on plinths, but a well mounted SP10/II will give any modern a hard time, especially in respect of bass power and midband accuracy.

**LINN SONDEK LP12** 1973 £86  
For many, the Brit superdeck; constant mods meant that early ones sound warmer and more lyrical than modern versions. Recent 'SE' mods have brought it into the 21st century, albeit at a price.

**ARISTON RD11S** 1972 £94  
Modern evolution of Thorens' original belt drive paradigm, Scotland's original super-deck was warm and musical, albeit soft. Still capable of fine results today.

**GOLDRING LENCO GL75** 1970 £15.6S  
Simple, well engineered motor unit with soft, sweet sound and reasonable tonearm. Good spares and servicing support even today.

**GARRARD 301/401** 1953 £19  
Tremendously strong and articulate with only a veiled treble to let it down.



**THORENS TD124** 1959 £ N/A  
The template for virtually every 1970s 'superdeck', this iconic design was the only real competition for Garrard's 301. It was sweeter and more lyrical, yet lighter and less impactful in the bass.



**TONEARMS**

**REGA RB251** 2009 £136

Capable way past its price point, the new 3-point mount version of the classic RB250 serves up a taut and detailed sound. A little lean for some tastes, but responds well to rewiring and counter-weight modification.

**HELIUS OMEGA** 2008 £1,595

Stylish and solid lump of arm with fabulous build quality, that turns in a dynamic and weighty performance.

**AUDIO ORIGAMI PU7** 2007 £1,300

The classic Syrinx PU3 updated to spectacular effect. Hand made to order, with any mass, length and colour you care for. Fit, finish and sound truly impressive.



**GRAHAM PHANTOM** 2006 £3,160

Sonically stunning arm with magnificent bass dexterity and soundstaging. Build quality up to SME standards, which is really saying something!

**TRI-PLANAR PRECISION** 2006 £3,600

Immaculate build, exquisite design and one of the most naturally musical and lucid sounds around.

**MICHELL TECNOARM A** 2003 £442

Clever reworking of the Rega theme, using blasting, drilling and rewiring!

**SME 309** 1989 £767

Mid-price SME comes complete with cast-cut aluminium armtube and detachable headshell. Tight, neutral sound with good tonality, but lacks the IV's pace and precision.

**NAIM ARO** 1987 £1,425

Charismatic unipivot is poor at frequency extremes but sublime in the midband, truly emotive and insightful.

**SME SERIES V** 1987 £2,390

Vice-like bass with incredible weight, ultra clear midband and treble astound, although some don't like its matter of factness!

**NAIM ARO** 1986 £875

Truly endearing and charismatic performer - wonderfully engaging mid-band makes up for softened frequency extremes.



**ALPHASON HR100S** 1981 £150

First class arm, practically up to present-day standards. Buy carefully, though, as there is no service available now. Totally under priced when new, exceptional.

**SME SERIES III** 1979 £113

Clever variable mass design complete with Titanium Nitride tube tried to be all things to all men, and failed. Charming nonetheless, with a warm and inoffensive sound.

**TECHNICS EPA-501** 1979 £ N/A

Popular partner for late seventies Technics motor units. Nice build and Titanium Nitride tube can't compensate for middling sound.

**LINN ITTOK LVII** 1978 £253

Japanese design to Linn specs made for a muscular, rhythmic sound with real dynamics. The final LVIII version worth seeking out.

**AUDIO TECHNICA AT 1120** 1978 £75

Fine finish can't compensate for this ultra low mass arm's limited sonics - a good starter arm if you've only got a few quid to spend.

**HADCOCK GH228** 1976 £46

Evergreen unipivot with lovely sweet, fluid sound. Excellent service backup.

**ACOS LUSTRE GST-1** 1975 £46

The archetypal S-shaped seventies arm, good, propulsive and involving sound in its day, but ragged and undynamic now.

**SME 3009** 1959 £18

Once state of the art, but long since bettered. Musical enough, but weak at frequency extremes and veiled in the midband. Legendary serviceability and stunning build has made it a cult, used prices unjustifiably high.

**PHONO STAGES**

**CREEK OBH-8 SE** 1996 £180

Punchy, rhythmic character with oodles of detail makes this a great budget audiophile classic. Partner with a Goldring G1042 for an unbeatable budget combination.

**MICHELL ISO** 1988 £ N/A

This Tom Evans-designed black box started the trend for high performance offboard phono stages. Charismatic, musical and punchy - if lacking in finesse.



**LINN LINNK** 1984 £149

Naim-designed MC phono stage built to partner the original Naim NAIT - yes, really! Fine sound, although off the pace these days.

**INTEGRATED AMPLIFIERS**

**NAIM NAIT XS** 2009 £1,250

With much of the sound of the Supernait at half the price, this is powerful, articulate and smooth beyond class expectations.

**MUSICAL FIDELITY PRIMO** 2009 £7,900

Seriously expensive, but one listen explains why. Wonderfully exuberant sound that can only come from a top quality tube design.

**SUGDEN A21A S2** 2008 £1,469

Crystalline clarity, dizzying speed and forensic detailing. Power limited so needs sensitive speakers.

**CREEK OBH-22** 2008 £350

Brilliant value budget passive, with remote control, mute and input switching, plus an easy, a neutral sound.

**CAMBRIDGE 840A V2** 2007 £750

Version 2 addresses version 1's weaknesses to turn in a mightily accomplished performance, offering power, finesse and detail.

**SUGDEN IA4** 2007 £3,650

Goodly amount of Class A power, icy clarity and a breathtakingly fast, musical sound make this one of the very best super-integrateds.

**NUFORCE P-9** 2007 £2,200

Impressive two box preamp with superb resolution and an engaging sound.

**MELODY PURE BLACK 101D** 2007 £3,295

The clarity and openness of valves plus firm grip and fine detail make this a preamplifier masterpiece.

**AUDIOLAB 8000S** 2006 £400

In another life, this sold for three times the price, making it a stand-out bargain now. Very clear, powerful and tidy sound.

**MCINTOSH MA6800** 1995 £3735

Effortlessly sweet, strong and powerful with seminal styling to match.

**DELTEC** 1987 £1900

Fast, dry and with excellent transients, this first DPA integrated is the real deal for eighties obsessives. Ridiculously punchy 80W per channel from a tiny, half-size box. Radical, cool and more than a little strange.

**EXPOSURE VII/VIII** 1985 £625

Seminal pre-power, offering most of what Naim amps did with just that little bit extra smoothness. Lean, punchy and musical.



**AUDIOLAB 8000A** 1985 £495

Smooth integrated with clean MM/MC phono stage and huge feature count. Extremely reliable, too. Post '93 versions a top used buy.

**VTL MINIMAL/50W MONOBLOCK** 1985 £1,300

Rugged, professional build and finish allied to a lively and punchy sound (albeit with limited power) make them an excellent used buy.

**MUSICAL FIDELITY A1** 1985 £350

Beguiling Class A integrated with exquisite styling. Questionable reliability.

**MISSION CYRUS 2** 1984 £299

Classic 1980s minimalism combines arresting styling with clean, open, lively sound. Further upgradeable with PSX power supply.



**NAIM NAIT** 1984 £350

Superb rhythms and dynamics make it truly musical, but tonally monochromatic. Fine phono stage, very low power.

**CREEK CAS4040** 1983 £150

More musical than any budget amp before it; CAS4140 loses tone controls, gains grip.

**MYST TMA3** 1983 £300

Madcap eighties minimalism, but a strong and tight performer all the same.

**ROTEL RA-820BX** 1983 £139  
Lively and clean budget integrated that arguably started the move to minimalism.

**NAD 3020** 1979 £69  
Brilliantly smooth, sweet and punchy at the price and even has a better phono stage than you'd expect. The archetypal budget super-amp.

**ROGERS A75** 1978 £220  
Lots of sensible facilities, a goodly power output and nice sound in one box. The later A75II and A100 versions offered improved sonics and were seriously sweet.

**A&R A60** 1977 £115  
Sweet and musical feature-packed integrated; the Audiolab 8000A remains a classic.



**SUGDEN C51/P51** 1976 £130  
Soft sounding early Sugden combo with a plethora of facilities and filters. A sweet and endearing performer but lacking in power and poor load driving ability.

**SUGDEN A21** 1969 £ N/A  
Class A transistor integrated with an eminently likeable smoothness and musicality. Limited inputs via DIN sockets.

**ROGERS CADET III** 1965 £34  
Sweet sounding valve integrated, uses ECL86 output valves, even has a half useable phono stage, sweet, warm a good introduction to valves.

**CHAPMAN 305** 1960 £40  
Smooth pre/power combo with a sweet and open sound. Not quite up to Leak/Quad standards but considerably cheaper secondhand.

## POWER AMPLIFIERS

**ELECTROCOMPANET NEMO** 2009 £4,995 (EACH)  
Norwegian power station as cool as a glacier tonally, yet impresses with sheer physicality and fleetness of foot. 600W per channel.

**NUFORCE REFERENCE 9SE V2** 2006 £1,750  
Brilliant value for money monoblocks with massive power and super-clean, three dimensional sound.

**QUAD II-80** 2005 £6,000 PER PAIR  
Quad's best ever power amplifier. Dramatic performer with silky but dark tonality, blistering dynamics, serious power and compellingly musical sound.



**QUAD 909** 2001 £900  
Current dumper has a smooth and expansive character with enough wallop to drive most loads. Not the most musical, but superb value all the same.

**NAIM NAP 500** 2000 £17,950  
Flagship amplifier will drive just about any speaker with ease. Factor in the company's trademark pace, rhythm and timing and it all adds up to one effortlessly musical package.

**MARANTZ MODEL 9** 1997 £8000  
Authentic reproduction monoblocks still more than cut the sonic mustard. Highly expensive and highly sought after.

**MICHELL ALECTO** 1997 £1989  
Crisp, clean and beautifully controlled with gorgeous styling. Partnered with the £1650 Orca this sounds delicious!



**MUSICAL FIDELITY XA200** 1996 £1000  
200W of sweet smooth transistor stomp in a grooved tube! Under-rated oddity.

**PIONEER M-73** 1988 £1,200  
Monster stomp from this seminal Japanese power amplifier, complete with switchable Class A and Class 3 operation. Clean, open and assured sounding, albeit a tad behind the pace on high speed dance music. Rosewood side cheeks and black brushed aluminium completes the experience.

**KRELL KMA100 II** 1987 £5,750  
Monoblock version of the giant KSA-100 is one of the seminal 80s transistor power amplifiers. Massive wallop allied to clean and open Class A sound makes this one of the best amplifiers of its type.

**RADFORD STA25 RENAISSANCE** 1986 £977  
This reworking of Radford's original late sixties design was possessed of a wonderfully rich, old school valve sound with enough power (25W) and lots of subtlety.

**QUAD 405** 1978 £115  
The first of the current dumpers is a capable design with smooth, effortless power and a decently musical sound. 606 and 707 continue the theme with greater detail and incision.

**HH ELECTRONICS TPA-50D AMPLIFIERS** 1973 £110  
Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain.

**LECSON AP1** 1973 £ N/A  
Madcap cylindrical styling alluded to its 'tower of power' pretensions, but it wasn't. Poor build, but decently clean sounding when working.

**QUAD 303** 1968 £55  
Bullet proof build, but woolly sound. Off the pace, but endearing nonetheless. Some pipe smoking slipper wearers swear by them!

**LEAK STEREO 20** 1958 £31  
Excellent workaday classic valve amplifier with decent power and drive. Surprisingly modern sounding if rebuilt sympathetically. Irrepressibly musical and fluid.



**LEAK STEREO 60** 1958 £N/A  
Leak's biggest valve power amp offers 35 Watts per channel and more low end welly than the smaller Stereo 20. Despite concerns over reliability rarity value means high price.

**QUAD II** 1952 £22  
The all-time classic valve amplifier, with a deliciously fluid and lyrical voice. In other respects though, it sounds hopelessly dated. Low power and hard to partner properly.



**LEAK POINT ONE, TL10, TL12.1, TL12 PLUS** 1949 £28  
Early classics that are getting expensive. Overhauling is de rigueur before use, using original parts if possible. Surprisingly crisp and musical. Deeply impressive in fine fettle.

## PRE AMPLIFIERS

**AUDIOLAB 8000C** 1991 £499  
Tonally grey but fine phono input and great facilities make it an excellent general purpose tool.



**CROFT MICRO** 1986 £150  
Budget valve pre-amp with exceptionally transparent performance.

**CONRAD JOHNSON MOTIV MC-8** 1986 £2,500  
Minimalist FET-based preamplifier is brilliantly neutral and smooth with a sly, light balance in the mould of Sugden. Something of a curio, but worthwhile nonetheless.

**AUDIO RESEARCH SP-8** 1982 £1,400  
Beautifully designed and built high end tube pre-amplifier with deliciously sweet and smooth sound. Not the last word in incision or grip.

**LINN LK-1** 1986 £499  
A brave attempt to bring remote controlled user-friendliness to hair-shirt audiophile hi-fi. Didn't quite work, but not bad for under £100.

**NAIM NAC 32.5** 1978 £ N/A  
Classic high end pre. Brilliantly fast and incisive sound that's a joy with vinyl but a tad forward for digital.

**LECSON AC-1** 1973 £ N/A  
Amazing styling courtesy of Allan Boothroyd can't disguise its rather cloudy sound, but a design classic nonetheless.

**QUAD 33** 1968 £43  
Better than the 22, but Quad's first tranny pre isn't outstanding. Responds well to tweaking/ rebuilding though...



**LEAK POINT ONE STEREO** 1958 £ N/A  
Good for their time, but way off the pace these days. Use of EF86 pentode valve for high gain rules out ultra performance. Not the highest fi!

**QUAD 22** 1958 £25  
The partner to the much vaunted Quad II monoblocks - cloudy and vague sound means it's for anacrophiles only.

LOUDSPEAKERS

**WHARFEDALE DIAMOND 10.3** 2010 £290  
Great small standmounters for audiophiles on a budget; dry punchy sound with impressive sound-staging at the price.



**YAMAHA SOAVO 1.1** 2009 £3,000  
Musical, transparent with impressive dynamics and cohesion. Excellent build and finish.

**USHER BE-10** 2009 £10,500  
Clever high end moving coil design with immense speed and dizzying clarity allied to epic punch. Needs the best ancillaries to fly, though...



**SPENDOR A5** 2009 £1,695  
Multi-talented floorstanders with generous scale and punch and Spendor's classic mid-range detail. Deliver a sound that thoroughly engages whatever you care to play.

**MONITOR AUDIO PL100** 2008 £2,300  
The flagship 'Platinum' series standmounter has a lovely warm and delicate sound with superlative treble.



**MARTIN LOGAN SOURCE** 2008 £1,600  
Brilliant entry level electrostatics, giving a taste of loudspeaker esoterica for the price of most moving coil boxes. Tremendous clarity, evenness and delicacy, although not the world's most powerful sound.

**PMC OB11** 2008 £2,950  
Cleverly updated floorstanders give scale and solidity in slim and well finished package.

**ISOPHON GALILEO** 2007 £2,100  
Big standmounters that really grip the music and offer quite startling dynamics and grip.

**ONE THING AUDIO ESL57** 2007 £1,450  
One Thing Audio's modifications keep the good old ESL57 at the very top of the game.

**MOWGAN AUDIO MABON** 2007 £3,995  
Massively capable loudspeakers that offer dynamics, scale and clarity in an elegantly simple package. Wide range of finishes, too.

**B&W 686** 2007 £299  
Baby standmounters offer a sophisticated and mature performance that belies both their dimensions and price tag.

**B&O BEOLAB 9** 2007 £5,000  
Technically impressive and visually striking loudspeakers with sound quality that more than matches their looks.



**ISOPHON CASSIANO** 2007 £12,900  
Drive units featuring exotic materials allied to superlative build quality result in an immensely capable loudspeaker. Not an easy load to drive, however.

**QUAD ESL-2905** 2006 £5,995  
The old 989 with all the bugs taken out, this gives a brilliantly neutral and open sound like only a top electrostatic can; still not a natural rock loudspeaker, though.

**B&W 801D** 2006 £10,500  
In many respects, the ultimate studio monitor; dazzling clarity and speed with commanding scale and dynamics.



**REVOLVER CYGNIS** 2006 £5,999  
Revolver pull out all the stops and show what they can do with this magnificent flagship loudspeaker. A superb monitor that is like a mini B&W 801D in many ways.

**USHER BE-718** 2007 £1,600  
Beryllium tweeters work superbly, allied to a fast and punchy bass driver. The result is subtle, smooth and emotive.

**USHER S-520** 2006 £350  
Astonishingly capable budget standmounters that offer detail and dynamics well beyond their price and dimensions.

**ACOUSTIC ENERGY AE1 CLASSIC** 2006 £845  
Brilliantly successful remake of an iconic design; not flawless, but surely one of the most musical loudspeakers ever made.



**MISSION X-SPACE** 1999 £499  
The first mass production sub and sat system using NXT panels is a sure-fire future classic - not flawless, but a tantalisingly unboxy sound nevertheless!

**MISSION 752** 1995 £495  
Cracking Henry Azima-designed floorstanders combined HDA drive units and metal dome tweeters with surprisingly warm results. Benign load characteristics makes them great for valves.

**TANNOY WESTMINSTER** 1985 £4500  
Folded horn monsters which sound good if you have the space. Not the last word in tautness but can drive large rooms and image like few others.



**CELESTION SL6** 1984 £350  
Smallest two way design complete with aluminium dome tweeter and plastic mid-bass unit set the blueprint for nineteen eighties loudspeakers. Very open and clean sounding, albeit course at high frequencies and limp in the bass. Speakers would never be the same again...

**HEYBROOK HB1** 1982 £130  
Peter Comeau-designed standmounters with an amazingly lyrical yet decently refined sound. Good enough to partner with very high end ancillaries, yet great with budget kit too. A classic.



**QUAD ESL63** 1980 £1200  
An update of the ESL57, with stiffer cabinets. Until the 989, the best of the Quad electrostatics.

**MISSION 770** 1980 £375  
Back in its day, it was an innovative product and one of the first of the polypropylene designs: warm, smooth, clean and powerful sound.

**ACOUSTIC RESEARCH AR18S** 1978 £125  
Yank designed, British built loudspeaker became a budget staple for many rock fans, thanks to the great speed from the paper drivers, although finesse was most definitely not their forte...

**YAMAHA NS1000** 1977 £532  
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



**JR 149** 1977 £120  
Cylindrical speaker was ignored for decades but now back in fashion! Based on classic KEF T27/B110 combo as seen in the BBC LS3/5a. Doesn't play loud, needs a powerful transistor amplifier, but has clarity and imaging.

**KEF R105** 1977 £785  
Three way Bextrene-based floorstander gave a truly wideband listen and massive (500W) power handling. A very neutral, spacious and polite sounding design, but rhythmically well off the pace.

**IMF TLS80** 1976 £550  
Warm and powerful 1970s behemoth with transmission loading and a mixture of KEF and Celestion drive units. Impressively physical wideband sound but rhythms not a forte.

**SPENDOR BC1** 1976 £240  
 Celestion HF1300 tweeter meets bespoke Spendor Bextrene mid-bass unit. The result is a beautifully warm yet focussed sound. A little bass bloom necessitates careful low-stand mounting.



**HH ELECTRONICS TPA-50D AMPLIFIERS** 1973 £110  
 Simple design with easily available components, solid build quality and fine sound make for a surprisingly overlooked bargain. Not exactly stylish, however

**BBC LS3/5A** 1972 £88  
 Extremely low colouration design is amazing in some respects – articulation, stage depth, clarity – and useless in others (both frequency extremes). Came in wide variety of guises from various manufacturers building it under licence

**LEAK SANDWICH** 1961 £39 EACH  
 Warm sounding infinite baffle that, with a reasonably powerful amplifier can sound quite satisfying.

**QUAD ESL57** 1956 £45 EACH  
 Wonderfully open and neutral sound puts box loudspeakers to shame. Properly serviced they give superb midband performance, although frequency extremes less impressive. Ideally, use in stacked pairs or with subwoofers and supertweeters

## SYSTEMS

**MERIDIAN SOOLOOS 2.1** 2010 £6,990  
 Crisp styling, bright, colourful touchscreen, plus excellent search facilities. This is one hard disk music system with a difference. Best partnered to Meridian active loudspeakers



**NAIM UNITIQUE** 2010 £995  
 Great little half width one-box system with truly impressive sound allied to a wealth of source options

**ARCAM SOLO MINI** 2008 £650  
 Half the size and two-thirds the price of a full-sized Solo, the Mini gives very little away in terms of performance to its bigger brother

**MERIDIAN F80** 2007 £1,500  
 Fantastically built and versatile DVC/CD/DAB/FM/AM unit, designed in conjunction with Ferrari. Ignore nay-sayers who sneer that it isn't a 'proper' hi-fi product. Just listen.

**MARANTZ 'LEGEND'** 2007 £22,000  
 The combination of SA-7S1 disc player, SC-7S2 preamp and MA-9S2 monoblocks delivers jaw-dropping performance

**SHANLING MC-30** 2007 £650  
 Quite possibly the cutest all-in-one around with fine performance from the CD player, tuner and MP3 player input. Very low power, though.



**AURA NOTE PREMIER** 2007 £1,500  
 Lovely shiny CD/tuner/amplifier with fine sound quality and dynamic abilities.



**ARCAM SOLO NEO** 2006 £1,100  
 Excellent all-in-one system, with a warm, smooth and balanced sound to match the features and style.

**PEACHTREE AUDIO IDECCO** £1,000  
 Excellent sounding iPod dock, impressive DAC and fine amplifier section make this an excellent one box style system.



## TUNERS

**ARCAM FMJ T32** 2009 £600  
 Excellent hybrid FM/DAB+ tuner with a smooth, engaging sound. Factor in its fine build and it's a super value package.



**MAGNUM DYNALAB MD-100T** 2006 £1,895  
 One of the best ways to hear FM that we know; superbly open and musical sound in a quirky but characterful package

**MYRYAD MXT4000** 2005 £1,000  
 Sumptuous sound and top-notch build quality make for a tempting AM/FM package. Warm and richly detailed on good-quality music broadcasts.

**NAIM NAT03** 1993 £595  
 The warm, atmospheric sound is further proof of Naim's proficiency with tuners.

**CREEK CAS3140** 1985 £199  
 Excellent detail, separation and dynamics - brilliantly musical at the price. T40 continued the theme...

**QUAD FM4** 1983 £240  
 Supreme ergonomics allied to a pleasingly lyrical sound with plenty of sweetness and detail made this one of the best tuners around upon its launch.



**NAD 4040** 1979 £79  
 Tremendously smooth and natural sound allied to low prices and good availability make this budget analogue esoterica.

**MARANTZ ST-8** 1978 £353  
 Marantz's finest radio moment. Warm, organic sound plus an oscilloscope for checking the signal strength and multipath.

**YAMAHA CT7000** 1977 £444  
 Combines sleek ergonomics, high sensitivity and an explicit, detailed sound.

**SONY ST-5950** 1977 £222  
 One of the first Dolby FM-equipped tuners, a format that came to naught. Still, it was Sony's most expensive tuner to date, and boasted good sound quality with brilliant ergonomics



**ROGERS T75** 1977 £125  
 Superb mid-price British audiophile design, complete with understated black fascia. Smooth and sweet with fine dimensionality

**SANSUI TU-9900** 1976 £300  
 A flagship Japanese tuner. It boasts superlative RF performance and an extremely smooth and lucid sound



**TECHNICS ST-8080** 1976 £180  
 Superb FM stage makes for a clean and smooth listen

**REVOX B760** 1975 £520  
 The Revox offers superlative measured performance although the sound isn't quite as staggering as the numbers. Fine nonetheless, and surely the most durable tuner here?



**SEQUERRA MODEL 1** 1973 £1300  
 Possibly the ultimate FM tuner. Massive in terms of technology, size and features dedicated to extracting every ounce of performance from radio, including impressive multi-purpose oscilloscope display.

**LEAK TROUGHLINE** 1956 £25  
 Series I an interesting ornament but limited to 88-100MHz only. II and III are arguably the best-sounding tuners ever. Adaptation for stereo easy via phono multiplex socket. Deliciously lucid with true dimensionality

**HEADPHONE AMPLIFIERS**

**GRAHAM SLEE NOVO** 2009 £255  
Dynamic headphone amplifier with a great sense of timing. Crisp, clear treble and warm midrange gives an involving sound.



**MUSICAL FIDELITY X-CAN V8** 2008 £350  
Open and explicitly detailed sound plus serious bass wallop. A great partner for most mid-to-high end headphones.

**CD PLAYER/RECORDERS**

**MUSICAL FIDELITY TRIVISTA** 2002 £4000  
When playing SACDs, the sweetest, most lucid and lyrical digital disc spinner we've heard. Old school stereo, pure DSD design. CD sound is up in the £1000 class, too! Future classic.

**MARANTZ SA-1** 2000 £5,000  
The greatest argument for SACD. This sublime Ken Ishiwata design is utterly musically convincing with both CD and SACD, beating most audiophile CD spinners hands down.



**SONY MDS-JE555ES** 2000 £900  
The best sounding MD deck ever, thanks to awesome build and heroic ATRAC-DSP Type R coding.

**PIONEER PDR-555RW** 1999 £480  
For a moment, this was the CD recorder to have. Clean and detailed.

**MARANTZ DR-17** 1999 £1100  
Probably the best sounding CD recorder made; built like a brick with a true audiophile sound and HDCD compatibility.



**CAMBRIDGE AUDIO CD4SE** 1998 £200  
A touch soft in the treble and tonally light, but outstanding in every other respect.

**SONY TCD-8 DATMAN** 1996 £599  
Super clean sound makes this an amazing portable, but fragile.

**LINN KARIK III** 1995 £1775  
The final Karik was a gem. Superb transport gives a brilliantly tight, grippy dynamic sound, albeit tonally dry.

**NAIM CDS** 1990 £ N/A  
Classic Philips 16x4 chipset with serious attention to power supplies equals grin-inducing sonics.

**TECHNICS SL-P1200** 1987 £800  
CD version of the Technics SL-1200 turntable. Massively built to withstand the rigours of 'pr' use and laden with facilities - a great eighties icon.

**SONY CDP-R1/DAS-R1** 1987 £3,000  
Sony's first two boxer was right first time. Tonally lean, but probably the most detailed and architectural sounding machine of the eighties.

**MARANTZ CD73** 1983 £700  
A riot of gold brushed aluminium and LEDs, this distinctive machine squeezed every last ounce from its 14x4 DAC - super musical.



**MERIDIAN 207** 1988 £995  
Beautifully-built two-box with pre-amp stage. Very musical although not as refined as modern Bitstream gear. No digital output.

**CAMBRIDGE AUDIO CD1** 1986 £1500  
Inspired Stan Curtis redesign of Philips CD104, complete with switchable digital filter. Lean but tight and musical performer.



**MERIDIAN MCD** 1984 £600  
The first British 'audiophile' machine was a sweeter, more detailed Philips CD100. 14x4 never sounded so good, until the MCD Pro arrived a year later.

**SONY CDP-701ES** 1984 £890  
Sony's first bespoke audiophile machine used a 16x2 DAC to provide a clinically incisive sound; supreme build quality allied to the pure unadulterated luxury of a paperback-sized remote control.

**YAMAHA CD-X1** 1983 £340  
Nicely built 16x2 machine with a very sharp and detailed sound, sometimes too much so. Excellent ergonomics, unlike almost every other rival of the time.

**SONY CDP-101** 1982 £800  
The first Japanese CD spinner was powerful and involving. Brilliant transport more than compensated for 16x2 DAC, and you even got remote control!



**ANALOGUE RECORDERS**

**AIWA XD-009** 1989 £600  
Aiwa's Nak beater didn't, but it wasn't half bad nonetheless. Massive spec even included a 16x4 DAC!

**NAKAMICHI CR-7E** 1987 £800  
The very best sounding Nakamichi ever - but lacks the visual drama of a Dragon.



**SONY WM-D6C** 1985 £290  
Single capstan transport on a par with a Swiss watch, single rec/replay head better than most Naks. Result: sublime.

**PIONEER CTF-950** 1978 £400  
Not up to modern standards sonically, but a great symbol of the cassette deck art nonetheless.

**YAMAHA TC-800GL** 1977 £179  
Early classic with ski-slope styling. Middling sonics by modern standards, but cool nonetheless!

**SONY TC-377** 1972 £N/A  
A competitor to the Akai 4000D open reel machine, the Sony offered better sound quality and is still no slouch by modern standards.

**REVOX A77** 1968 £145  
The first domestic open reel that the pros used at home. Superbly made, but sonically off the pace these days.

**COMPACT DISC TRANSPORTS**

**ESOTERIC P0** 1997 £8,000  
The best CD drive bar none. Brilliantly incisive, ridiculously over engineered.

**TEAC VRDS-T1** 1994 £600  
Warm and expansive sound made this a mid price hit. Well built, with a slick mech.

**KENWOOD 9010** 1986 £600  
The first discrete Jap transport was beautifully done and responds well to re-clocking.

**DACs**

**DCS ELGAR** 1997 £8500  
Extremely open and natural performer, albeit extremely pricey - superb.

**DPA LITTLE BIT 3** 1996 £299  
Rich, clean, rhythmic and punchy sound transforms budget CD players.

**CAMBRIDGE AUDIO DAC MAGIC** 1995 £99  
Good value upgrade for budget CD players with extensive facilities and detailed sonics.

**PINK TRIANGLE DACAPO** 1993 £ N/A  
Exquisite, the warmest and most lyrical 16bit digital audio we have ever heard.

**QED DIGIT** 1991 £90  
Budget bitstream performer with tweaks aplenty. Positron PSU upgrade makes it smooth, but now past it.

**CABLES**

**MISSING LINK CRYO REFERENCE 2008** £495/0.5M  
High end interconnects, with deliciously smooth, open and subtle sound without a hint of edge.

**TECHLINK WIRES XS** 2007 £20  
Highly accomplished interconnects at an absurdly low price. Stunning value for money.

**VDH ULTIMATE THE FIRST** 2004 £250  
Carbon interconnects that help you forget the electronics and concentrate on the music. Miraculous transparency. Tight and tuneful bass mixed with air and space.



**WIREWORLD OASIS 5** 2003 £99/M  
Excellent mid-price design with a very neutral, silky and self-effacing sound. Superb value for money.

**TCI CONSTRICTOR 13A-6 BLOCK** 2003 £120  
Top quality 'affordable' mains outlet block, with fine build and good sonics. Well worth the extra over standard high street specials, which sound coarse and two-dimensional by comparison.



CREEDENCE CLEARWATER  
REVIVAL

Green River/Willy and the Poor  
Boys  
Craft

Newly reissued after some love and attention from Abbey Road, both of these albums were initially released in 1969: it was a busy year for the band.

'Green River' offered the essence of the band without the wandering guitar jams, but amongst the free rocking time there was always a sombre undertone from John Fogerty's lyrics.

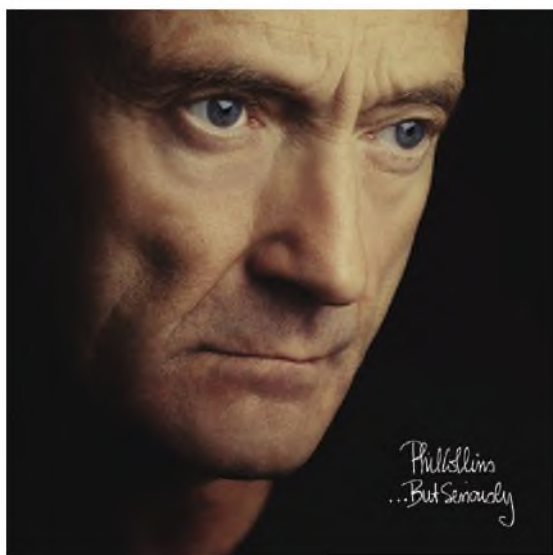
'Willy and the Poor Boys' ups the emotive tone. This one is a much happier affair although the classic song 'Fortunate Son' is a pretty hard-hitting protest song, a cutting, raucous outing, especially when compared to the ease you get from the rest of the album.

Both of these albums were half-speed mastered by Miles Showell, the world's leading exponent of the method: "...it's slow, because I'm running the

source at half the normal speed and the disc-cutting lathe is not cutting at 33 and a third, but 16 and two thirds" said Showell. "The reason for doing that is that vinyl records are a mechanical process. What you hear from the speakers, the soundwaves are just a wavy groove. Anything that's 'bright' can stress the system and push it to its limits. If you can reduce all of that by a factor of two, suddenly all that high-frequency information becomes mid-range [and] much easier to put on the disc. It's no fun to listen to while I'm cutting it, because everything is r-e-a-l-l-y slow," he said. "But when I play it back, it just sounds incredible".

As for mastering? Maybe there's tiny, touch of compression from the original mix here? Nothing of real note, though. Generally, there's plenty of air and space in between voices and the instrumental separation is excellent.

AUDIOPHILE VINYL



PHIL COLLINS

...But Seriously  
Rhino

The fourth solo outing from Collins, '... But Seriously' was initially released in 1989.

A quick count on the fingers reveals that the piece has now reached its 30th anniversary. This new edition will be limited to 1000 double LP sets.

It was a pretty successful release, the first time around, hitting the No.1 spot in sixteen countries, spending fifteen weeks at the top of the UK charts and four in the US. Single tracks included: 'Something Happened On The Way To Heaven', 'Another Day In Paradise', 'I Wish It Would Rain Down' (featuring Eric Clapton), 'Do You Remember', 'Hang In Long Enough' and 'That's Just The Way It Is'. Oh and this version has been pressed on turquoise vinyl.

The content of the vinyl was arguably more revealing about Collins' thoughts and feelings about the world around him. Whether that be about the troubles in Ireland and

homelessness, to matters closer to home such as meeting your first love after years apart.

Collins saw this album as tougher in tone and approach. He was afraid that some listeners might think he'd ventured too far into pop and was eager to return to the bite of his debut release 'Face Value'.

In mastering terms, I would say that there is a slight sheen of compression on this LP. I guess that the midrange has been boosted a touch to enhance detail. Nothing destructive and obviously edgy, you understand, but there is definitely something there adding a slight emphasis up in the upper frequencies and honing the focus of the bass.

Detail is present and is pushed forwards in the mix so the ear will typically pick up everything available on the broad-based soundstage. And that sound is busy, packed with a host of instruments and voices. Collins certainly puts on a show here.

**E**ric Clapton runs a charity organisation, based in Antigua, in the West Indies. Founded to run and maintain a rehabilitation centre for alcoholism and drug addiction, the Crossroads Centre receives funds and promotes awareness from a series of regular guitar festivals.

Some of those festivals have been mastered to disc, specifically those from 2004, 2007, 2010 and 2013. This 6LP box set takes highlights from all of those occasions.

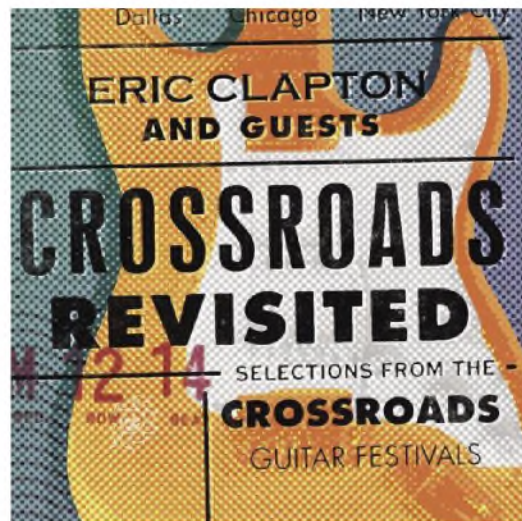
Mastered by respected engineer, Bob Ludwig, this set includes a host of guest stars including B.B. King, JJ. Cale, Robert Cray, Buddy Guy, Albert Lee, Vince Gill, Joe Walsh, Sheryl Crow, Ronnie Wood, Jeff Beck, Derek Trucks and many more.

Some of the featured tracks take a solo approach: Eric Clapton with Layla, John Mayer with Belief and Gary Clark Jr with Please

Come Home but often, you'll find tracks with a stage full of bodies sharing the duties. Both Under a Bad Sign, for example, include Keb' Mo', Blake Mills, Booker T., Steve Cropper, Matt 'Guitar' Murphy and Albert Lee.

The discs, pressed on black vinyl, are presented in a comparatively simple manner, in lined paper sleeves with a 4-sided insert detailing both tracks and performers.

As far as mastering goes, well look, this is a live outing and live is never as good as the studio in terms of pure sonic material. This one is no different. The dynamic range is rolled off in terms of upper mids and treble while bass lacks focus. The low noise mastering has produced a safe and non-offensive presentation that manages to retain frequency discipline but the point of this collection isn't sound quality, it's about performance and energy. On that score, this box set wins, offering attitude and guts.



## ERIC CLAPTON AND GUESTS

**Crossroads Revisited: Selection From the Crossroads Guitar Festivals**  
Rhino

# AUDIOPHILE VINYL

**T**his is the first of - I assume - two proposed sets that mirror the earlier CD releases of the same material that looks to offer fans of Fleetwood Mac officially released, early live material - offering a quality alternative to the swathe of bootlegs swimming around the market. This vinyl set's material takes you through to mid-way in the second CD disc, incidentally.

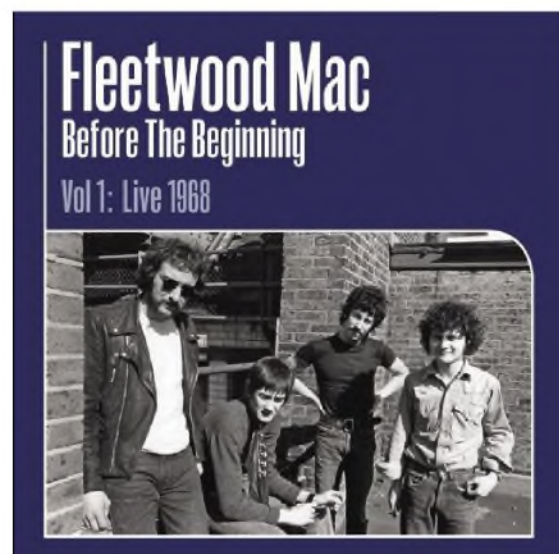
Taken from 1968 concerts, the band at this time consisted of Peter Green, Mick Fleetwood, John McVie and Jeremy Spencer. Each band member occupies a full side of the inner recesses of this tri-fold gatefold and the excellent photographs creates an effect that is quite thrilling. What you effectively get are 12" x 12" posters of each band member doing his thing in glorious black & white.

There's more attractive imagery on the actual inner sleeves. A

moustachioed Green occupies both sides of the first disc and half of the second. McVie shares one of those with Spencer who has another on his own, while Mick Fleetwood has a side of his own on the third disc.

The only trouble with this packaging approach is that the rear of the outer sleeve contains all of the available information for this set and that's not a lot. Apart from the tracklisting, there's no extra information on offer such as, for example, when and where the music was played. My guess (and others, I have to add) is the Carousel recordings from San Francisco.

As for mastering? Well, the sources themselves are not in perfect condition, never mind the mastering, so there are elements of the soundstage that are rather crunchy and gritty in presentation. This set is basically a super bootleg. Nevertheless, it's still full of atmosphere, raw energy and unfettered talent.



## FLEETWOOD MAC

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August 2019

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- Strong, Flexible Removable Magnetic Grill



# "it won't kill you – by direct method at least"



Noel Keywood

One day an autonomous machine will kill you. But for the time being it can do a great job measuring turntable speed! Hollywood dramatisations of the future have the machines out to get us and perhaps so. The RPM app I review in this issue, alongside Rega's Planar 10 turntable, takes us one step closer to a future long away but closing rapidly as machines gain outside sensing ability that we humans lack.

I was a little shocked at this app's ability to measure turntable speed and speed variation as if by magic – no wires, no meters, no test discs, all the paraphernalia previously necessary before the rise of the intelligent machine. How on earth can you measure speed by laying a mobile 'phone down on the platter?

Worse, when I did as instructed my 'mobile phone returned data that is a struggle to get by normal method. All the time and investment I have made in the past to get meaningfully accurate wow and flutter figures seemingly went up in smoke before my eyes.

In an era pre-dating CD – before 1983 – mobile phones were non-existent and digital processing was in its infancy. To measure speed accuracy and variation there were things called Wow & Flutter meters, of which I have owned many. They died out as CD took over. I sold my treasured Rank Kalee 1742 with its interesting drift indicator, as well as wow and flutter, thinking it had no further use.

That was a mistake. As turntables started to re-appear I had all the test discs but no way of using them, until a friend sent me a good condition Kenwood FL-140A – and that is what we use at Hi-Fi World today. The Japanese Kenwood has the advantage of measuring to

Japanese JIS standard as well as US NAB and European DIN, none of which you get in the RPM app.

The JIS Standard is what Technics use, since they are also Japanese, allowing us to make comparisons between their figures and ours. Problem is that Technics Direct Drive turntables are at – or better than – the abilities of our measuring equipment, the limitation being the test disc. Test LPs are cut on lathes that are less speed stable than a Technics turntable, and the lathe's variations get cut into the disc. I have all discs and the only one usable is DIN 45-545. With careful alignment on the turntable it gives figures that match Technics' claims – just. No other test disc gets close.

A modern Direct Drive turntable is a low speed d.c. motor with servo feedback. Such motors are now vastly complex, relying on silicon drive chips, linked to speed sensors. Trad. methods of measuring speed accuracy and variation are outdated. And that is why I have searched for alternatives for some years now, such as a shaft encoder with sufficient resolution.

The rise of the machine. We got our first glimpse of this in 1984 with Terminator – a great film. The fright is what machines can do when they receive information humans cannot collect – electromagnetic radiation outside the visible spectrum and much else. A machine can see you when you cannot see it – scary. RPM uses the gyroscope of a phone to gather information we cannot see and therefore comprehend, to measure not only speed, but variation of speed.

Don't think I ever understood gyroscopes. Something to do with gravity perhaps. But today they are on silicon chips and most phones have 'em so they know how the phone is aligned (relative to the

centre of the earth?). That's why the display irritatingly spins around just as you were about to read it. I don't know how you can assess speed, which I thought was relative, without a fixed reference – but obviously a phone's gyroscope and the RPM app can do it. Puzzling – time to read about gyroscopes methinks.

Even more extraordinary is the information this app extracts. Its display of rotational rate against time was not only high in resolution but also plausibly correct – exactly the pattern I expect to see.

The figures will perplex users: it measured 0.17% wow and flutter for our Technics SL-1210 Mk2 Direct Drive where conventional measurement comes up with 0.06% or so – an apparently massive difference. That's because the app uses a simple peak-to-peak reading of speed variation, different from conventional reading techniques that display a peak value half the peak-to-peak value. So if RPM says a turntable has 0.2% 'wow/flutter' that's 0.1% in conventional measurement terms. The figure descends further when split it into drift, wow and flutter spectrums, then weighted – but I won't go into that here.

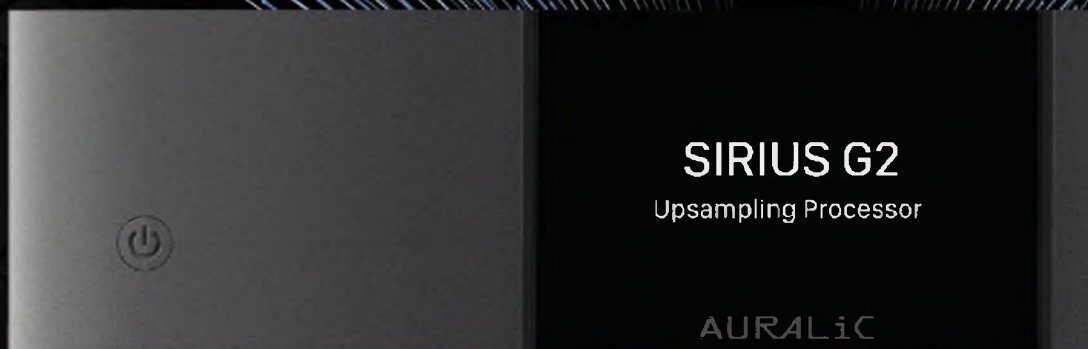
The point is this app extracts information that looks to be both accurate and detailed. If the data could be downloaded into an appropriate computer programme that would at least apply an FFT to extract frequency data, then I would abandon our trusty Kenwood FL-140A and HP3561A spectrum analyser.

The clever machine called a mobile phone isn't autonomous yet – it won't trot off to make a cup of tea and it won't kill you – by direct method at least. It can now do something far more important – measure Wow and Flutter! ●

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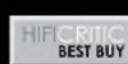
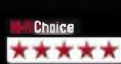
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AURALIC PRESS AWARDS



# "It pushed at the boundaries of 'good taste'"



Paul Rigby

I love all music-based formats. To me, the music is the point, not the format. Nor the hi-fi for that matter. The music itself is the point of why I'm here. Why I do this.

I have and use a range of music-based formats. It's through vinyl, though, that I find music exhilarating, uplifting and spiritual. I don't get that from any other format. And I've tried. It's quite remarkable just how good vinyl still sounds today when you throw time, sweat and a bit of cash at the problem.

Vinyl is just an umbrella term, though. There are many worlds that exist within. I love music but I also love to listen to words. Non-musical words, that is. Maybe that relates to another love of mine, books. Hence, I have plenty of time for that strange breed of vinyl release, the non-musical LP. There used to be more of them released in the past covering subjects like drama (reworked, truncated scripts from famous films, for example), children's fairy tales (sometimes involving narration from famous singers), radio shows (the Goons, Hancock's Half Hour and the rest), relatively dry instructional albums, test LPs, comedy LPs, documentary records focusing on an event or span of time and lots more. I find the entire area completely fascinating.

Speaking of comedy, I had an odd thought – of an arguably geeky nature, I have to admit. That thought grew when I coincidentally received a new vinyl box set of laughs from UK audiophile label, Demon.

Comprising Rowan Atkinson, Mel Smith, Pamela Stephenson and Griff Rhys Jones, the TV sketch show 'Not the 9 O'Clock News...' represented a bulwark for the new,

rather trendy 'alternative' comedic movement. The one that pushed Bernard Manning into the orchestra pit and looped a stage hook around the neck of Frank Carson. It was a sort of rallying area, a focal point or foundation for the rest of the new comedy movement and a pair of Size 10s firmly planted in the hallowed halls of BBC tradition.

It was also extraordinarily eighties in terms of fashion, outlook, philosophy and humour. The sketch format was nothing new but the implementation of the same did add a new edge (although Python fans might yawn in a 'been there, seen it' kinda way). If nothing else, it brought Pythonesque humour into a new decade, modified for the zeitgeist as it were, while taking full advantage of relatively relaxed broadcast censorship in terms of language. It pushed at the boundaries of 'good taste' whenever it possibly could.

It also made me realise how rare the ensemble comedy record was and, for that matter, is. Although Demon has also released a series of LPs from The League Of Gentlemen ensemble I remain wondering why such comedy LPs are so rare. Maybe it's because the ensemble team is a rare construction. Again, though, why should that be? Your assistance would be of value here.

We are awash with famous stand up comedians who have made records. Everyone from Eddie Izzard to Bob Newhart, George Carlin to Lenny Bruce. We've had lots and lots of double act-related LPs too from The Two Ronnies, Morecambe & Wise and the Smothers Brothers but the ensemble output has been rare.

Oddly, the fashion seemed to occur in the fifties, sixties and early

seventies. Records from The Goons, Hancock's Half Hour, Monty Python and Firesign Theater seemed to emerge one after another. Then nothing.

'Not the 9 O'Clock News...' put the sub-genre back on the map. Yes, you could say that this series was nothing more than a training on the job exercise for future classics (i.e. Blackadder, Alas Smith & Jones et al) but there is no doubt that the programme did represent a breath of fresh air for the time.

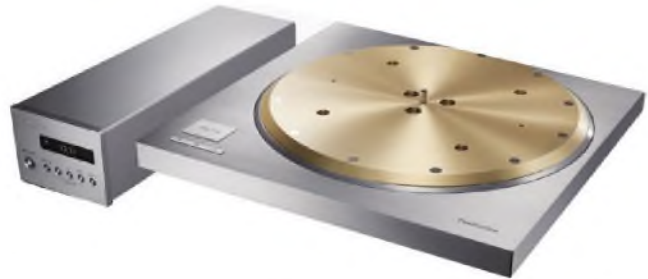
The team made three LPs. The self-titled 1980 release, 1981's 'Hedgehog Sandwich' and 1982's 'The Memory Kinda Lingers' (featuring a live Theatre Royal concert) which arrives in the box set's slip case.

At the time, I wondered if a batch of copy-cat ensembles would take their place afterwards but that never happened. And I wonder why? 'Spinal Tap' was an ensemble from a film, 'Hitchhikers Guide to the Galaxy' was an ensemble from a book. None were sketch oriented. Until The League of Gentlemen.

Is it because it's just too difficult to get three or more talented comedians in one room and for each to work with one another and then be famous enough to launch a record? Is comedic talent a much rarer resource than we ever thought? Or am I looking in the wrong place? Even in that oft-ignored training arena, modern radio, comedy ensembles are born, fester but all too often wither and die – or break up into single or double acts.

Or am I unfairly over-looking anyone? To be honest, I sincerely hope I am. Do you know of other recent ensemble comedy acts that have emerged onto record? Any format, actually. I'd love to know. ●

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**Hi Fi News said:**

Any great turntable gives you a certain frisson when you hear it. It's that old 'shivers down the spine' feeling, a sense of being let into a world to which you had previously not been privy. This is a remarkable turntable, and arguably the apex of vinyl playback. It's difficult to see how the SP-10R motor unit can be improved upon. It is a definitive statement of engineering prowess, and marks the return of direct drive to the top tier of turntables.

Miyajima - Stereo - Mono - Denon DL-103 - Audio Technica AT33 & OC9

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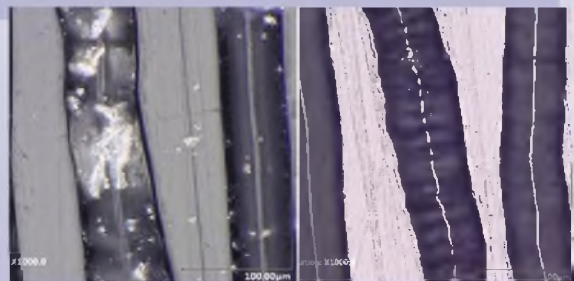
- Paul Rigby, Hi-Fi World

### Michael Fremer, Stereophile -

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# “Hi-fi’s ability to reinvent, adapt and adjust to the consumer has kept it relevant”



Jon Myles

**E**ver since I became involved in the obsession that is hi-fi, I’ve read no end of articles about how its end is nigh and one day it will eventually die out.

The reasons are myriad.

They range from the cost of the equipment – especially as the more you spend the increase in sound quality becomes ever more incremental – to the fact that people prefer other forms of entertainment: films, video games, sport etc.

And then there is the rise in streaming, falling sales of physical media and the demise of dealerships and bricks and mortar record stores to further threaten future viability.

All the same, we are consuming more music than ever before. Figures for 2019 show music sales were up by 7.5 per cent on the year before. Most of this was down to streaming services.

Last year was the first time more than a 100 billion plays occurred on the streaming services in the UK within one year, with 114 billion plays being racked up by year’s end. Indeed, December alone saw 2.7 billion plays counted in just one week. Think about that figure. It’s quite astonishing. Ever tried playing that many CD or vinyl tracks in seven days? No, me neither.

OK, some people may argue that this is not true hi-fi – data rate, bit depth and bandwidth, plus quality of source and source equipment all play a part in the reproduction chain to produce an accurate – or inaccurate – facsimile of what the artist originally laid down in the studio. And much streamed music meets few of these quality criteria.

But it has ever been thus. Elvis Presley’s original singles were not engineered to sound good on a hi-fi of the time but to suit the basic

radio sets most teenagers listened to back then – which were none too great.

Record players at the time were fairly basic – and as for the loudspeakers, well, they were a world away from what is on offer nowadays. Most record players had their loudspeakers built-in and sounded rubbish as a result.

So, far from the death of hi-fi being nigh, its ability to reinvent, adapt and adjust to the consumer has kept it relevant and continues to do so, retaining a decent market around the world.

Take my review of Thonet and Vander’s new Kugel loudspeakers in this issue. They are aimed at the Bluetooth generation, where they work excellently. Yet these compact powered loudspeakers also contain RCA inputs to connect to a standard CD player. Importantly, they sound smooth, svelte and detailed through either input.

Read Noel Keywood’s Measured Performance to see just how highly he regards them. They are not a gimmick nor a one-off speciality – just a decently designed loudspeaker that has embraced new ways of transmitting music.

In this case Bluetooth – and do remember that when Bluetooth first emerged it was flaky, prone to drop outs and, frankly, nowhere near to being a platform capable of carrying music with decent sound quality. However the technology has moved on and hi-fi is keeping pace.

All this put in my mind a recent conversation with a teenage commuter on the way into work on London’s Tube. He was toting a pristine FiiO X5 high-resolution digital audio player (DAP) complete with a pair of Beats headphones – which he declared as “fairly rubbish” but loud enough to drown out the

background noise of the Tube.

He then delved into his rucksack and pulled out at least ten different sets of ear phones and in-ear monitors, patiently explaining where, when and with what music he used each one.

They ranged from Sony to Philips to a fairly expensive set of Noble in-ear monitors. All were allotted certain situations and genres of music. It put my collection of headphones and ear-phones to shame! But my new travelling companion had it perfectly sorted and he’d obviously spent a fair bit of money on the whole collection.

Even more impressive was the fact that they all these ‘phones were nicely folded in their carrying cases and neatly labelled. His pride of ownership and joy they bought him was clear to see and an example that – at any age – people enjoy good music replay and are willing to pay for it.

As to his next ambition – no, not more headphones as I first thought – but a Naim streamer (the NXS was his ultimate desire) and a set of A5 Spondor loudspeakers to complete his home bedroom system which he loved even more than his impressive set of ‘phones. He also had a desire for a Melco music server to keep everything pristine.

I wish him the best of luck with all that and am sure he won’t be disappointed with such a set-up. Whether he’ll keep his headphone collection after hearing a full size system I have no idea – but I hope he does because it was thoroughly impressive.

All of which brings me back to my original argument: hi-fi is not dead yet! It moves with the times and technology – as do its users I found on the Tube. Long may that last – and it will if we keep our enthusiasm. ●

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# "I'm a strong believer in re-use before recycle"



Martin Pipe

If you've ever visited Southwold pier in coastal Suffolk, you'll have come across the marvelous electromechanical flights of fancy that sprung from the fertile imagination of artist-engineer Tim Hunkin.

One of my personal heroes, I first encountered Hunkin through an inspirational Channel Four documentary programme he co-presented with "professor of bodgineering" Rex Garrod. The duo made no attempt to patronise the viewer or 'dumb down'. Running for three series in the late 1980s and early 1990s 'The Secret Life of Machines' examined the history and technology of various office and household appliances, using practical demonstrations and unique cartoons.

Pop along to the pier, and the warmly-subversive humour and distinct visual style that helped distinguish the programme are very much in evidence.

Throughout the series, Hunkin and Garrod lamented the diminishing build quality of 'consumer durables', and the consequential reduction in product lifetime. But it wasn't all bad news.

Another recurring theme was an early form of 'reuse'. The duo enthusiastically explained how various components extracted from scrapped machines were used in their stunts, artworks, props and fairground attractions.

All eighteen episodes can easily be found online. Hi-fi equipment wasn't featured in any of them but one episode focused on the sewing-machine. American theatre-loving mechanic Isaac Merritt Singer founded the sewing-machine firm that bears his name to this day. In 1851 he came across an early sewing machine and decided he could do better. Singer, who introduced one of the

world's first hire-purchase schemes, proved adept at selling his improved machines. He was subsequently 'bought out' and, large family in tow, retired comfortably in Torquay.

Singer's machines were very well-built, and Hunkin's programme reveals that it became company policy to smash up older machines sent in part-exchange for newer and fancier (but presumably less well-made) models, so they wouldn't end up on the second-hand market.

A BBC colleague who restores jukeboxes in his spare time told me – a fact confirmed in Mark Palkovic's book 'Wurlitzer of Cincinnati' – that the same fate awaited 1940s/50s 'trade-ins', so that sales were protected. Now we know why those older 'Wurlitzers' are so rare!

In the late 19th and mid 20th century, climate change and resource-depletion were mostly disregarded. The products made by Singer and Wurlitzer tended to sell in affluent 'first world' nations. We are however now living in an era of globalisation; Western living standards and patterns of consumerism are now worldwide aspirations.

Which makes the recent activities of well-known smart-speaker purveyor Sonos – like Singer and Wurlitzer, from the good ol' US of A – questionable in my view. To get owners of existing Sonos models to upgrade, the company is offering 30% 'Trade Up' discounts. Fine.

But what happens to the old products, which are still capable of fulfilling their primary role of playing music? Are they destined for struggling inner-city music schools, charity auctions or children's hospitals?

Unfortunately not. If you're upgrading from one of three specific models (the Connect:Amp, Connect or Play:5) you must activate a 'recycle mode'. This not only erases personal

data from the device but permanently deactivates it too. Essentially, what may have been functional hardware is put into an irreversibly 'bricked' state three weeks later and is of no further use. Its owner can either send the disabled device back to Sonos (with a prepaid shipping label) or leave it with a participating retailer or recycling centre.

I'm a strong believer in 'reuse before recycle'. If an item still has practical purpose (whether sewing garments, spinning rock 'n' roll in retro '50s diners or playing music wirelessly at home) this should continue to be exploited. The next stage should be reusing components, as the Hunkin/Garrod partnership did.

Only after these options are exhausted should the wasteful and environmentally-unfriendly 'recycling' process be invoked. Products should not be de-activated so they cannot be used again.

When I asked Sonos about this they told me that it takes "responsibility to the environment very seriously". It also runs 'Soundwaves', a musical-education programme. They claim that, thanks to software updates, "92% of the products Sonos has ever sold – even those launched more than 10 years ago – are still in use today" and that older Sonos products acquired second-hand might "not be able to deliver the (expected) Sonos experience". These older models lack "the processing power and memory to support modern Sonos experiences...like Apple's AirPlay2". But when it comes down to nuts and volts, they can still 'sing', able to be useful to others.

So there you are. I hope Sonos might reconsider their policy of making redundant product unusable. It would help keep their brand alive – rather than dead, fit only for the scrap heap. ●

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# "How they got away with this sort of construction I don't know"



Dave Tutt

I thought I would talk about an issue that I come across quite often in all manner of amplifiers arriving at the workshop that, despite my customers having "golden ears", they seem not able to hear. Its cause is generally the same in most equipment and anything can suffer from it – a huge PA amp to a stacking system to a guitar amp or to any make or model of hi-fi.

What is strange from an engineering stand point is that it doesn't actually cause any other effects, at least to a great extent. As this problem gets worse there can be progressively less defined bass. There can also be a drop in output power – but then few of us are running an amp at anything much more than 10% of maximum output in any case so that would go unnoticed too. From the nature of this fault I would assume an increase in hum – but that doesn't seem to be the case.

So what is this strange thing that I find? Its bass intermodulation where the low frequencies in the incoming signal modulate the level of the mids and higher signals. Its quite apparent when you know what to listen for. In some amps it is rather like a ripple, sometimes on extended notes where the initial part of the sound is relatively unscathed but as it decays it falls to pieces. It can sometimes have no effect at all when you first turn on but then gets worse the more you use your equipment. But strangely sometimes it is there when you turn on and then disappears after 20 minutes or so. Depends very much on the equipment. You would think that manufacturers would have designed out these sort of things well before you get your equipment home.

Now a good amplifier rigidly holds its power lines such that there is little in the way of audio getting onto the supply. This is what you expect from a new amplifier or at least one that is in a good state. Having said that there are one or two amps that I have heard recently where I somehow doubt that even the manufacturers can truly claim to have understood the effect. Things tend to deteriorate with age in many products. You would of course assume that all new equipment is free from this issue but I have to tell you that this is not the case. I have heard it in all manner of equipment but thankfully most better hi-fi is better built or at least has higher quality components to suppress it.

The amp that brought this back into my mind recently was a Pioneer SA-708, something of a classic brushed aluminium monster with more controls than are really necessary and power meters that tell you nothing of any use! 1979 Japanese hi-end hi-fi is somewhat different to what we would expect today. The main capacitors are large and custom values but they need to be removed and replaced. 12000µF 56 Volt is not something that you will find on the component stockists shelves unless you want to chance new old stock (NOS) which may be dried up and no better than what is already in use, but it isn't the end of the line.

With modern capacitors of this type being significantly better, using 10,000µF 63 Volt types is going to be a sensible repair. Some changes to the printed circuit board are going to be needed as the originals are five pin types the new ones only two pin.

Another pair of capacitors need to be replaced too as they are the

reservoirs for the low level power lines that feed the preamp circuits. These are 300µF 63 Volt and here, as these specific values are smaller but just as rare, it is advisable to change to the next standard value so I fit 470µF 63 Volt – and high temperature ones too.

Lastly the mains inlet. How they got away with this sort of construction even 40 years ago I don't know – but if something is designed to be earthed then the earth actually has to work. I should be used to it by now because there so many units where a short length of internal earth wire is fitted but the chances of it protecting you or the equipment in the case of a fault is pretty low. Replacing it or doubling it up with new bolts into the chassis works wonders.

So does all this work cure the fault? Most definitely. Bass is so much better, more tuneful, extended and needing no lift from the tone controls. A return to normality. Intermodulation is now absent – which is a bit of a result as had it been anything more complex it might have taken somewhat more time and effort to fix.

I still can't quite understand how those large original capacitors are so poor in one aspect and yet do not result in hum which is the obvious normal outcome. Possible issues are an internal rise in the ESR (equivalent series resistance) or a significant drop in the capacitance value but I would go for the former. The amp will not be able to supply current when needed, it will be limited perhaps only for the duration of the drum beat or single note. This is where the intermodulation comes in. Luckily, these odd things you can't quite explain are easily repairable using modern quality components. ●

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# Tech Today

Using latest tech digital chips, iBasso's DX160 portable player impresses Noel Keywood.

**T**his was an interesting player – in its sound, its technology and its foibles, the ones I encountered but others may not, as I will explain. But in essence what you get in iBasso's DX160 is a solidly built and usefully portable player – neither too heavy nor too light – for a very

reasonable £349. That price brings on-line connectivity and Bluetooth plus the best digital convertor (DAC) we have ever measured.

Style and facility wise, this player is right up to date and lacks little. It has a lovely 5in Sharp capacitive 1080P resolution touch screen with clear graphics: I had no trouble

except with some legends greying out when inactive, becoming faint in sunlight.

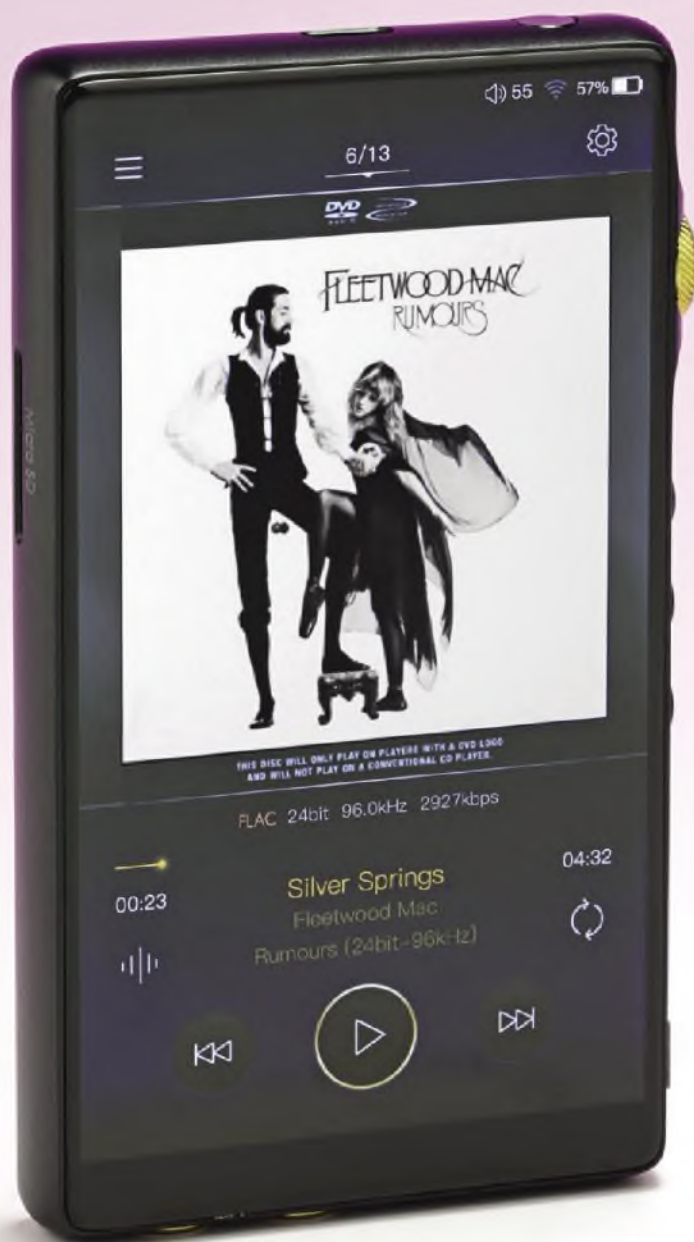
At heart lies an Arm Cortex 8-core processor with 2GB RAM – making it fast – running Android. There is 32GB of shared storage, on our player 7GB consumed by the system, leaving 25GB for music. That's enough for 400 CD tracks but not so useful for DSD tracks that come in at 500MB or more, meaning 50 in total. To cope, there is a single microSD card slot of unspecified maximum capacity. It's a push-to-fit type; there's no card loading tray.

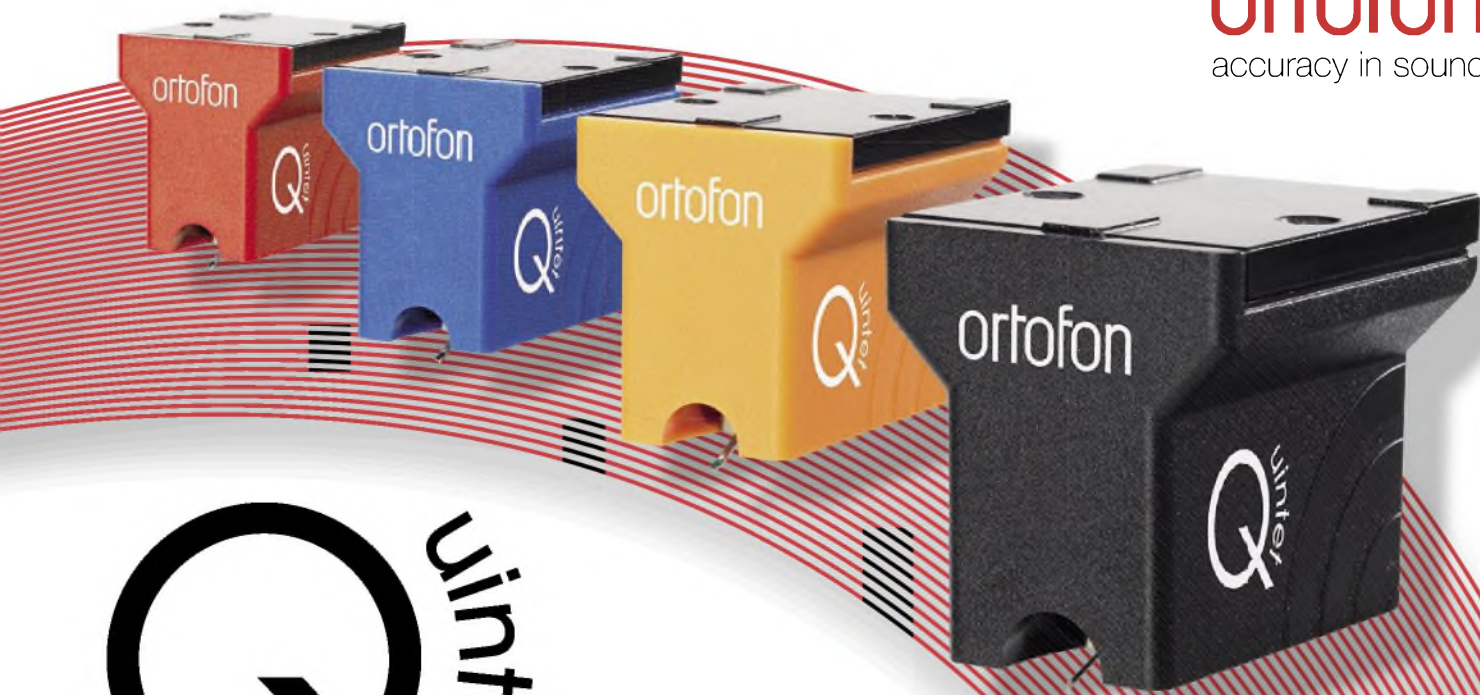
Alternative music inputs are wi-fi (5G) connection to the internet for music streaming, Amazon HD now being incorporated in the firmware. Bluetooth 5 connection allows incoming data so the unit acts as a DAC / headphone amplifier, and outgoing Bluetooth so it acts as a wireless music source to a hi-fi system.

For wired connection to the hi-fi the 3.5mm stereo headphone output can be set to Line out for analogue linking, or to S/PDIF for digital linking – electrical not optical. There's also a 4.4mm fully balanced output that delivers 6.4V, but no 2.5mm alternative for those that may have such (barely-usable) cables.

The 4.4mm plug is quite sturdy, giving the DX160 a chunky balanced output socket next to the conventional unbalanced headphone output. Balanced output for headphones isn't a major improvement I've found, but it is a good way to feed a hi-fi fitted with balanced inputs, if you can find in this case 4.4mm-to-XLR adaptor cables.

iBasso use two Cirrus CS43198 digital-to-analogue (DAC) chips, one per channel – and these I have not come across before. To date ESS, followed by AKM have dominated the DAC space; Cirrus Logic popping up in such a rarefied market was a surprise. The chip's revision history



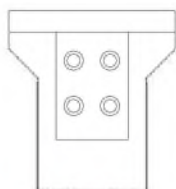
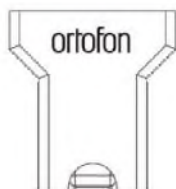


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Quintet cartridge design



**Quintet Black S**  
May 2014



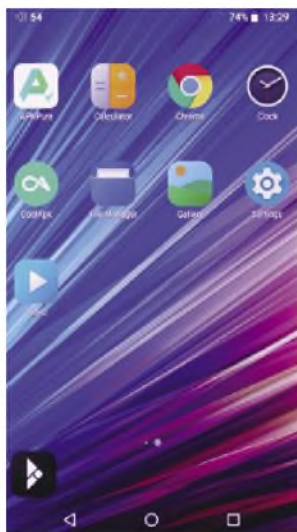
**Quintet Blue**  
December 2014



**Quintet Black S**  
July 2017



**Quintet Blue**  
July 2019



**The Home screen with apps and settings, plus at bottom left the Mango player app.**

starts at Oct 17 so this is a brand new design, relatively speaking. Cirrus claim 130dB dynamic range using the same EIAJ measurement method as Hi-Fi World, and we got an amazing 127dB from the DX160, the shortfall likely due to headphone output amps. used by iBasso, since Cirrus state output as 2V where the DX160 gives 3.2V. At present few hi-fi DACs manage better than 123dB.

I suspect others will be using this new Cirrus Logic DAC chip, but for now iBasso have brought it to market in timely fashion.

Measuring 70mm wide, 122mm high (not 113mm as quoted) and



**A high resolution volume control sits on the right side, whilst at top is a USB C socket.**

15mm deep, with a weight of 182gm on our scales, the DX160 is large for a shirt pocket but an easy fit most other places. It is sturdily built with a solid alloy chassis and large rotary volume control having 0.5dB steps, without decimation Cirrus say, so resolution (i.e. sound quality) is maintained at low volume settings.

A lot is made of DSD processing by Cirrus who claim a patented technique that avoids conversion to PCM for volume correction and filtering before the low pass output filter. So DSD is no afterthought in this player.

The internal 3200mAh re-chargeable battery provides 13 hours play time, iBasso claim. Needless to say, most file types are handled, including DSD256 (quad rate DSD).

I ran into peculiar problems when trying to load files to the DX160 from computer – not normally an issue with portable players. Plugging in, it charges from USB by default. Loading music demands access to Settings menu. External Devices and USB function where File Transfer must be selected – circuitous.

Initially, neither Mac (Mojave) nor PC (Windows 10) would see it. After hours of swops between computers, hubs and cables I finally established stable connection with a full-duplex USB 3 lead – but only into a USB 2 hub! The supplied lead was intermittent, as was a substitute, but this seemed a player issue: it accepted for 20seconds then rejected (went blank). I note iBasso claim use of 'bi-directional USB' so I wonder whether our supplied cable was wrong, just meant for charging.

The player's software did not interface with USB 3 from my Mac's Thunderbolt linked USB 3 charging hub, using the full-duplex USB3 lead. Instead, it was happy only with a USB 2 hub. Then the little green man of Android's loader appeared (Mac) and stayed on screen, allowing me to load music. Looks like the DX160 does not interface with latest USB 3 and needs USB 2, but as I understand it, USB 2 devices should work from USB 3.

Portable players usually interface more slickly with PCs than Macs, but my PC running latest Windows 10 did not see the DX160 either (via USB 2), using iBasso's



**Underneath lie a 4.4mm balanced output jack (top) and conventional 3.5mm stereo jack.**

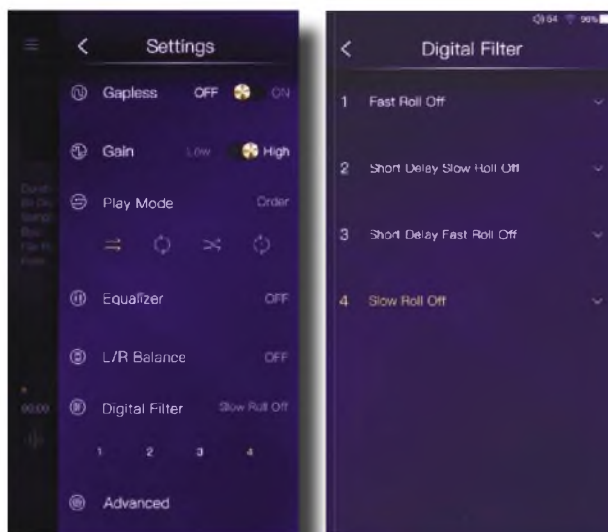
supplied cable. Swapping to the full-duplex USB 3 lead it appeared under 'Devices and drives' as an 'MTP USB device' when File Transfer was selected in the player.

Summarising, the DX160 failed to reliably see either Mac or PC until a full duplex USB 3 cable was used with a USB 2 interface! I got there in the end, but iBasso's software has problems in this area. It was illogical and peculiar.

A firmware update to 1.03.123 did not help overcome these issues, but updating was trouble free even from a Mac firmware download (that causes problems with some players due to hidden Mac files).

Loading music on a microSD card was trouble free, except the Mango music player did not address either card or internal memory consistently, offering a blank file screen initially, but it got there in the end after re-starts.

Our review sample came without



**The Mango player Settings menu and its Filter options (right). Note there is an equaliser.**

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WHAT HI-FI?



User Manual, only a brief start guide, and there was no manual loaded onto the player either, where most come with a full pdf guide. Perhaps an early review sample issue buyers will not experience.

On-board Viper software, invoked by File Manager, was Chinese only and unusable. I deleted it hoping a basic alternative would appear but there was none, rendering File Manager unusable. Oh well.

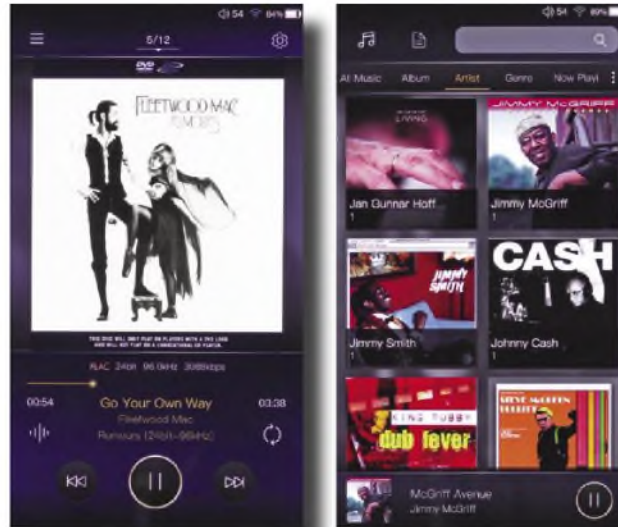
**SOUND QUALITY**

Running through a variety of uncompressed CD files I use as review tools and know well, it soon became obvious that the DX160 offers a brighter patina and a snappier sound than most of the current high end crop. There was more light and less silkiness within the sound.

With Fleetwood Mac's 'You Make Loving Fun' (24/96) opening cymbal strokes shimmered and the track set off at a firm pace, multi-tracked harmonies from Stevie Nicks spaciouly spread in open panorama behind. The guitar solo hovered against a clear background and there was conspicuous detail in the sound, making for an aura of business. Christine McVie's vocals stood out clearly, forward in the mix. The bass line was well etched if not as solid as you get from a mains powered DAC like Audiolab's M-DAC+ that I use as a side-by-side reference when reviewing portables, including this one. But this is always the case with battery driven equipment; the grunt is never quite there. Best to use digital S/PDIF out into a mains driven hi-fi DAC at home, avoiding internal analogue stages, if you want a firm low end at home.

There was no great change in character with DSD, where the choir of The Netherlands Bach Society singing Handel's Peace of Utrecht (DSD64) were well lit, sounding forward and specific. Lots of insight and midband forceful – a pushy sound even, unlike the AKM Velvet DACs in particular that are laid back. Same with Cyndee Peters singing House of the Rising Sun (DSD64) where triangle strikes were obvious but richly sonorous, saxophone powerful at left, blocks and hand drums vivid. The DX160 brought dynamic zest to this (normally) laid back track, with great focus on Cyndee Peter's closing lines.

Then the player suitably brought up Fleetwood Mac's I Don't Want to Know (24/96) that raced out of the



At left the Play screen with track info and at right album cover artworks with Artist selected.

gates, all pace and vigour, the guitar solo forward – as if to make clear to me that this is what I'm about. A wide range of review material, classical and Rock, confirmed this player's sonic character.

**CONCLUSION**

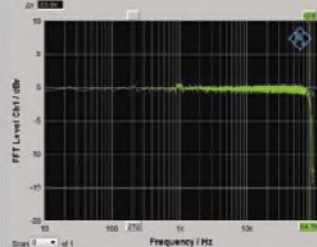
At heart the new iBasso DX160 is a fine player with a lively sound that's richly detailed. Its new Cirrus Logic

digital convertor chips are less silky but more snappy sounding than rivals, offering an interesting alternative. Our early review sample was difficult to load from a computer due to a USB cable issue, and was USB 2 only, but worked OK from a microSD card. These difficulties apart, breadth of ability and sound quality were exceptional by any standard – and especially at the price.

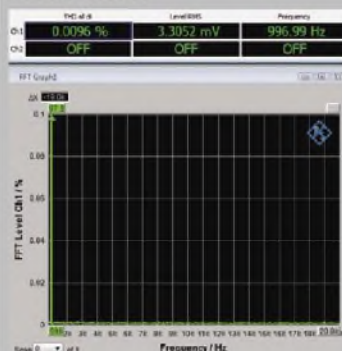
**MEASURED PERFORMANCE**

Via the 3.5mm headphone output, frequency response with 192kHz sample rate PCM rolled down above 84kHz (-1dB) to the upper theoretical limit of 96kHz, with Fast Roll Off filter selected.

**FREQUENCY RESPONSE**



**DISTORTION**



With Slow Roll Off (of four filters) selected the upper limit was 74kHz – minimal change. With 44.1kHz sample rate (CD) there was no change of the amplitude response, even with Slow Roll Off, where such filters commonly roll off high treble.

With 24/96 PCM, distortion at full level (0dB FS) measured 0.001% and at -60dB a very low 0.009% via the 3.5mm headphone output, lower than the best hi-fi DACs – an impressive result. Dynamic range (EIAJ), came in at 127dB, again better than hi-fi DACs – an extraordinary result.

Output from the 3.5mm stereo headphone jack (unbalanced) measured 3.2V with Gain at High, more than enough for all headphones, and 6.4V from the balanced output.

The measured performance of this player was exceptional, but the filters have little affect. **NK**

**Frequency response (192kHz,-1dB)** 4Hz-84kHz  
**Distortion (-60dB, 24bit)** 0.009%  
**Dynamic Range (EIAJ)** 127dB  
**Output (unbal/bal)** 3.2V/6.4V

**IBASSO DX160**  
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# vinyl section

## contents

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### REGA PLANAR 10 TURNTABLE PACKAGE 83

A high-end turntable with Apheta moving coil cartridge impresses Noel Keywood.

### RPM WOW & FLUTTER APP 87

Measure turntable speed, wow and flutter, with a phone app. Noel Keywood explains.

### SUMIKO AMETHYST CARTRIDGE 89

A new high-end MM cartridge from Sumiko gets Noel Keywood's attention.

### AUDIOPHILE BOOK 93

Paul Rigby reviews Time is Tight, from Booker T Jones.



### DEMON

From the respected UK record label ([www.demonmusicgroup.co.uk](http://www.demonmusicgroup.co.uk)), comes Suede's 20th anniversary of 'Head Music' over three discs, packed in a slip case, including one disc packed with B-sides.

Also look out for P&P Disco, underground New York disco cuts over two LPs and featuring the likes of Mary Clark, Ahzz, Cloud One and Bobby Mann.



# news



### MUNSTER

From this energetic, Spanish audiophile outfit ([munster-records.com](http://munster-records.com)) comes 'Thrilling Mortale', Italian library music from the Nelson Records archive featuring fascinating music/effects for Italian TV from 1970-76.

Decima Victima's 'El el Garaje' features unreleased material from 1983 from the Rock-ola stage. Classic, UK indie in style. I don't think the late John Peel ever played them...but they are perfect Peel fodder.

Also look out for salsa pioneer Roberto de la Barrera's 'Se Formo La Salsa' (1970) on the Vampi imprint; El Afrocombo's 1971 debut, 'Pan Con Salsa' and La Cumbia Moderna de Soledad's 'La Clavada' (1979) of Colombia folk and Colombian beat/garage outfit, The Silver Thunders. 'Me Gritan Melenudo' was rescued for reissue from tape cassettes and is packed with UK covers.



### GRATEFUL DEAD

In addition to the Mo-Fi release also reviewed here (top right), check out this Rhino live compilation release over two discs, within a gatefold sleeve, covering tracks from 1992-1995, the band's later years. Mastered very nicely from the group's soundboard tapes.



### BANDCAMP BEAUTIES

Marconi Union's tenth release, 'Dead Air' ([marconiunion.bandcamp.com](http://marconiunion.bandcamp.com)), bins the beats for sublime electronic ambience and tonal washes. About time, too. And rather lovely it is...

From Danish composer, Rasmus Kjaer, 'Turist' ([rasmuskjaer.bandcamp.com](http://rasmuskjaer.bandcamp.com)) offers an electronic primitivism backed by an appealing simplicity, over a relatively complex, and sometimes rather groovy, tribal canvas. How Lego sounds, plugged into the mains.





## MOBILE FIDELITY

In addition to the self-titled 1978 debut covered in last issue's Classic Cuts column, Mo-Fi ([www.mofi.com](http://www.mofi.com)) has also issued Dire Straits' 'Communique' (1979) which followed the first album's theme – plus the excellent 'Making Movies' (1980).

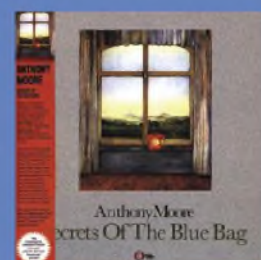
Also look out for one of the more successful studio outings from the Grateful Dead, 'From the Mars Hotel' (1974) where lead singer, Jerry Garcia, belies his slightly faltering lead vocal style, producing some superb lyrical translations.



## WAH WAH

From this Spanish audiophile label ([www.wah-wahsupersonic.com](http://www.wah-wahsupersonic.com)) comes avant-garde composer, Anthony Moore who would work with Slapp Happy (1972), Henry Cow (1975) and with Peter Blegvad, Kevin Ayers and future Police man, Andy Summers on Out and post Roger Water's Pink Floyd as lyricist. Both of these albums, 'Pieces From the Cloudland Ballroom' and 'Secrets of the Blue Bag' (1972) present avant-garde compositions in a Steve Reich-esque mode.

Also look out for 16-year old, UK, one-hit mod wonder, Twinkle who's biker boyfriend death song from 1964 was a hit and then banned by the BBC for bad taste. This release collects her Decca singles.



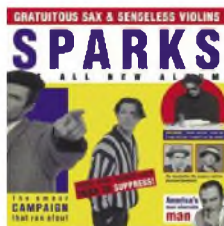
## MUSIC ON VINYL

A new batch from this prolific label ([www.musiconvinyl.com](http://www.musiconvinyl.com)) includes Alice Cooper's 2LP 'Classicks' (1995). Limited to 2,000 copies, this numbered red vinyl edition includes a range of guests such as Nikki Sixx, Joe Perry, Ozzy Osbourne and Steve Vai.



Onto post-grunge, rock outfit Third Eye Blind and 'Out of the Vein' (2003). The band offers a big, commercial sound but this LP curiously lacks the expected hooks.

His post Nazzy solo release, Todd Rundgren's 'Runt' (1971) features an out-pouring of pure talent, multiple genres and innovation. One LP is hardly enough room to contain it all!



## SPARKS

Two from this quirky rock outfit. 'Past Tense' is a 3LP hits compilation (BMG) including a few rarities: 'Computer Girl' (1967), unreleased version of 'Piss Off' (2004) and the Black Friday limited-edition, 'Check Out Time I Iam' (2017).

Also look for 'Gratuitous Sax and Senseless Violins' (BMG; 1994). The vinyl/2CD package I looked at includes B-sides, live and remixed tracks and twelve unreleased demos and five unheard tracks from the never released 'Christi Haydon' EP.



## TONY JOE WHITE

First time on vinyl is Run Out Groove's 'Swamp Music' from the country-blues singer. Spread over three discs, set into a tri-fold sleeve, it includes a host of alternative takes, demos and other rarities. Limited and numbered to 1,450 copies worldwide, it hosts his work at the Monument label. A superb set.

## ALVA NOTO & RYUICHI SAKAMOTO

Both have worked together on a range of projects: four albums, a film soundtrack plus others. 'Two' (Noton; [noton.info](http://noton.info)) is a beautiful, live LP, recorded at the Sydney Opera House. It combines past work and improv. Delicate and introspective.



## ...AND FINALLY

A new picture disc from Disney covers music from the film, 'The Princess and the Frog'. Randy Newman's songs are covered by the likes of the late Dr John and more.

From Germany's audiophile label, Bear Family ([www.bear-family.com](http://www.bear-family.com)) comes 'Don't Knock the Rock' (1957), a film soundtrack (of the same name) originally issued in Australia/New Zealand. On 10" transparent vinyl the disc includes two bonus tracks.

Finally, from Parlophone, is Tina Turner's hits package, 'Simply the Best' including 'What's Love Got to Do With it' and more over two discs.





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# Analogue Judgement

**A finely judged turntable package from Rega lifts analogue to its best, thinks Noel Keywood.**

**R**ega's RB300 arm was always one of my favourites. A unique one-piece design, it was easy to use, affordable yet gave superb sound, mainly due to its rigidity. Their Planar 10 turntable I'm reviewing here gets a modern update, the polished aluminium RB3000, supported by a two-speed turntable

on vestigial plinth, accompanied by external electronic power supply. Price £4499 when fitted with their Apheta 3 moving coil cartridge, as ours was.

Whilst Rega arms have been consistent in basic design pattern, their turntables have differed more widely and the Planar 10 maintains this thrust. It is still a belt drive with

small hub and top-platter, but the plinth has shrunk to minimal size and weight, whilst retaining rigidity. Weighing just 4.7kg total it is easy to move, especially with the heavy ceramic platter removed. The three





**Below the arm sits a bias adjuster that is pulled forward or backward to set force.**

feet are non-adjustable for height and possess little damping so I would recommend this deck is used on a firm and level surface, such as a marble slab, or perhaps sand-filled two-part shelf. A nice project for DIYers!

Being light and compact, however, with dimensions of 429mm wide, 315mm deep and 125mm high (dust cover on) it can be slotted in places other turntables cannot go, a plus point. The simple formed acrylic dust cover must be removed completely during use, having the advantage of not demanding top clearance of hinged lids, again reducing space demand. But you have to put the cover nearby, perhaps standing it vertically on a shelf.

The plinth carries 24V a.c. motor fed by an external power supply – and the latter is large, measuring 218mm wide, 320mm deep and 80mm high, weight 3kg. It must be within 1m length (3ft) of the turntable's connecting cable and accessible, since speed select is located here, as well as speed adjust at rear, should it be needed.

The Planar 10 pays more attention to the issue of speed and speed stability than previous models, perhaps as Technics have drawn attention to it with their recent SL-1200GR and SL-1200GAE Direct Drives that deliver class leading figures. The Planar 10 was speed accurate and stable as belt drives go, our measurements showed, if not quite up to Technics Direct Drive standards.

But there is more to a turntable

than just speed stability – and Rega's glorious arm and impressive Apheta 3 cartridge had a big part to play in what I heard from this package, Technics having no answer to this except in after-market re-fits such as those from Sound Hi-Fi.

As Rega claim for Planar 10, our review sample was right on correct speed. Speed can be changed

it is contributory to stage depth and firm bass I heard.

**SOUND QUALITY**

I connected the Planar 10 to our Icon Audio PS3 Mk2 valve phono stage, with its super-quiet input transformer. It fed an Icon Audio Stereo 30SE single-ended valve amplifier via Chord Company Epic



**Rega's lightweight vestigial plinth has a plate coupling arm to centre spindle, to eliminate relative movement between them.**

however, at rear and in small increments, Rega suggesting use of the RPM 'phone app for anyone wanting to do this, or their own quartz locked stroboscope light and disc.

Just in case you are wondering, the Planar 10 is all manual; there are no auto systems of any sort. Press 33 or 45rpm speed buttons on the power supply to start, then manually place arm on LP using the damped lift/lower platform. I hand cue and found the RB3000 has a peculiarly short and strongly curved finger lift I don't recall on the RB300; it did not suit my digit but if you have diddly digits then perhaps it may.

Build quality is very good, the RB3000 arm in particular being superb. It is strapped to the platter main bearing to prevent relative movement between the two and I would guess Rega have made the plinth vestigial so as not to store energy. I also suspect the heavy ceramic platter contributes to sound because platters seem to do this. My favourite platter material is thick acrylic (Perspex etc), not metals or glass. I've not heard a heavy ceramic platter before and wonder whether

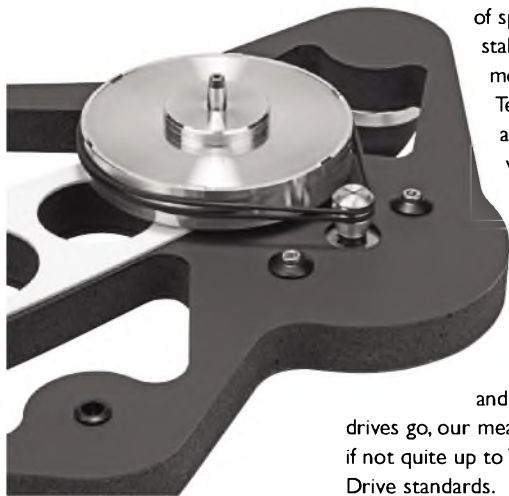


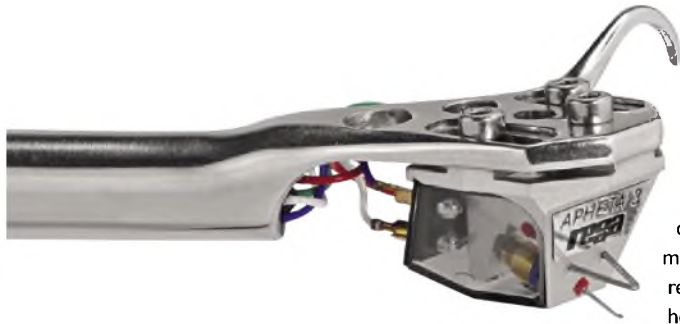
**Our underside view shows the three, non-adjustable feet, motor and main bearing.**

interconnects. Loudspeakers were Martin Logan ESL-X hybrid electrostatics hooked up with Chord Company Signature Reference cables.

Spinning Fanfare for the Common Man, from Two Countries One Heart, a 180gm all-analogue LP that has superb balance, I was immediately engaged by the strength and suppleness of the opening drum rolls, hearing the sort of powerful but

**Belt drive to the hub in classic fashion, speed set by the motor power supply, not by moving belt on pulley.**





**The Apheta 3 MC cartridge has a three point fixing into the headshell, for improved mechanical coupling and rigidity.**

tight bass so many crave. There was insight too, the track coming over as atmospheric. Horns were rich and sonorous, blaring from a deep background. As the grooves slipped by I also became aware of a softly smooth rendition free from spit or groove noise; the Apheta 3 cartridge has a mild top end delivery that makes it gentle in the high regions.

With Time to Say Goodbye, on inner grooves where things can get a bit muddled with a poor stylus, the Apheta 3 maintained its composure, Rosella Caporale's soaring vocal firm and clear, unmuddled by inner groove hash. I use this LP as a balanced benchmark – and Rega's Planar 10 delivered it in fine form, with massive low end power, superb stage depth and mild yet refined treble. For me this was a supremely enjoyable listen – 100% analogue.

Enthused, I put on the Direct Cut of Sing Sing Sing, from the Syd Lawrence orchestra, from Big Band Spectacular – and it was just that – spectacular. The live fast drumwork

came over with grippy timing and resonant power, pushing out at me with eye-popping drama. A recent, miked-up live studio recording, I got to hear the background acoustic and – again

– great atmosphere as a result. It was like being there. The Planar 10 comes over as smooth, clean and muscular in dynamic contrast. Absent were edginess, noise, sibilance or spit, making for a seemingly 'quiet' rendition. Less, but more.

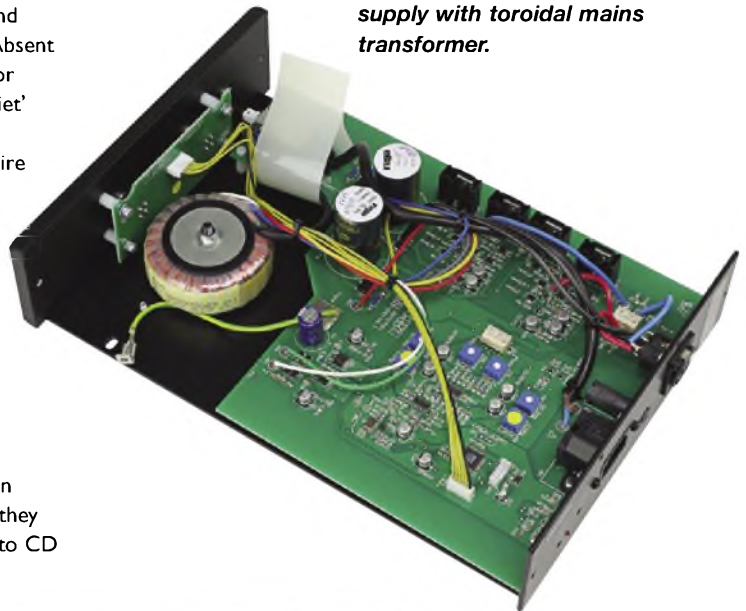
With straight Rock from Dire Straits, courtesy of Mobile Fidelity's 45rpm all-analogue re-master of Love Over Gold, finger picked guitar strings cut out cleanly in The Man's Too Strong, Knopfler's crashing chords having impact, without muddle.

**CONCLUSION**

Rega's Planar 10 is very much an analogue turntable. Yes, I know they all are – but some push closer to CD balance these days.

Not this one. It's fulsome, bass powerful and lush. With great stage depth, pin sharp imaging and no sign of noise – due substantially to the Apheta 3 cartridge in a great arm. The Planar 10 is a wonderfully judged analogue spinner well worth hearing. It is mild up top but all the same I could definitely live with it.

**The external linear power supply with toroidal mains transformer.**



**At rear of the power supply motor speed can be adjusted in increments.**

**MEASURED PERFORMANCE**

The 3150Hz test tone of a DIN 45-452 test disc was reproduced as exactly 3150Hz on our Wow&Flutter meter, with little wander of +/-2Hz Hz around nominal.

Low speed wander results in low Wow (low rate speed variation), the Planar 10 hovering around 0.1% and Flutter 0.05% – good results. Total Wow&Flutter (DIN weighted) measured 0.07%, again a good result. Measured to the Japanese JIS Standard for comparison with Japanese turntables total Wow&Flutter (wtd) measured 0.05%, JIS always giving a lower reading than German/European DIN. Our analysis shows the usual peak at 33rpm (0.55Hz), at low-ish level, plus harmonics and minimal flutter (right).

Frequency response of the Apheta 3 cartridge shows pronounced roll down in

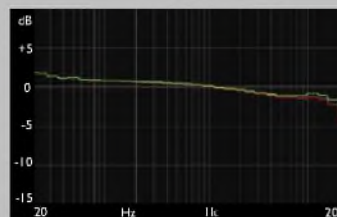
high frequencies, enough to give a mild sounding balance, likely full bodied though and with strong bass. Inner groove tracing loss (red trace) was minimal, due to effective stylus geometry – an excellent result.

Tracking at 2gm VTF was good, slight mistracking occurring on the 80µm (outer) band of Clearaudio's trackability test record LPT 83063 – but this is a high cut. The 90µm band caused severe mistracking.

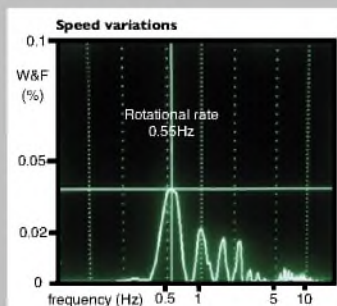
The Planar 10 turntable measured well and the Apheta 3 is distinctive in frequency balance. **NK**

<b>Speed error</b>	<b>0%</b>
<b>Wow</b>	<b>0.1%</b>
<b>Flutter</b>	<b>0.05%</b>
<b>Wow &amp; Flutter (DIN wtd.)</b>	<b>0.07%</b>

**FREQUENCY RESPONSE**



**WOW & FLUTTER**



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# Spin your mobile

**With the RPM app your mobile phone can tell you turntable speed – and how it is changing. Noel Keywood investigates.**

**Y**ou can now measure the speed accuracy and stability of your turntable with a mobile 'phone app. Who would have believed it! Cost \$9.99 (Pro version) and technology off this planet. Rega acknowledge the RPM app as a useful tool that gives readings corresponding with their own. But is it useful – or misleading?

There's a freebie sampler but you need to splash the cash and get the Pro version. It uses the gyroscope sensor in a mobile 'phone to read rotational rate of a turntable platter, and variations in that rate. An amazing idea. I have dreamed of shaft encoders or optical edge discs to read platter speed, as a way to avoid the problems of traditional test discs, but could not have conceived of this method. You simply place your phone on the platter, press turntable Start, watch the 'phone spin around and around then get a nice, big clear

reading up on the screen of speed accuracy and wow/flutter.

The free download shows basic operation and eerie ability of the app to show speed and speed error – deviation from 33.33rpm. The Pro version adds in much more, including auto-calibration, graphical readouts and access to an on-line, world-wide data base of readings uploaded by app users. That is potentially scary, because user measurement error will distort the picture and this is not the world's simplest measurement to make. But I'm interested here in talking about basic accuracy of the method and what you can get from it.

So let's get right back to Rega's Planar 10. After running calibration routine RPM declared it running 0.11% fast, with 'wow/flutter 0.22%'. Our DIN 45-455 test disc showed the Planar 10 to have no speed error, but a speed difference between the two of 0.11% is minuscule and inconsequential. This is a high degree



**What the RPM app said about Rega's Planar 10. Claims it is +0.11% fast but we say it is not: there was no speed error. However, the difference is minuscule and likely measurement error.**



**Lay phone beside spindle – the simplest way to use this app and it gave a correct result.**

of accuracy, so the app works almost alarmingly well here. The conventional alternative is a test disc and frequency counter, cost £150 or so.

The 'wow/flutter 0.22%' value is a peak-to-peak reading double the peak reading from traditional Wow&Flutter meters. So RPM's figure closely matches our 0.07% DIN peak reading. Note however that the simple peak-to-peak value this app delivers is more than twice as high as the weighted peak values from a Wow & Flutter meter, so no deck will meet



**Recommended is to lay phone over spindle (i.e. at true centre) but it must be kept low. We use a plastic lid here, but best to experiment. Values change a little even with different platter mats, or no platter mat. Extraordinary resolution.**

its manufacturer's figures and in this respect the app is misleading, even though it is accurate in itself. The value displayed is computed from data of speed (variation) over time and the app interestingly displays this as a waveform.

In quick, outline conclusion the RPM app is extraordinarily accurate in measurement of speed accuracy and has impressive resolution of speed variation, the graph containing a mass of data that needs expert analysis, that I'll explain further below. This is an extraordinary app, using the gyroscope of a 'phone to yield deep insight into turntable speed and speed variation. Just bear in mind that it delivers a high peak-to-peak 'wow/flutter' value that will be at least double quoted values. All the same, well worth downloading if you want to see what your turntable is up to, speed-wise at least.

**USING THE APP**

The position of the phone affects results. It is most easily laid flat on the platter tangential to the spindle

as our picture shows. Advice is to place it at true centre, meaning over the spindle. This will give a marginally better result if the phone lies just above the spindle on, say, a reel of Sellotape. Raise it high and the rocking motion of the platter as it precesses in its bearing will be amplified, giving a falsely high reading, so keep the phone low.

Similarly, if you place the phone on the platter's outer edge the reading will go up since amplitude of mechanical rocking motion is greater here, affecting frequency change (modulation). I found even

the platter mat affected results, so there's a lot to experiment with.

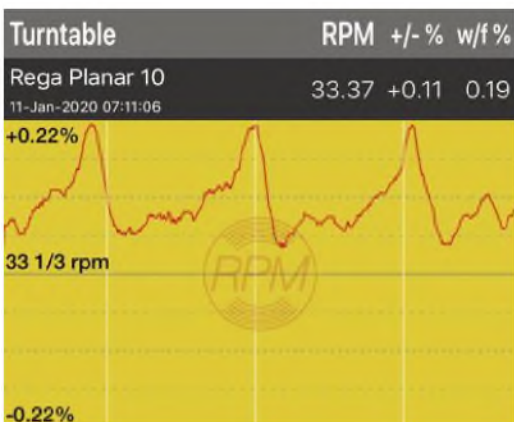
The graphical readout of speed over time should ideally show smooth sinusoidal variation over one rotation. Belt drives rarely achieve this and Rega's Planar 10 was no exception, smoothness of the sinusoid being affected by higher order components. Our Technics SL-1210 Direct Drive got close but still had regular variance over a rotational cycle of 33rpm/0.55Hz, returning 'wow/flutter 0.17%' (our conventional measurement: 0.06%). Spectrum analysis of the data would reveal more.

Bear in mind that all turntables vary speed at basic rotational rate (once per revolution or 0.55Hz), it's just a matter of how much and in



**Our Technics SL-1210 Direct Drive turntable shows smooth cyclic variation at 33rpm/0.55Hz, of 0.17% peak-to-peak (0.08% peak). The value changes with phone position so is not definitive.**

"The RPM app is extraordinarily accurate in measurement of speed accuracy"



**Rega's Planar 10 turntable shows cyclic variation at 33rpm/0.55Hz, of 0.22% peak-to-peak (0.11% peak) but it is not a smooth sinusoidal variation, meaning there are harmonics. The value changes with phone position so is not definitive.**

what fashion. Because this app (i.e. the phone) has enormous resolution what you see may look bad but it's actually small and as expected.

The graph of speed against time this app provides is both correct and detailed. It will show you whether your turntable is changing speed in regular or irregular fashion – and by how much. Extraordinary for a \$9.99 app.

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# Diamond issue

**Is Amethyst a diamond? Noel Keywood investigates Sumiko's high-end MM cartridge.**



**S**umiko's Amethyst moving magnet phono (MM) cartridge comes in at the high end, priced from £550 to £630. That puts it well above Audio Technica's VM95SH (£180) and Ortofon's 2M Black (£495), both of which set high standards. Moving magnet cartridge design gets progressively better with time, and today's designs differ much from those of yesterday. Think, bright-

VM95 and Ortofon 2M cartridges, that additionally benefit from Shibata or Fritiz Geiger tip profiles. But at this price level Audio Technica use a tapered aluminium cantilever in their VM750SH with Shibata tip (£400), to get the Amethyst into market context. High-end MM cartridges are pretty sophisticated nowadays.

The black plastic body has captive nuts as is becoming common, making arm fitment easy, especially

loudspeakers through Chord Company Signature Reference cables. A minimalist but accurate and revealing system.

The roll down in treble revealed by measurement was obvious, Neil Young's *Tell Me Why*, from *After The Goldrush* (180gm all-analogue remaster) coming over as full bodied yet soft and easy going. The cutting edge of his closely miked guitar strings was muted: instead I heard a gentler delivery. There was body to his guitar and vocals were solid centre-stage but the sound was easier than I know it, rather than forward and challenging.

With Hugh Masekela's *Uptownship* from *Hope* (Analogue

"It offers the sound of the past with performance of today"

er, clearer and more detailed. More like digital in fact, if still with analogue smoothness.

The Amethyst comes into this challenging environment with an interesting proposition sound wise – one I have sympathy with. It offers the sound of the past with performance of today, at least in outline. That means lovely analogue smoothness and body, conspicuously free of digital harshness. Of which I'll say more later.

The Amethyst is a straightforward MM design wise. It has a removable stylus that's easily replaceable if damaged. A 0.5mm aluminium cantilever tube carries a nude line-contact stylus Sumiko say. This is conventional construction, similar to Goldrings, Audio Technica

in fixed head shell designs such as Regas. Two sets of hex head screws are supplied, but with no hex key to tighten them nor protective headshell washers – unfortunate omissions at the price. There is a stylus brush though.

## SOUND QUALITY

I fitted the Amethyst to our SME309 arm, mounted on a Timestep Evo modified Technics SL-1210 Mk2 Direct Drive turntable. It fed an Icon Audio PS3 MkII valve phono stage, driving an Icon Audio Stereo30 SE single-ended valve amplifier, hooked up to Martin Logan ESL-X hybrid electrostatic



**At rear lie conventional connecting pins, right channel being red (+) and green, left channel white (+) and blue.**

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*The cantilever uses a parallel sided aluminium tube with, Sumiko say, a line contact stylus attached direct (nude). The stylus assembly can be removed for replacement.*

**CONCLUSION**

Sumiko's Amethyst moving magnet cartridge has a warm sound replete with analogue smoothness. Strong, firm bass gives it a muscular quality, and excellent tracking a confidence of delivery. It lacks detail retrieval and insight however that, at the price, others manage better at less cost. So a nice cartridge in itself if you want such a sound balance, but expensive against modern, more technologically sophisticated rivals.

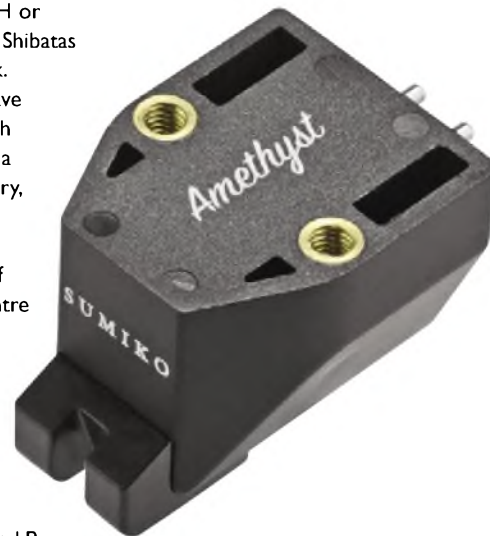
productions, 180gm all-analogue) kick drum strikes had weight and impact, Masekela's trumpet blaring out confidently. Hand drums sped along, if without the transient attack of cartridges with stronger treble. There was a sense of strength and confidence to the sound, that latter coming from this cartridge's excellent tracking ability I suspect.

Fleetwood Mac's Dreams, from Rumours, was nicely handled from our old original pressing, surface noise from a much played LP barely obvious. The bass line had weight and sat forward in the mix, providing a firm underpinning. Mick Fleetwood's drum kit was similarly wrought large, with presence on the sound stage.

Spinning a later re-master of Rumours, that has less treble, the Amethyst gave an obviously warm balance lacking in high end detail. Cartridges with stronger treble and

greater high frequency insight, such as Audio Technica's VM95 SH or Ortofon's 2M Black – both Shibatas – get further into this track.

Whilst the Amethyst gave a good account of itself with Rock, with strong bass and a dynamically muscular delivery, Marianne Thorsen's violin on 2L's LP of Mozart violin concertos was a bit hard of tone and generalised at centre stage, with some blur to strings. This track reveals what a well profiled modern stylus, such as a Shibata, can do – and the Amethyst lacked such insight. However, classical music never was popular on LP because of ticks and pops, especially on low levels, so my observations may not concern too many listeners here.



*The body has blind threaded brass inserts at top for easy fixing. They accept short screws (supplied) only.*

**MEASURED PERFORMANCE**

Frequency response of the Amethyst falls slowly and smoothly above 1kHz due to classic generator loss before output moves back up at 12kHz due to tip resonance.

Inner groove tracing loss (red trace) due to tip radius is on the low side up to 15kHz, just -2dB, but rises steeply to -4dB at 20kHz. Overall, the Amethyst will have a fairly relaxed sound balance in keeping with the vinyl disc, but on inner grooves will sound warm. Other tip profiles suffer less loss on inner grooves, around -2dB at 20kHz.

Tracking of standard 300Hz test tones on CBS-STR112 test disc was excellent, the Amethyst clearing a very high 90µm lateral track at 2gm down force (recommended). At 1kHz (B&G2010) where acceleration is higher and tip mass more influential the highest 25cms/sec band was cleared – surprising since few cartridges achieve this. The waveform was distorted but the stylus stayed in the

groove without mistracking – an excellent result.

Distortion was higher than usual at 1.5% on lateral modulation against a typical figure of 1% (CBS-STR112 test disc).

On vertical modulation distortion rose to a high-ish 4.6% due to a measured vertical tracking angle of 28 degrees (DIN 45-452 test disc). Optimal is 22 degrees but high VTA – up to 30 degrees – is common, to maintain clearance above the disc. So not a low distortion cartridge, if not different from many.

Output measured a low 2.4mV at 3.45cm/sec due to low magnet strength or high physical clearances in the generator. Volume will have to be turned up.

The Amethyst has falling treble and will sound warm, but full bodied in consequence. It tracks very well, but output is low by current standards. **NK**

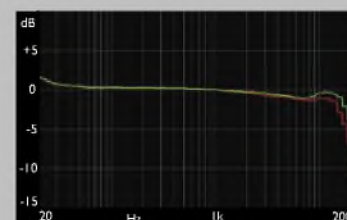
**Tracking force 1.8-2.2gm**

**Weight 6.5gms**  
**Vertical tracking angle 28degrees**  
**Frequency response 25Hz-16kHz**  
**Channel separation 22dB**

**Tracking ability (300Hz)**  
**lateral 90µm**  
**vertical 45µm**  
**lateral (1kHz) 25cms/sec.**

**Distortion (45µm)**  
**lateral 1.5%**  
**vertical 4.6%**  
**Output (3.45cms/sec rms) 2.4mV**

**FREQUENCY RESPONSE**



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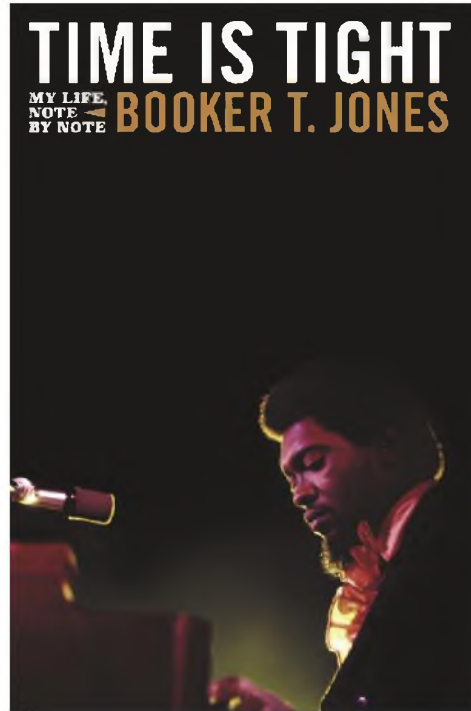
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# Tightly timed

**Green Onions and its cool timing made Booker T and the MGs, says Paul Rigby. Here is a book about it all from leader Booker T Jones.**

**TIME IS TIGHT**  
**My Life, Note by Note**  
 Author: **Booker T. Jones Little,**  
**Brown & Company**  
 Price: **£14.00**



**G**reen Onions. That's all you really need to say. From those two trigger words you should receive a whole host of information. Stax records and their superlative soul/R&B output, the in-house band that he was a major part of called Booker T. & the M.G.s, backing superstar singers such as Otis Redding and Wilson Pickett and the band's own time in the sun, releasing LPs of their own and finding their own fame.

Jones' own performance hinged on his organ playing, the Hammond B-3 to be specific. A sound that I personally find quite delicious. But how about his book? Will you also consider it tasty?

From his first recorded time listening to swing/jazz outfit, Al Jackson Snr's band played live in the only open space in South Memphis open to blacks, the aptly named Lincoln Park, a time that so overwhelmed him, the seven year old let go of the kite he was carrying and forever lost it to the wind, music subsequently dominated Jones' life.

That continued after he played his new clarinet to the waiting room right after he'd had a haircut, down at his local barbers. The applause he received moved him towards a, "nervous bow." Then again, music was all around. His mother played piano, his grandmother was a piano teacher, even the boy next door played oboe.

Learning the piano, he was an eager student. It was 1954 when

he took organ lessons. He was lucky to do that. Hammond B-3s were incredibly expensive. At that time, a two-bedroom house cost \$6,000 while a B-3 would set you back \$4,000. He didn't know it then, but even at the age of nine, he was already 'home'.

The book is a Curate's Egg. Firstly, it's very easy to read. Jones' style is simple in form, with a flowing narrative that is easily digested. His story is told in an object-oriented manner.

In Jones' case, he will place his central story at the core but he will bounce around times and places to add form and context. It's a bit like listening to bop-jazz, a genre Jones himself loves. That is, this story is not a straight A-B-C, it's an A-d-B-m-C-x and so on. It might seem confusing but it tends to work in practice. That said, the book becomes a collection of moments instead of a complete story and I wanted a lot more information.

Hence, Jones can address some issues briefly, possibly too briefly. The band's initial split, for example. Also, the murder of his drummer, Al Jackson is handled succinctly and, yes, emotionally, but only in two pages. I wanted more. Lots of other issues prompt the same response.

Jones' style is relaxed and at ease. Some writers almost shriek off the page. In this book, you feel like you're taking a relaxing walk with the man or sitting on the porch, sharing a beer with him as he slowly

allows his story to unfold. He likes to recount conversations, even though it's debatable whether he accurately remembers any or all of them from so long ago. The thing is, they seem right and you're more than prepared to suspend reality to enter into his history.

The emergence of the seminal hit, Green Onions – which was intended to be a mere B-side to 'Behave Yourself' – was created during down time in the studio after Jones had been playing with rhythms elsewhere. The rest of the future MGs worked with him, initially declaring the track "...so funky it smells like onions!" Then "Funky" turned to "Green" and the band was named there and then, after a British MG car was seen sitting outside the studio window at the time, incredibly enough.

Despite the quirks, 'Time is Tight' remains a fine book and a fine read by a man positioned right at the centre of music and music history.

**PR**



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This new loudspeaker promises to sound very different. Don't miss our in-depth review, with measurement, in the next great issue of Hi-Fi World.

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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, we cannot guarantee that all products listed above will appear.

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## ADVERTISERS INDEX

Absolute Sounds	OBC
Advanced MP3 Players	88
Atlas Cables	88
Audio T	78
Auralic	66
Billy Vee	92
Black Rhodium	72
Chord Electronics	IBC
Criterion	90
Decent Audio	18,19
Divine Audio	88
EnjoyTheMusic.com	92
Exposure	26
Hard to find Hi-Fi	50,51
Henley Audio	14,38,64,70,76
Ian Harrison	90
Icon Audio	10
Infidelity	88
Jordan Acoustics	34,35
KEF	42
Kirmuss Audio	68
MCRU	54
MF Audio	94
Oxford Audio	88
Peak Hi-Fi	92
PMC	46
Quadral	74
SCV	44
Sound Hi-Fi	68
Spendor	6
TelluriumQ	82
The Chord Company	IFC
Titan Audio	90
World Designs	94

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# MADONNA

## LIKE A VIRGIN

SIRE



"This LP turned Madonna into a true superstar"

**S**he was a force in music, changing the scene with a combination of pop and disco dance-infused rhythms while lifting other people's edgy themes and sounds into her sphere, coating them with a commercial veneer and selling them by the bucket load. The fact that MTV emerged at the same time was a match made in heaven for the pair.

In many ways, she was a David Bowie clone in the way she not only changed her image every five minutes but manipulated that image to hang upon her latest record release, maximising sales alongside.

To celebrate her royal blondness, Sire has reissued Madonna's four first LPs 'as is'. That is, there are no extras included. One of those, 'Like a Virgin', I feature here but it's worth looking at the other three because they form a sort of early narrative to who and what the singer became. They set the scene and add context to 'Like a Virgin'.

Her self-titled debut had the style, the image and the sex appeal but also good pop songs. Not great pop songs you understand, but the entire package, mixed in the commercial bowl, produced a new phenomenon. The package (and Madonna was nothing if not a packaged pop star) was a brilliant concoction with the fiery little lady at the centre of it.

'True Blue', album No.3, offered more manipulative pop – and what is pop if it's not manipulative? – via 'Papa Don't Preach', more gloss, more sex, more paper-thin Hollywood set dressing but it's classic pop, nevertheless. Not a classic album. Certainly classic pop, though. Madonna is a star throughout.

The 'Who's That Girl' soundtrack provides just four tracks from Madonna but even there, you'll find the title track and 'Causing a Commotion', relatively minor meteor strikes for this star of pop.

It was 'Like a Virgin' that was not only the breakthrough LP, but – in computer or smartphone terms – a 'killer app' of her position as star and also the LP that would burn itself into listener's consciousnesses. That is, even when they were hearing later songs, later hits, they were also hearing the title track from this LP, warbling in the background.

"I may have been insecure" she told The Guardian, "I may have felt like a nobody but I knew I had to do something. If I was going to make something out of my life, I had to, you know, hurl myself into the dark space, go down the road less travelled. Otherwise, why live?"

This LP turned Madonna into a true superstar. With Nile Rodgers at the helm it's no real surprise, but the buxom bride on the sleeve screamed attitude and determination. The title track and 'Material Girl' also provided quality pop fare, even if the rest of the album couldn't keep up.

Madonna herself was overwhelmed by the entire experience. "It took my breath away. I can't begin to tell you. I remember the first concert I did on the Virgin tour, in Seattle, when everything became big and I had no way of being prepared for it. It literally sucked the life out of me, sucked the air out of my lungs when I walked on stage. I sort of had an out-of-body experience. Not a bad feeling, not an out-of-control feeling, but an otherworldly feeling that nothing could prepare you for".

The newly reissued album looks good in audiophile terms. So, apart from the disc appearing on virgin vinyl, what's the mastering like?

There is a slight digital sheen over the master here. A hard edge around the upper mids with a slightly brittle bass presentation. The effect is relatively minor in broad terms but the tone is there and it affects the entire album.

I took a moment to do a bit of research on this recording and found that the original master was completed on a Sony DASH multitrack. Hence, the digital highlight is endemic, part of the album's very DNA. On that basis, the mastering is very good indeed because, although the digital effects are noticeable, they are not dominant and don't spoil the overall enjoyment of the piece. Yes, it would have been nicer not to have them at all but the master has softened and reduced the impact by injecting as much air and space into the sound as possible.

If you want to explore a major chapter in pop, this album provides all the raw material (girl) you need. **PR**



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