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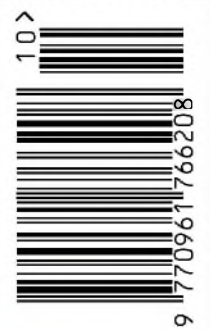
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Hi-Fi World Dec 2017

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Paul Rigby, Jon Myles, Martin Pipe,
David Tutt.



A great sound, one that moves you, mimics real life. There are dramatic sounds: think FA cabinet pumping raw acoustic power at you at a concert. But that's more about getting the musical message across in a brutish way – an acoustic bulldozer. Fine for a thrill at a concert but not for the home where subtlety is needed, a sound that is convincing of the real thing. One with the lively dynamics and rich timbral content I hear from my son's Simon and Patrick acoustic guitar that has obviously gorgeous tone – a quality that struggles to get

through conventional solid-state amplifiers.

Enter valves! Pass music through valves and suddenly the lushness and plausibility return. Vincent of Germany have been producing solidly built hybrid valve amplifiers for a long time, they are well honed and I love listening to them. That's why I and others at Hi-Fi World enjoyed the SV-237MK on p11 so much – a sound different from the herd. It got a big thumbs up from all of us.

Everyone wants to produce a killer turntable able to grab a useful slice of expanding turntable sales around the world. Direct Drive in a solid plinth fitted with a decent arm is a good way to go. Technics have revived this sector with a fabulous new product range – but you pay for such carefully manicured quality. Reloop of Germany use Hanpin of Taiwan to produce a very interesting budget alternative. Don't miss our insightful measurements and in-depth review on p84.

Staying on the subject of vinyl, Hana's SL Mono cartridge reviewed by Paul Rigby on p89 caused consternation. It's an expensive moving coil purposed for old LPs, yet fitted with an advanced Shibata stylus profile seemingly incompatible with the period, where conical styli reigned. We all puzzled over its specification. But after discussion and research – see p93 – it turns out the Hana is a high performance modern MC cartridge well tuned to exploit historical musical performances on mono LPs. Vinyl is far from dead, it is just awaking – and we are right with it as always.

Noel Keywood
Editor



testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

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

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

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

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

hi-fi world

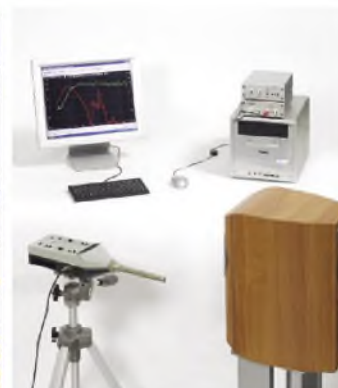
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"Tellurium Q Statements are no usual cable affair and if I've called the Silver Diamonds an Emotional Tour de Force what are then the Tellurium Q Statements!? Well, they certainly transcend any typical labeling and this time I'm elevating them on the throne, that they clearly deserve. Their stand out, extraordinary performance can only be recognized with the 2018 Editor Choice Award!"

-Matej Isak, Mono & Stereo

"...you have managed to surpass them [Silver Diamonds] in a truly grand way."



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news

New B&W 600 Series loudspeakers

Bowers & Wilkins has renewed its 600 series of loudspeakers – more than a million pairs of which have been sold over the best part of a quarter-century. The changes go beyond skin deep, using technology trickled down from the firm's upscale 800 models.

Gone are the distinctive yellow Kevlar cones of old; the 800s Continuum woofer, with its greater resilience to break-up under demanding conditions, has made it in cost-reduced form to the new range. Among the claimed benefits are improved transparency and accuracy. Looking after the other end of the audible spectrum, meanwhile, is an updated version of the Decoupled Double Dome (DDD) tweeter in fifth iteration. All models also benefit from rear-mounted ports and new crossover components.

The new 600 range kicks off with the compact £399 607 model. Intended for stand or bookshelf placement, it is a 2-way vented enclosure featuring a 130mm Continuum bass/mid driver and 25mm DDD tweeter. In the middle of the range is the £549 606, an enhanced 2-way bookshelf model replacing the 685 S2. The same tweeter is used but a 165mm Continuum woofer improves its low-end.

Meanwhile those with £1249 to spend might consider the 603. This 3-way ported floorstander relies on two 165mm paper-coned drivers for the bass, its FST-updated (Fixed Suspension Transducer) Continuum driver looking after the key presence region. A 25mm DDD tweeter reproduces treble.

For home-cinema use there's the £399 HTM6 centre speaker (two 130mm Continuum drivers, plus one 25mm DDD tweeter) and a trio of active subwoofers (8in and 10in drivers in 200W and 500W configurations, ranging in price from £399 to £799).

At a listening room in B&W's London offices the new B&Ws sounded impressive in terms of timing and resolution of detail; furthermore, even the entry-level 607 punched above its weight in low-frequency terms. Expect to see reviews in Hi-Fi World soon – in the meantime, more details can be found at www.bowers-wilkins.com.



ORTOFON – A CENTURY NOT OUT!

To celebrate its centenary (on October 9th 2018, fact fans!), Danish cartridge specialist Ortofon has announced two limited-edition models – the Concorde Century and MC Century. The chrome-finished £525 Concorde

Century, of which 1,000 will be made, is a premium MM design built into a SME-fit headshell. Information retrieval is claimed to be excellent thanks to the nude fine-line diamond stylus profile, which will track even the highest frequency information with ease. If money's no object, though, why not consider parting with £8,500 for one of only a hundred MC making? A new flagship capable of true accuracy in sound, this extraor- has been fashioned from exotic materials – its specially-polished Ortofon Replicant 100 stylus is mounted on a diamond cantilever. The MC Century happens to be the most expensive cartridge that Ortofon has produced in its hundred years of existence. Join the party at www.henleyaudio.co.uk



Centuries that Ortofon is dinary moving-coil cartridge



A PROCESSED CHORD

35 years in the making, the £3,495 Hugo M Scaler from Chord Electronics is a standalone audio upscaler with one goal in mind – to push forward the boundaries of digital audio sound quality. Hugo M Scaler harnesses the world's most advanced filter technology – designer Rob Watts exceeded his lifetime goal of 1,000,000 WTA taps – to upscale standard 44.1kHz digital audio to 705.6kHz (x16).

Hi-res is game too; 96kHz files, for example, are upsampled to 768kHz while DSD (up to DSD256) is converted to PCM using proprietary filtering claimed to reduce DSD noise and distortion. The result is then passed to the dual BNC inputs of a compatible Chord Electronics DAC like DAVE, Hugo TT 2 or the new Qutest.

Features of this novel unit include an adjustable sample-rate output (with pass-through mode) and five digital inputs (two BNC, two optical and DoP-capable USB Type-B). Styling and form factor complement other Hugo TT models. More details from www.chordelectronics.co.uk

ECLIPSING THE PROMS

Eclipse, whose distinctive TD508 Mk3 'speakers are reviewed elsewhere in this issue, have another fan. Miloš Karadaglić, described by The Sunday Times as "the hottest guitarist in the world", selected the Japanese loudspeaker manufacturer's flagship TD712z MK2 loudspeaker with integrated stand (£6,500 per pair) as a personal reference loudspeaker/monitor for his August 2nd Prom. There he performed a new concerto entitled 'Ink Dark Moon' for guitar and orchestra, written specially for him by composer Joby Talbot. The Eclipse speakers, which Karadaglić "felt so fortunate and happy to discover", on account of their ability to make his "guitar sound so natural and real" were also used in rehearsals at the BBC's Maida Vale Studios. If you hurry, you might still be able to catch Karadaglić's performance via iPlayer (<https://bbc.in/2nBr03p>).



ROCK SOLID

New York audio company Master & Dynamic's MA770 wireless speaker, a CES Innovation awards honouree, is now available in the UK for £1,600. Designed with Ghanaian-British architect Sir David Adjaye, the WiFi or Bluetooth-connected speaker is made of a proprietary concrete composite – it weighs in at no less than 16kg! – that is said to be acoustically-superior. The dampening properties of the concrete are said to be so impressive that the speaker can be placed just inches away from a turntable, and play at full volume without causing the record to skip.

Powered by 100 watts of Class D amplification, the distinctive MA770's two 4" woven Kevlar long-throw woofers and a 1.5" titanium tweeter are claimed to provide a "rich, detailed and expansive" sound. The MA770 is compatible with Bluetooth 4.1 and Chromecast, but 3.5mm analogue and optical inputs feature too. Check out www.masterdynamic.com.



FM CLOSEDOWN EDGES CLOSER?

Radio-listening figures published for the first half of the year by RAJAR – the 'Radio Joint Audience Research' body officially in charge of measuring UK radio audiences – suggest that digital listening has grown by "1.3%, or 6.4 million hours" over the past year. Listening via the DAB platform grew by 3.3%, to account for 36.3% of all radio listening (72.3% of digital listening overall).

In-car digital listening has shown strong growth, reaching a new record share of 34.5%. Those pushing digital radio seized on the data; Ford Ennals, the CEO of trade body Digital Radio UK, interpreted it by claiming "that the majority (50.2%) of radio listening continues to be on a digital platform". Overall, 6Music, which the BBC wanted to shut down not long ago, remains the most popular digital-only station (2.44 million listeners weekly), although listening to Radio 4 Extra has dropped by 6.1%. Radio 4's Today programme lost nearly 840,000 listeners.

Of the commercial stations, 'old skool' dance-music station Kisstory shows the highest growth – 16.7% in a year, to the current total of just over 2 million listeners.

DIAMOND DEEZERS!

Pioneer and its recent stablemate Onkyo have both announced that some of their recent networked audio products and AV receivers have been upgraded to support the Deezer streaming music service, giving subscribers access to a library of more than 53 million songs. The update supports Deezer's 'HiFi' service, and thus 36 million tracks in lossless CD-quality (16bit/4.1kHz, FLAC). Also available is 'Flow',

which facilitates personalised listening based on the subscriber's tastes.

The necessary firmware updates started rolling out in August, so owners of affected products should ensure they are always connected to their networks! To check if your Pioneer or Onkyo gear is Deezeable, visit the www.pioneer-audiovisual.eu and www.eu.onkyo.com websites respectively.



THE MAINS THING

Running out of mains sockets for your hi-fi and AV gear? New from Huddersfield distributor MCRU is the No. 79 mains power-extension hub, a robustly-constructed audiophile-grade distribution board with four, six or eight outlets and mains cables of between 1 and 5 metres in length. You can specify the exact options on the relevant webpage (<https://bit.ly/2vGJrji>), prices ranging between £240 and £552 in accordance with what you specify. Features common to all variants include silver-plated internal rails within the hub, a local mains switch, bespoke internal filtering, high-purity ('7N', or 99.99999%) DUC (Dia Ultra Crystallized Copper) copper wiring in the mains lead and a silver-plated UK 13 Amp plug fitted with SR audiophile fuse.



DOUBLE EXPOSURE

Building on the success of British hi-fi brand Exposure's previous flagship amplifier system, the highly-regarded (but massive!) three-box MCX, is the new top-of-range 5010 series. Its preamplifier and monoblock power amplifiers are noticeably smaller than their MCX predecessors, and sport the trademark clean, simple look of Exposure's existing 3010 and 2010 series.

The £2,000 5010 preamplifier offers six relay-switched unbalanced line inputs, one of which can be replaced by an internal DSD64 and 24-bit/192kHz compatible DAC (£370) or MM/MC phono stage (£265). Balanced outputs feed the two 5010 power amps (£4,550 the pair) that you'll need for stereo. The latter is a solid-state Class A/B design capable of delivering 200 watts into a 8 Ohm load. Features of the 14kg unit include audiophile-grade components, an 800 Watt mains transformer and an output stage consisting of no fewer than eight power transistors. Further details from www.exposurehifi.com.

MAGIC WAND

Now available in the UK, thanks to a new distribution agreement with County Durham-based Decent Audio, is The Wand unipivot tonearm from New Zealand-based company Design Build Listen (DBL). It's available in three lengths (9.5in., 10.3in. & 12in.) and three specification levels (Classic, Plus and Master Series), yielding nine permutations that range in price from £899 to £2,599. Common to all is a high standard of engineering, a composite counterweight/bearing housing assembly and The Wand's distinctive large-diameter carbon-fibre arm-tube. This cuts off at a sharp angle, thereby negating the need for a traditional headshell. Your cartridge bolts straight to the arm via a fixed metal block. DBL also manufacture a range of adaptors for Lenco, Thorens, SME and Linn's LPI2. You'll find more info at www.decentaudio.co.uk.



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The Festival of Sound takes place at Hammersmith's Novotel London West hotel between September 28th and 30th. You'll get a chance to meet the legendary Ken Ishiwata, who will be presenting Marantz's KI Ruby products across all three days. Denon will also be demonstrating a number of premium headphones including the new AH-D5200 model. Exhibitors from the audio, headphone, portable audio and streaming sectors include B&W, KEF, Naim, PMC, Vertere Acoustic and Yamaha. Live music will be in abundance too, the roster of artists performing include Squeeze legend Chris Difford and Antonio Forcione. And Hi-Fi World will be there. Tickets from www.festivalofsound.co.uk See you there!

LENCO RETURNS

Remember the GL75? This turntable of the early 1970s, with its idler-driven 4kg platter and distinctive tonearm, is attracting interest once more. Indeed, it was featured in *Olde Worlde* not so long ago.

The GL75 was made in Switzerland by Lenco and has just resurfaced – if only in brand name - on a couple of inexpensive turntables. Both of these Amazon-exclusives are suitable for computerised 'needle-drops', courtesy of their USB analogue-to-digital converters, and offer line-outs for amps without phono stages.

The entry-level model is the stylish £100 belt-drive L30, which features a MDF base and a 'no-name' MM cartridge. £200 buys you its Direct-Drive brother, the L400. Evidently influenced by the Technics SL1200, the L400 is supplied with a 'premium' Audio-Technica cartridge. These 21st-century Lencos spin at 33 and 45rpm - although the L400 does have a pitch slider. More information at www.lenco.com.





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THE NEW 600 SERIES

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Fired Up



The big spacious sound of Vincent's recently updated SV-237MK hybrid amplifier gets Noel Keywood all fired up.

If you want to make a hybrid amplifier that combines the sound of valves with the power of solid-state, then this is a good way to do it. Vincent (Germany) have been making lovely sounding hybrids – in my view – for a long time, the SV-237MK I'm reviewing here being a recent update of a long standing model. What you get is a muscular 150 Watt amplifier with a three valve preamplifier – and digital inputs.

Although there are no valve output transformers the amplifier is still large and heavy, weighing 20.4kgs. That's because it houses a classic Class A/B amplifier with big linear power supply and massive toroidal mains transformer. No Class D then, and no switch-mode power supply.

With a mains transformer so large to handle the power draw and feed the valves, the chassis is inevitably sizeable, measuring 430mm wide, 435mm deep and 152mm high. It is also sturdily built, with 5mm thick machined alloy front panel, in our sample black anodised and with a brushed finish. Each side carries large

heatsinks and the top has arrays of vents, but ours didn't get hot under normal use. Cooling is by convection; there are no fans, so no noise.

A major feature of course is the front panel window behind which sits one of the three valves, the 12AX7 double triode. It is lit by orange LEDs and is prominent from the moment of switch-on, making the Vincent look quite different from most else. After it come two 6N1P-EV triodes for higher voltage swing. I'll mention quickly here that such small signal valves have a lifetime of 10,000 hours and cost little (£20 max) so there's no big drawback in using them. And a new one is easy to plug in, should this ever be necessary.

At switch on there's quite a long delay, during which time an orange LED in the volume control knob flashes, before the amplifier becomes active. Vincent stay with tradition by adding bass and treble controls at left of

the window and rotary input select and volume at right of the window. Spinning the selector lights blue LEDs in sequence, sited in a trough below, machined out of the alloy panel. They light in turn to show (left to right,) – Coaxial digital input (S/PDIF), Optical digital input (S/PDIF), then S3 through to S6 – four analogue inputs via RCA phono sockets; there is no balanced XLR input.

Vincent say they removed USB and replaced it with S/PDIF upon user request, since audio products use the latter, computers the former. Measurement showed the optical input (TOSLINK) accepts and works at up to 192kHz sample rate – important for hi-res players with optical only outputs (Astell&Kern). Also fitted are Record Out (fixed volume) and Preamp Out (variable volume) sockets at rear, but there's no Record In with A/B switching as of yore.

Two sets of large gold plated loudspeakers terminals



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KEF Q350, What Hi-Fi? July 2017

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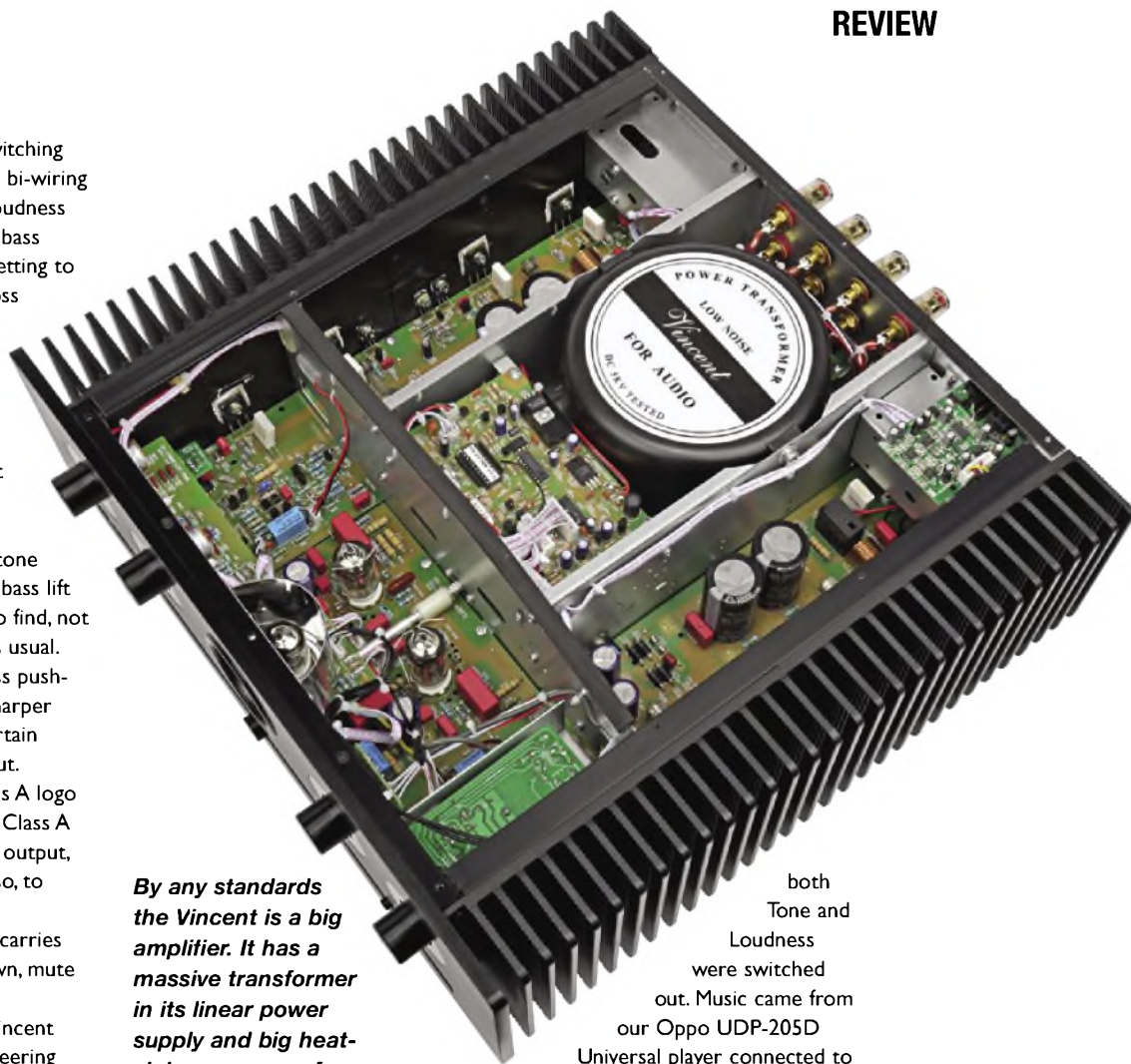
are fitted, but there's no switching between them; they are for bi-wiring or two rooms. There is a loudness button no less, that boosts bass and treble at low volume setting to compensate for the ear's loss of sensitivity at frequency extremes, and also a defeat button (Tone) for the tone controls. At far left sits a 1/4in (6.3mm) headphone output jack that cuts out the loudspeakers when used.

With Tone on (i.e. the tone controls selected) +5dB of bass lift is applied I was surprised to find, not a nominally flat response as usual. Both the Tone and Loudness push-buttons could have been sharper in their actions; I was uncertain whether they were in or out.

You can also see a Class A logo at right but the amplifier is Class A only up to a certain power output, often around 10 Watts or so, to prevent overheating.

A slim remote control carries input select, volume up/down, mute and a dimmer.

Of the digital section Vincent say nothing – a trifle odd. Peering inside I found a Burr Brown (Texas Instruments) PCM 5100A DAC, quoted (date 2012) as having a 100dB dynamic range, a PCM 5101 and PCM 5102 offering 106dB and 112dB respectively. So Vincent have chosen a budget part here. Measurement revealed 101dB dynamic range with 24bit so you get CD quality, not the dynamic range expected from hi-res (115dB+). It's a get-you-through addition then and I paid



By any standards the Vincent is a big amplifier. It has a massive transformer in its linear power supply and big heat-sinks necessary for Class A smooth sound. The three valves can be seen at left, just behind the front panel.

both Tone and Loudness were switched out. Music came from our Oppo UDP-205D Universal player connected to the analogue input sockets. With Antonio Forcione's Tears Of Joy (uncompressed CD) the SV-237MK set his guitar in a lovely three-dimensional space and whilst the fast plucked strings had plenty of bite they weren't sharp – as they

"...all the lush openness of its predecessor and an easy delivery that was organically natural against most else"

more attention to the main amplifier, feeding it digital from our Oppo UDP-205D Universal player (123dB dynamic range).

SOUND QUALITY

On sound quality the SV-237MK didn't disappoint me, having all the lush openness of its predecessor and an easy delivery that came over as organically natural against most else. As always our Martin Logan ESL-X hybrid electrostatic loudspeakers lucidly revealed just what this amplifier was capable of – one notable feature being obvious yet easy going bass; in fact the sound was so fulsome I did walk over to ensure

are not if you listen to an acoustic guitar played live. The SV-237MK gets closer to the real thing – a beautifully rich but dynamic sounding acoustic – than other amplifiers, without the slight bass bloom of an all-valve amplifier or the flat and mechanical – sometimes coarse – sound of an all-transistor amplifier. One reason being it lacks crossover distortion our measurements show – obvious in its easy going treble.

Bass guitar was full and weighty in Josefine Cronholm's In Your Wild Garden (uncompressed CD) yet moved along with laconic ease, making for a laid back presentation that was embracingly natural. Lots



Behind the front panel window is an alloy reflector surrounding the 12AX7 input valve – seen at right.



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Hugo₂



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A large rear panel with an array of analogue inputs at left, plus digital inputs (S/PDIF) at top. There is no USB for computer connection.

of thumbs up by others over this in the office – and I heard a sound quite unlike that from most other amplifiers, reminding me why previous Vincent products made such an impression.

With Rimsky-Korsakov's The Snow Maiden, Dance of the Tumblers (24/96) playing from an Astell&Kern AK120 portable hi-res player connected optically to the Oppo, the Minnesota Orchestra stretched wide across a sound stage graced by depth, strings rich, detailed and smooth. Strikes against kettle drum had power and resonance, standing well apart from other instruments; this amplifier imposes strong dynamic separation.

Connecting the digital output of our Oppo CD player into the Vincent's optical digital input, putting digital through its DAC rather than the ESS ES9018 Sabre32 series within the Oppo, brought a

flat and digitally mundane sound; this is a get-you-through section. Vincent have put a lot into the amplifier's architecture but there are better DACs to suit –without any big increase in price.

CONCLUSION

Vincent have honed the SV-237MK to give a pure yet texturally rich sound that's smooth and relaxing.

Think deep sound stage and organic delivery. Bass was always strong yet note perfect and engaging. Big sound staging suited Rock and Classical equally. The digital section was unimpressive but I felt the basic hybrid amplifier – a well honed and complex design – more than made up for of its shortcomings. Few amplifiers match its uniquely beguiling sound.

MEASURED PERFORMANCE

Power from the Vincent SV-237MK measured 153 Watts into 8 Ohms and 256 Watts into 4 Ohms – a powerful amplifier able to go very loud.

Frequency response measured flat from 6Hz to 70kHz – wide. Distortion was low at all power outputs, the critical 1W at 10kHz figure – a measurement of crossover distortion – being just 0.02% of innocuous sounding second harmonic our analysis shows. The amplifier is linear, low in distortion and will give a clean sound.

The analogue input needed 370mV for full output so it isn't particularly sensitive; volume will have to be turned up with low gain (MM = x100 / 40dB) external phono stages. There is no internal Phono stage.

The loudness control massively boosted bass and high treble at half volume and lower. Selecting the tone controls introduced +5dB bass boost with the controls set to zero.

Both digital inputs (S/PDIF) accepted 192kHz sample rate PCM, frequency response measuring flat to 20kHz before rolling down slowly to 96kHz, the upper limit of 192kHz sample rate – good.

Distortion with a hi-res 24bit input at -60dB measured 0.2% where 0.02% is possible and dynamic range was correspondingly poor at 101dB – CD quality in effect.

The amplifier section measured well, but the digital section gave CD quality with hi-res – unimpressive. **NK**

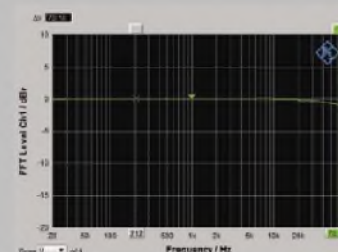
AMPLIFIER

Power	153W
Frequency response (-1dB)	6Hz-70kHz
Distortion (10kHz, 1W)	0.02%
Separation (1kHz)	94dB
Noise (IEC A)	-92dB
Sensitivity	370mV

DIGITAL

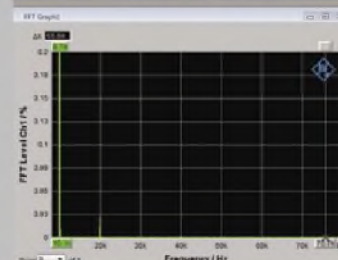
Frequency response (-1dB)	5Hz-47kHz
Distortion (-60dB, 24bit)	0.2%
Dynamic range	101dB

FREQUENCY RESPONSE



DISTORTION

THD	0.0233 %	Level (dB)	2.0712 V	Frequency	10.000 kHz
Ch1	OFF	Ch2	OFF	Ch3	OFF



The two 6N1P-EV triodes with spring retainers and ceramic bases. **NK**

VINCENT SV-237MK £1,850



OUTSTANDING - amongst the best.

VERDICT

A gorgeously rich and spacious amplifier that made listening to music a rewarding experience.

FOR

- spacious, organic sound
- powerful expressive bass
- build quality and finish

AGAINST

- mediocre digital sound
- indeterminate push button action
- long start up delay

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Speed Trap

So fast they are dangerously good. Acoustic Energy AE309 loudspeakers impress Noel Keywood.

As their name suggests Acoustic Energy produce loudspeakers that sound fast and punchy. Add this quality to a floorstander that brings scale and you have the AE309 floor stander I'm reviewing here, price around £1000.

The '309 is a conventional design standing 900mm high, 175mm wide and 280mm deep. Going to move one for test I was initially puzzled by its dead weight that obviously was low down, wondering whether it was mass loaded. There – sure enough – was a plastic stopper at the rear just above the base, sealing a loading port. In the past, with Mission loudspeakers and my own designs, I have used dried silver sand, available in packs from builders merchants, for mass loading – and very effective it is too. You get a sound with more focus and dynamic punch, for relatively little cost and effort. The downside is weight – a problem when shipping. Surprisingly Acoustic Energy don't make this a user option, the AE309 comes already loaded – hence a weight of 22kgs. It sits on spikes for stability.

To deliver a fast sound Acoustic Energy use a light but stiff ceramic coated aluminium sandwich cone in their drive units, of which there are three in a two-and-a-half way design. This means it's a conventional two-way comprising 150mm bass/mid-range unit crossing over at 2.6kHz to a 25mm (1in) aluminium dome tweeter, bass being augmented by a third driver (this is the half bit) that they say works up to 300Hz. So there are three drive units on the front baffle, and a slot port on the rear baffle, at top, that provides cone damping and low bass output as usual.

The cabinet is internally braced and felt solid and well damped when rapped with a knuckle, but the walnut veneer finish of our review samples wasn't especially attractive I felt – I initially





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Veneered all round, a slot reflex port at top and a mass loading port at bottom.

thought it was an artificial veneer. Oh sad. But it is well applied for a smooth edge finish and full coverage, including the rear panel. There are gloss black and white finish alternatives.

The connecting panel has two terminals, so bi-wiring is not on offer. As usual connection is via 4mm banana plugs, spade terminals or bare wires.

SOUND QUALITY

Acoustic Energy loudspeakers have a particular sound, the one that made them popular in the first place. That “first place” was long ago when metal cones ruled and speed was the name of the game, especially in the bass. The company keep a tight rein on their sound and I’ve always been impressed at how well they have both maintained and developed it. I drove the ‘speakers from the Vincent SV-237MK reviewed in this issue and a Creek Evolution 100A, fed by an Oppo UDP-205D Universal player spinning CD and delivering hi-res files from an Astell&Kern AK I20 portable

player connected optically.

Whilst the AE309s measure like many other well engineered loudspeakers they still hit me with a startlingly vivid presentation of Josefine Cronholm singing In Your Wild Garden (CD). What I got here was an expanded sense of dynamic range in the subjective sense of a rush from nothing to a singer powerful in front of me, every vocal inflection made startlingly obvious. The clarity, speed and dynamic contrast of this loudspeaker was as good as it gets – and impressive. Their sound is viscerally gripping and a totem of hi-fi: listen to them and I guarantee you will wowed by their delivery – a notch above most else.

Bass was clean and tuneful in character with Loreena McKennit’s Gates of Istanbul (uncompressed CD). Introductory low notes were strong and well defined, if not heavy in our large room. As an over-damped design it needs to be close to a rear wall in a normal UK living room 12ft -18ft long where modal support adds weight.

With classical the AEs remained vivid, but here it was less welcome. Whilst Renee Fleming was pushed out at me there was some glare in the delivery, making it a tad forced. Similarly with Nigel Kennedy, whose Stadvarius was more forward than I know it, if impressively detailed and

timbrally rich.

With Arkadi Volodos working his way through Liszt’s Vallee d’Obermann (lovely) the Steinway had a hard tone and lacked body (not so lovely). Although a dry recording I have heard more natural renditions.

CONCLUSION

Acoustic Energy loudspeakers are punchy and forceful, but clear and vivid too. The AE309s were right on form, pushing me back with their dynamics. At the same time they were slick in their powerful delivery, having razor sharp transients that made for great pace and timing. Their character better suits Rock than classical where subtly wasn’t at the forefront – but even here their drama has appeal.

In all, the ‘309s are exciting loudspeakers that give a full-on musical experience, with no attempt to smother the truth. Well worth hearing, especially if you love fast Rock.



A 25mm aluminium tweeter at top and bass/ midrange plus bass-only unit below.

MEASURED PERFORMANCE

Our third-octave frequency response of pink noise from the AE309 shows a flat but wide characteristic, stretching from 40Hz to 20kHz. There was some treble lift (+2dB) on-axis but slightly off-axis (the cabinets pointing down the room, not directly at listeners) they gave the result shown here.

Absence of a dip at crossover (3kHz) and the small lift above 8kHz ensure subjectively strong delivery of detail.

Especially interesting is bass output as it is flat and smooth to a low 40Hz, but with slight roll-off – an over-damped design. This will give good note definition in itself and is ideal for use close to a rear wall. The rear slot port is tuned to 45Hz (red trace) to support deep bass.

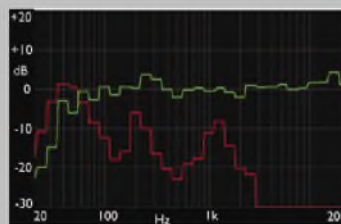
Our analysis of impedance shows classic reactive peaks around the port’s damping influence at 45Hz. The trace sits high with 6 Ohm minim; this is a high impedance design that measured 9.5 Ohms overall, explaining a so-so sensitivity of 87dB Sound Pressure Level

from one nominal Watt (2.8V) of input. Around 60 Watts or more will suit for high volume.

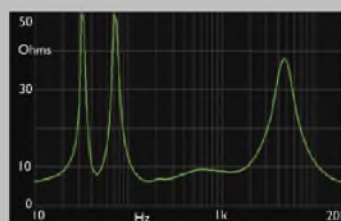
The AE309 measured well in all respects. It’s accurate but with obvious treble and deep, well damped bass. NK

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



ACOUSTIC ENERGY AE309 £1099



OUTSTANDING - amongst the best.

VERDICT

Viscerally fast, powerfully dynamic, but also clear and accurate.

FOR

- fast transients
- detailed
- dynamic

AGAINST

- lacklustre finish
- mono wire only

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G Force!



In Martin Pipe's estimation the new Aries G2 music streamer from Auralic has much to recommend it.

Beijing-based Auralic has been going for a decade or so, their original Aries 'wireless streaming bridge' being nominated for 2017's 'Best Network Player' in the last Hi-Fi World Awards. Now there is a G2 update that I am reviewing here.

The Aries G2 is a 'Wireless Streaming Transport', controlled via a 'Lightning DS' iOS 11 app (there's no Android support) and compatible with DSD and PCM content as well as lossily-compressed formats like MP3 and AAC. In addition to FLAC, there's support for the less-common WavPack and Monkeys Audio lossless codecs.

The Aries lacks analogue outputs, so you must have some kind of digital-to-analogue conversion at your disposal. Although this could mean additional expenditure, the sound and performance can be customised to your specific requirements.

The Aries G2 has at its heart what Auralic calls the 'Tesla platform'. Reflecting four years of progress, this is underpinned by a processor chip that's "50% faster than the original's" and augmented by twice the system memory (i.e. 2GB) and data storage (4GB). Claimed benefits include greater freedom from dropouts, and better handling of hi-res formats like 32/384kHz PCM and DSD.512; MQA is supported. There are highly-accurate timing chains based around precision 'Femto clocks', dual-band Wi-Fi, USB (for playing locally-stored content), Ethernet, a front-panel display, a receiver for the remote-control handset (presumably for those who aren't Apple evangelists) and digital audio (S/PDIF) output connectivity – optical, coaxial and AES/EBU.

The G2 also has what looks like an HDMI A/V port. But Auralic merely use the same type of connector for what they term

'Lightning Link' – a proprietary "low-jitter, bi-directional 18Gbps coupling". This proprietary interface, UK distributor Richard Bates told me, conveys clock signals, control and audio data to the £5,500 Vega G2 "streaming DAC" – also part of the new range.

The new Aries G2 has a very different appearance to its predecessor. Reassuringly-weighty, the unit is completely different inside too – it's built within what Auralic calls its 'Unity' chassis, machined from a single lump of aluminium. This is intended to shield the unit's inner workings from electromagnetic interference (EMI), and provide "superior dampening and absorption" characteristics.

Internally, there are linear power supplies driven by three independent mains transformers. The first "feeds the processing circuit, display, and storage", the second being dedicated to "sensitive audio components, such as the

timing circuitry and audio output". A third, smaller, supply provides the standby mode.

The Aries OLED display has been replaced by a colour screen, but it's not of the 'touch' variety. Furthermore, a remote isn't supplied; apparently, the handset supplied with previous models attracted criticism. Instead, Auralic has a novel system that turns the old 'learning remote' concept on its head; you teach the Aries G2 to respond to the commands of an existing handset, so that its buttons can be signed to specific functions. This is just as well, as four years on there's still no Android support (it's "officially a consideration", I was told, "but don't hold your breath!").

Worse still, you now need a device capable of running the latest iOS 11 – the previous Lightning DS app, as created for the original Aries, would run under iOS 7.1 (or above). Use of iOS 11 means 32-bit devices like the iPhone 5 and iPad Mini are ruled out. Auralic should make the older version available too!

The app is essential, if the most is to be made of the Aries G2. Driving it from the front panel (five non-backlit buttons, which blend in a little bit too well with the background, in conjunction with the screen) is frustratingly long-winded, and Auralic's novel approach to infra-red remote control lacks the 'feedback' or visuals that a smart device gives you.

USAGE AND PERFORMANCE

The app also happens to be essential for setting up Internet radio, which isn't even discussed in the unit's frankly-inadequate manual. Bates explains that installation would normally be the responsibility of a dealer.

Defining network shares (the folders containing your lovingly-curated music collection) from the front panel is also a long-winded operation; thankfully, this (but not finding and storing as 'presets', Internet radio stations) can be achieved using the web interface of the unit's Linux-based 'Lightning DS' operating system. You have to enter the path (IP address and directory structure) of each location.

The 'Lightning Server' that forms part of Lightning DS then adds all of the music it finds to its 'library', meaning that it's not reliant on protocols like uPnP. Multiple network-shares, USB

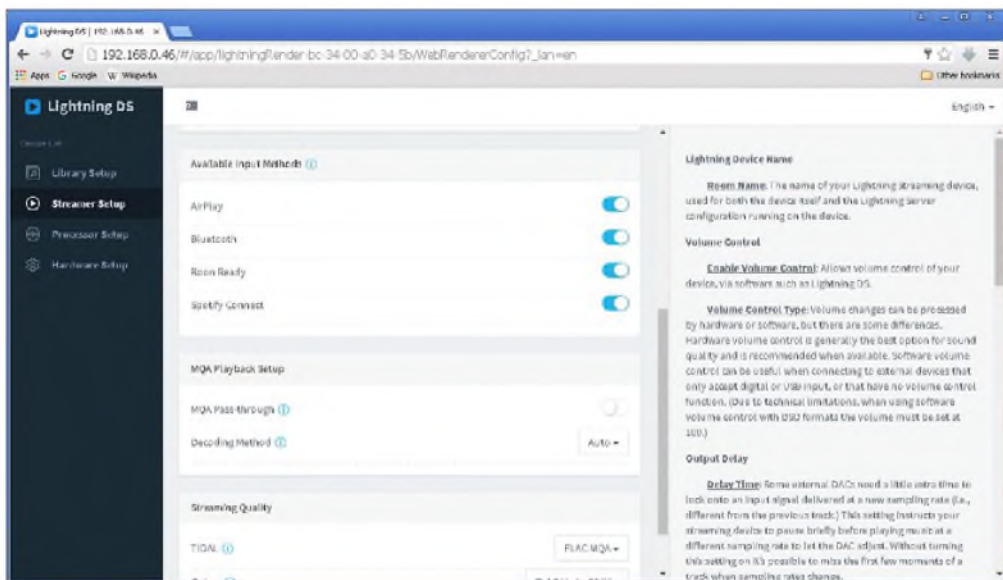


The neat internal layout of the Aries G2. There are two linear power supplies driven by those green transformers, plus a small standby supply. An internal bay for a 2.5in hard drive or Solid State Drive (SSD) sits a bottom right. At rear sit wi-fi aerials. The whole sits in a rigid machined alloy one-piece case.

storage and – new feature alert! – an internal 2.5in. SATA drive that can be fitted into a compartment accessible when the lid is removed (any capacity, SSD or standard drive, Bates assured me) are accommodated. That could add up to a lot of music; no wonder there's 8GB of non-volatile storage to keep track of it!

Auralic's decision to go its own way helps to speed up the

selection of, and access to, the tracks you want to play. Selection criteria include album, artist, genre, composer, orchestra, conductor, folder and even date. Cover art, if provided, is shown on the app as well as the player's own screen. Other features include an AirPlay mode (no great surprise, given that it's an Apple development) and support for 'Songcast' – as in the open-source technology for



The Aries G2 can also be configured from the web interface – here are options related to streaming music services like Spotify Connect and TIDAL. For now, though, it won't let you find and store as 'presets' in the library, Internet radio stations.



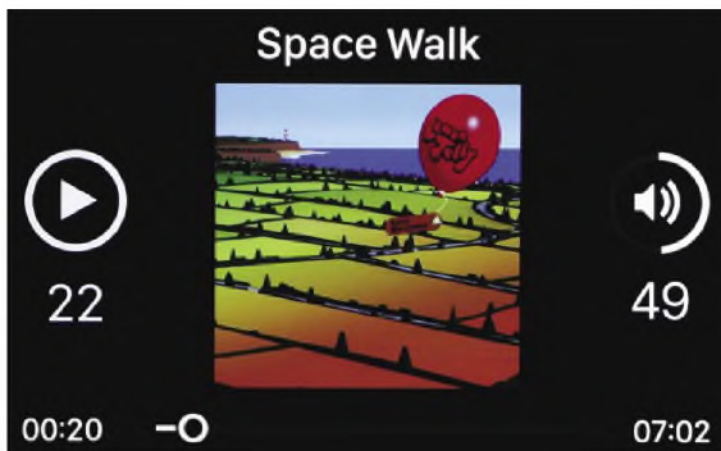
The Aries G2's main front-panel screen, divided into eight categories. Unless you're using the Vega G2 streaming DAC, or another Auralic model equipped with Lightning Link, the DAC and master clock icons will be greyed-out. Note the lack of an Internet radio menu.

streaming music from Macs or Windows PCs.

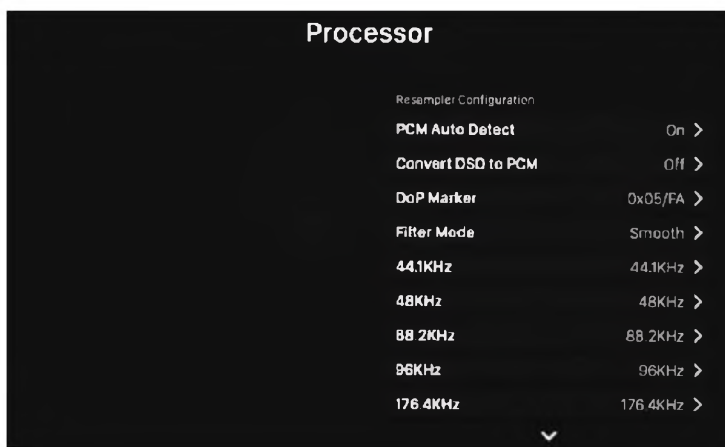
Bates drew my attention to an Android app called BubbleUPnP. With this, I was able to select music and 'push' it to the Aries G2, although much of the Aries G2's finer functionality (Internet radio, for one) remains exclusive to the Lightning DS app. The indicators of the DAC I was using (Prism's Callia) confirmed that no unwanted transcoding was being applied.

In other words, 24-bit PCM and DSD hi-res content were being experienced as intended. On which subject, I should confirm that Auralic's 'conventional' digital outputs support DSD-over-PCM (DoP), meaning that you'll get the full 'native' benefit of DSD with compatible converters like the Callia (note, however, that the latter only supports DSD64 in this

way). Great news for those who want to escape the chains of their PCs, when it comes to hi-res music playback.



Album cover art can, if present, be displayed both on the front panel and the Lightning DS app.



To suit the capabilities of an external DAC, DSD can be converted to PCM, while PCM-derived files can be output natively or in upsampled form.

I should also mention that Lightning DS is highly-tweakable, certainly via that web interface. You can engage or disengage a volume control, change the behaviour of the display, experiment with power management, configure the network (wireless/Ethernet) and Bluetooth, specify how the streaming services with which the Aries G2 is compatible (among them Spotify Connect, Qobuz and TIDAL) are handled and – to suit the capabilities of your DAC - how DSD and different sampling rates are treated (output natively or upsampled). There are also four digital filters (Precise, Dynamic, Balanced and Smooth) at your disposal. But you can't – yet, at any rate! - locate Internet radio stations and add them to the library!

As well as the aforementioned Prism Callia DAC, I used a Chord TToby. They fed either Focal Utopia headphones or an Arcam A49 integrated amplifier driving Quadral

Aurum Wotan VIII floorstanders. Music was held on a DLNA server or USB memory device plugged into one of the Aries G2's two rear-panel ports. Playing with the digital filters, I settled on the 'smooth' setting as it seemed to strike the right sonic balance. The effects are subtle, and more evident with some types of music than others.

The first thing I noticed is just how well layering is dealt with. Wide Open, a deceptively-simple track from The Chemical Brothers' 2015 album Born in the Echoes (FLAC CD rip), is built up from a multitude of synths. The Aries G2 reveals them all – not just the obvious 'hooks', but the low-level parts in the background too. Indeed, I could



No analogue outputs. An external DAC is connected via co-axial, optical or AES-EBU S/PDIF outputs. There's also Auralic's proprietary 'Lightning Link' using an HDMI port, to send audio, control and clock signals to the matching £5,500 Vega G2 "streaming DAC". The Aries G2 connects to mains via an IEC lead and to a network via wired Ethernet or tri-band Wi-Fi. USB devices containing music are also accommodated.

make out a faint string sound that I hadn't heard before! But it's not just about the quantity; each is accurately rendered with its distinct character intact. A model of clarity, in other words. That didn't stop with the machines; every nuance of Beck's vocal contribution emerged too, while the bassline and rhythm were respectively deep and taut.

I also noted the same attention to detail with The Alan Parsons Project's I Robot (DSD64). I've

more pronounced rhythms of which are also grist to the Aries G2's mill. I then went back in time to a very different Europe, that of Ravel's Bolero. The Aries G2 did justice to my classic Decca recording of the score (L'Orchestre de la Suisse Romande/Ernest Ansermet, Monkey's Audio lossless CD rip).

As the piece slowly builds, the system takes the complexity and scale in its stride with no hint of dynamic strain. A slight 'bloom'

probably to blame. Putting to one side this observation, the unit gets the best from what is a cracking performance.

Also dynamic in nature is Liszt's Faust suite (as here performed by the Hungarian State Symphony Orchestra/Francesco D'Avall, FLAC CD rip). The percussive crashes of the third movement were cleanly-resolved and failed to 'dirty' the much quieter triangles. If it's a big sound, the Aries G2 can find space for it.

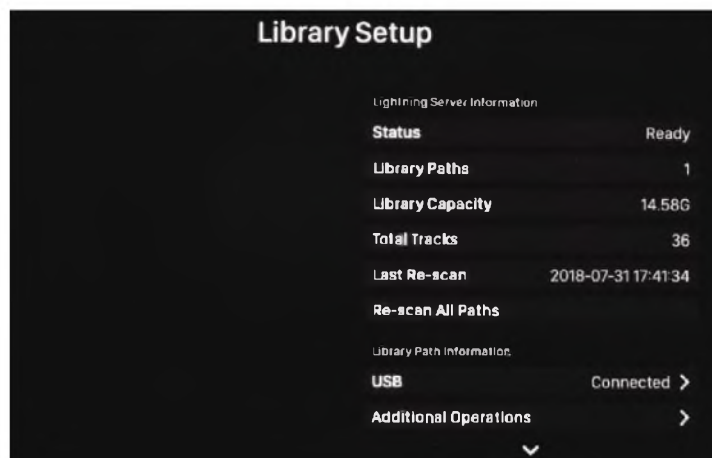
To be honest, the Aries G2 is responsible for some of the best digital sounds I've heard. A great DAC is important - but so too is the source that feeds it. However, Auralic needs to do something about the user interface as no Android app is available and Lightning DS app requires the latest iOS 11.

"accurately rendered with its distinct character intact. A model of clarity".

played this album on numerous occasions, but never been able to pull out of the mix so distinctly the kantele and cimbalom – dulcimer-like stringed instruments that add to the album's distinctive tonal character. Yes, the individual elements can be easily resolved. But they also work as a whole – just as you'd expect from a live performance. The tonal balance was neutral and the hi-hats of I Wouldn't Want To Be Like You are spared the traces of 'splashiness' that can affect lesser digital playback systems.

The sequenced analogue synth textures that bubble through Michael Hoenig's 1978 debut Departure From The Northern Wasteland (FLAC CD rip), with their shifts in melody and rhythm, did indeed evoke a train journey through Northern Europe – and the ride is very different to the Trans Europe Express (CD rip) enjoyed by electro-influencers Kraftwerk, the

can affect the strings at times, but to be honest the vintage analogue recording (made in 1963) is



To speed up access to music, the Aries G2 internally stores a 'database' of all the tracks it finds during scans of networked or locally-stored folders of files in its library. 8 gigabytes of non-volatile memory should accommodate listeners with wide-ranging tastes and enormous collections!

ARIES G2 STREAMING TRANSPORT £3,500



OUTSTANDING - amongst the best.

VERDICT

Powerful, flexible and ekes the last ounce of performance from digital streams and files – but only users of Apple's newer iOS 11 devices will get the best from it.

FOR

- engaging and musical
- compatible with all key formats
- configurable and flexible

AGAINST

- app Apple iOS 11 only
- limited front panel controls
- no touchscreen
- app essential for Internet radio

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Purist natural sound

"Music produces a kind of pleasure which human nature cannot do without"

Confucius, from The Book of Rites




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www.qacoustics.co.uk

"In looks the Q Acoustics 3050i loudspeakers are a traditional rear-ported reflex design measuring 1020mm x 310mm x 310mm (H/W/D) with a three driver array – two

165mm bass units allied to a 22mm tweeter. They are arranged in a D'Appolito configuration with the tweeter situated between the two mid/bass units, all placed close together for best integration. Nicely rounded sides to the fascia give the 3050i a pleasing look – but it's inside this cabinet that the most interesting design features can be found.

Q Acoustics have paired with legendary German designer Karl-Heinz Fink to develop much of its

range – and he is an enthusiastic proponent of making cabinets as structurally inert as possible to allow the drive units to work at their best.

Internally the 3050is feature specially developed PTP (Point-To-Point) bracing, used across the 3000i Series, that supports the parts of the enclosure that need to be stiffened, making them exceptionally rigid. It improves the focus of the stereo image, giving the soundstage more accuracy than ever before.

There's also HPE (Q Acoustics like their acronyms!). These are Helmholtz Pressure Equalisers designed to convert pressure to velocity and reduce the overall pressure gradient within the speaker enclosure. Q Acoustics say this reduces cabinet resonances and is perfect for taller loudspeakers that commonly resonate at a single main frequency determined by cabinet dimensions".

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Here's your chance to win the superb Q Acoustics 3050i loudspeakers we reviewed in the August 2018 issue. Read the review excerpt below and answer the questions.

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QUESTIONS

[1] The designer is -

- [a] Frank Whittle
- [b] Frank Lloyd Wright
- [c] Karl Heinz Fink
- [d] Isambard Brunel

[2] Bass unit diameters are -

- [a] 165mm
- [b] 165metres
- [c] 165inches
- [d] 165miles

[3] The bracing is -

- [a] compressed air
- [b] expanded foam
- [c] PTP
- [d] steel beam lattice

[4] HPE reduces -

- [a] bright treble
- [b] visual width
- [c] unsteadiness
- [d] pressure gradient

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Signed With A Twist

Looking for a high-end speaker cable upgrade? Paul Rigby tries the Chord Signature Reference.

Hi-fi attention can be focused in and around boxes – amplifiers, CD players, turntables and the like, even enlightened hi-fi users relegating the 'speakers to add-on necessities with little consideration of the cabling. Yet the speaker cables are an essential ingredient for good sound. Get this bit right, you'll certainly notice – and your music will thank you for it.

Chord's Signature speaker cables have actually been around for some time. In fact, they've been selling nicely for around ten years. When Chord took a second look at them they realised that an upgrade was both possible and worthwhile so the Signatures were hauled back into the workshop for a wash and a brush up.

Well, actually, it's a bit more than that since Chord have added more effective shielding, silver-plated conductors and PTFE insulation. That shielding features high density foil and 95% coverage by a metallic braid. You'll notice from the accompanying images that the cables are also

twisted to improve sound quality. The thrust of these upgrades was (hopefully) to produce a neutral tone. So I'll be looking out for that during the sound tests. Standard colours are red and black or all black, but if there's a particular colour you really want, please ask and I'm sure the company will be able to sort you out.

SOUND QUALITY

I began with a slice of David Bowie and his 'Low' album. Playing the track 'Breaking Glass' I was happy to hear that the bass had an articulate aspect that helped to separate it from the drums. Both occupying the stereo the soundstage, there was plenty of opportunity for confusion between them, with smearing in the mids and bloom in the bass. That never happened with the Signature Reference cables though. Not only were both kept well apart but the bass guitar was also temporally focused enough to provide a rhythm that was easily followed by my ear. At no time did the bass guitar seemingly go AWOL to escape my attention,

and at no time did the processed, gated drum sound lose control.

Further, I was impressed by the dynamic performance of the Signature Reference cables during Don Cornell and 'Heart of my Heart' from the original 'Great Hits' Dot release. The bass was appreciably low and rumbling while the upper mids and treble were fragile and delicately detailed. Cymbals and piano offered enough precision to deliver to my ear their intricate work. Via average cables, this complex business blurs into a single noise. The Chords managed to dig into the recording to separate out this necessary information.

CONCLUSION

High-end cable design asks a lot of the designers partly because the price places expectations upon them. Chord has nothing to fear here because this set of cables provides a splendid array of sonic highlights that provides fine transparency and – yes – neutrality of tone to bring a sense of natural music detail. A fine set of loudspeaker cables then.

**CHORD
SIGNATURE
REFERENCE
SPEAKER CABLES**
3M £1,350
(OTHER LENGTHS
AVAILABLE)



**OUTSTANDING - amongst
the best.**

VERDICT

Providing clarity and a neutral tone, the Chord Signature Reference speaker cables allow music to sing.


FOR

- dynamic reach
- instrumental separation
- clarity

AGAINST

- nothing

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A New Era

Quad's new planar magnetic headphones offer a smooth sound and comfortable fit at a realistic price, says Noel Keywood.

It's fitting that Quad should come out with magnetic planar headphones as this once niche idea moves up a gear. Their electrostatic loudspeakers have always shown that producing sound from a flat panel gives a smooth presentation like no other – and the ERA-1 headphones do just this in similar fashion. They're not cheap – price £599 – but since Audeze and Oppo planars cost twice that, the new ERA-1s are a bargain – if they sound good of course.

I've used Audezes and have Oppo

PM1s beside me, so know the sound – and the drawbacks. Light weight flat panel drive units are best in an open-backed enclosure – but that means sound leaks out. Not ideal for a train or bus then – unless it's empty. Being insensitive, they need power to go loud. And they are big. But the ERA-1s keep all these issues under control.

Size wise the Quad's are little different from the norm, including their planar rivals: the ear pads are 105mm high (maximum dimension) and two sets are supplied, one

with 60mm internal opening the other with a larger 65mm opening. The smaller is latex with a fleece covering, the larger foam covered by soft leather. For me larger was more comfortable – but they sound different.

A sturdy headband has adjustable height. The depth of each ear piece measured 45mm. Electrically, they are independent, each having its own 3.5mm stereo jack input socket, making fully balanced connection (no shared earth) possible. I used the lead supplied however (unbalanced)

that is a long 215cms (7ft) terminated with a standard 3.5mm stereo jack plug at its far (input) end, and by 3.5mm stereo jacks for each ear piece (connected in mono). An important point here is that simple 3.5mm stereo jacks mean you can make up a lead – or get one made up – without having the hassle of obtaining unusual/rare connecting plugs, or 2.5mm jack plugs that are almost impossible to wire and snap easily.

A 3.5mm-to-1/4in (6.3mm) jack adapter is supplied, screwing onto the lead plug for a firm connection.

The headphones alone, without lead, weighed 420gms on our scales, the lead without adaptor 48gms. So they're quite heavy, but very solidly built with superbly finished alloy castings of obvious strength. The Quad logo is a little subdued; this would have been better as a bright alloy trim plate I feel, since brand is important with expensive 'phones on public display. Or perhaps not if you don't want them stolen!

Inside the cardboard packing lies a durable black plastic carrying case able to take 'phones, alternative ear cushions, the lead and adaptor, dimensions being 24cm x 25cm and 12cm deep. It has a small fabric carrying handle and zips up.

SOUND QUALITY

I could not run in the ERA-1s in casual use from my computer's small Epiphany E-DAC – they wouldn't go loud enough. An iPhone 6S with 3.5mm output needed full volume with Suffragette City (DSD) to go loud – sensitivity is low. I used an Audiolab M-DAC with high output to clock up a 100hr run in.

Listening critically via an M-DAC+ fed digital by various sources the ERA-1s are – much like rival magnetic planars – gloriously smooth and svelte. You don't get ringing treble here, nor an invasive midrange, but an almost casual and laid back sound to be savoured. The reason being planars are subtly slick at getting bass and midrange into cohesive form. Sina's version of Wipeout (YouTube) was rich in texture and meaty sounding with the small latex ear pads, leaner with the larger pads. But with either the Quads captured her lightning speed and forensic timing. Whilst superficially laid-back, they've got the wonderful ability to send out fast drumming like this free from muddle and overhang; I sat back and marvelled at the performance.

Against my Oppo PM1s the Quads had a more recessed mid-range with latex ear pads, but were more explicit with the larger foam pads, having a drier quality and no tonal variation with ear piece position, unlike conventional 'phones and even the PM1s to a small degree.

The ERA-1s have nicely balanced bass but the rumbling deep bass introduction to Loreena McKennitt's The Gates of Istanbul (CD) lacked the low end power of my Philips Fidelio X1s. With Fleetwood Mac's Never Going Back there was a swathe of detail from the close miked guitar.

With Tchaikovsky's Waltz of the Flowers (24/96) the orchestra was arranged across a convincingly wide stage with air and space around instruments, but strings were less well separated than with Fidelio X1s and there was some hardness of tonality, even after such a long run in. Both Oppo PM1s and Fidelio X1s were sweeter with massed strings and, if I recall correctly, so are Audezes – but they cost double and skyward.

With Mozart's Divertimento in D (24/192) the Quads lacked insight into lead and accompanying violins, losing their sweetness of tone and also the vivacity with which the instruments were being played.



CONCLUSION

Overall, the ERA-1s offer the smooth and coherent planar headphone sound, that with open backed ear pieces also comes across as spacious. With Rock they were clean, fast and tidy, if reticent with the lowest octaves. With classical strings, separation and insight could have been better – but all the same performance was good at the price. The Quads are great value – magnetic planars worth hearing.

MEASURED PERFORMANCE

Frequency response of the ERA-1 was smooth but it has quite a strong mid-range dip from 1kHz to 5kHz our response analysis shows. Headphones used in this region to compensate for direct ear coupling but HRTF compensation (as it is known) is imprecise and headphones (e.g. Oppo PM-1, Philips Fidelio X1) are now flatter than the ERA-1s, suggesting the Quads will have a more recessive midrange. Bass output was even and accurate, without emphasis – these are not bass heavy 'phones, like Beats for example.

There was little measurable difference between the ear pads but the larger internal diameter foam and leather pads had +1dB more output in the 1kHz - 5kHz region, suggesting a subtly more forward delivery.

The load is 22 Ohms – very low – and resistive. For 90dB SPL (loud) the

ERA-1s needed 660mV (true rms, pink noise), meaning they are insensitive. Mobile 'phones deliver around this, tablets a little more at 1V and headphone amps/portable players 2V so they're compatible all the same.

The ERA-1s were smooth but have greater mid-range HRTF recession than rivals and will sound less-upfront as a result. Their sensitivity is low but not by a large shortfall; a small twist of the volume control will compensate. **NK**

FREQUENCY RESPONSE



QUAD ERA-1
£599.95



EXCELLENT - extremely capable.

VALUE - keenly priced

VERDICT

Nicely balanced open planar phones, but lack sweetness of tone and micro-dynamics.

FOR

- build quality
- optional ear pads
- spacious planar sound

AGAINST

- heavy
- low sensitivity
- mechanical tonality

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Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of B&W P5 headphones.

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



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

A pair of B&W 686 S2 loudspeakers are on their way to JOHN SPEIGHT, Letter of the Month winner in our September 2018 issue.

Letter of the Month

CD FOR VINYL

I read in your new magazine, the September 2018 issue, details of the all-in-one Quad Artera Solus. I am disabled, and cannot always go to demonstrations and rely on reviews. Is it the case, can you advise, that this product will work with my Vienna Acoustic Baby Grands, which are £3000 speakers?

I was confused about your review emphasising use of CD. I wondered about the Quad with Vinyl. I have ordered a new Pathos Groove phono stage, along with a second-hand Lector CD707, and have a Magnum Dynalab T105 Tuner.

I am waiting to find the correct opportunity to buy a second hand SME 15 turntable with an SME309 arm as my Systemdeck is 27 years old. SME 15s have not been made, as I write, for about 2.5 years, so are not readily available second hand yet. Audio Oasis, supplying my Lector and Pathos, say I ought to be able to find a second hand SME for 40-50% less than £8000 new.

Oh, I use a 26 year old Plinius 2100i amplifier – again old. I do think amps get tired and it needs



The Quad Artera Solus all-in-one, combining CD with a top quality DAC and all-analogue amplifier. "Will it work with my Vienna Acoustic Baby Grands?" asks Chris Carter.

replacement. The new Plinius Hautonga is £4800 – bonkers. Hence my interest in the Quad.

Yours Faithfully,
Chris Carter.

Hi Chris. Quad's Artera Solus focusses upon playing CD via a very high quality internal digital-to-analogue convertor that uses the widely regarded ESS ES9018 DAC

chip. The presence of a CD transport gives the product special appeal to all those with large CD collections. There is no integral phono stage but one can be connected to its Line inputs.

Because the Artera Solus is strictly all-analogue in power supply and amplifier stages (no Class D and no switch-mode power supply) it is ideal for vinyl replay. There's



Vienna Acoustic Baby Grand floorstanding loudspeakers owned by Chris Carter. As a 4 Ohm load Quad's Artera Solus will deliver 120 Watts our measurements show – meaning very loud.

no crossover distortion and it has a smooth yet dynamic sound that impressed us all greatly. It has easily enough power to drive your Vienna Acoustic Baby Grands loudspeakers that are 90dB sensitive and 4 Ohm load, into which the Artera Solus will deliver 120 Watts our measurements show. This is more than enough to go very loud in any room, no matter how large.

The Pathos Groove phono preamplifier will work well, connected to its unbalanced Aux 1 phono-socket inputs. There is no balanced XLR input to accept the Pathos balanced output – useful for long lines where a turntable may be distant from the hi-fi.

In all the Artera Solus is a refined amplifier that will suit you and your equipment I believe and, with its advanced DAC, be a better choice than the Lector CD707 you propose buying second-hand. **NK**

DISJOINTED BASS

I was wondering if the disjointed bass problem that Jon Myles noted with

the Icon Audio amplifier driving Martin Logan Impression 1 Ias (September 2018 issue) might be due to their high bass impedance. The Martin Logans look a lot like a series 33uF capacitor in the bass and this leads to the 50 Ohms at 100 Hz in the impedance graph.

Now, we are always told that valve amplifiers don't like open circuit loads and this is what you have in the bass range. A work around for valve lovers would be to try a 22 Ohm power resistor across the speaker terminals, enough to tame the extreme high impedances, without reducing the high frequency impedance much further.

Regards

David Pearce

Hi David. Well spotted – and quite right. It does indeed look like a 33µF series capacitor is lurking in there. Also, the impedance graph shows a drop to 1 Ohm at 10kHz meaning a 17µF capacitor (the XStat panel) is placed directly across the amplifier's loudspeaker terminals – ouch. One of the reasons valve amplifiers withstand this is because transformers have a 1 Ohm or so residual winding

resistance so there is always some current limiting in place. In fact the Martin Logan's drop to 1 Ohm and a valve amp's output transformer together put around 2 Ohms in circuit.

But that is not to do with your contention that working into an almost open circuit is the cause of disjointed bass. The basic reason a valve power amplifier is best with a load is to prevent high primary voltages caused by the high reflected load of an open circuit causing arc over inside, or some such nasty. Not sure this will affect bass quality – but you never know. Your suggestion of the 22 Ohm resistor (5W) seems about right to me and is worth experimenting with.

We used the Icon Audio Stereo 30SE after the Quad Artera Solus and the jump between the two was quite large, as always when dealing with such a demanding and unusual load as the Impression 1 Ias. I noticed the Stereo 30SE was brighter than the Solus, something that surprised me at the time – but perhaps not considering the Solus had a 17µF



"The Martin Logans look a lot like a series 33uF capacitor in the bass" says David Pearce after looking closely at our ESL 11a Impedance analysis on p15 of the September issue. He's right!



Our Icon Audio Stereo 30SE amplifier. A 22 Ohm resistor across Martin Logan ESL 11a loudspeakers may improve bass thinks David Pearce.

capacitor across its output Zobel network (something the Stereo 30SE doesn't need or have).

In all then there is a lot going on here and as you so perceptibly note the impedance graph offers some warning – if you can interpret it. That's why Gilbert Briggs (founder Wharfedale) always said it was an important metric and why we always publish an impedance curve. It also warns that a fantastically revealing electrostatic panel is a very naughty device as far as amplifiers are concerned, to which they can react very differently. **NK**

PASS THE POPCORN

I came across this video explaining the nature of digital audio signals and processing: <https://www.youtube.com/watch?v=cIQ9IXSUzUM> There is a prequel to this including an overview of digital video: <https://xiph.org/video/vid1.shtml>

I would be interested to hear the Hi-Fi World take on the presentation and particularly how from this explanation, hi-res digital is not necessary.

Best,

Matthew Rowland.

Hi Matthew. Thanks for directing me toward this exciting video – all 25 minutes of it. From an engineering point of view it is fine – the (digital) software engineer, Christopher Montgomery (Ogg Vorbis), knows his stuff but he brushes over what he has no experience of, so distortion is "below audibility". What level is that? What sort of distortion is it – low order or high order? Was it correlated with the stimulus (difficult to detect) or uncorrelated (easier to detect)? All, these things affect audibility.

Then there's the rather strange if not uncommon approach of

using hypothetical situations that don't exist in real life – notably low distortion signal generators. Digital music is coded by ADCs that add both distortion and noise – then 16bit DACs make their own contribution on playback.

I agree that using a modern 16bit ADC and DAC of low distortion and noise will give good results, good enough for him and a few of his digital engineering brethren perhaps. But they're a hard core minority.

Others disagree. Digital design engineers around the world, at Texas Instruments, Chord Electronics, Asahi Kasei Microdevices, National Semiconductor, Maxim, Wolfson etc would not agree. They know about digital music too, but also take into account that it comes from an analogue world and then returns to it, the whole signal chain being important, not one isolated part of it that can be judged in theoretical isolation.

A big issue with hi-res at present

is that we are commonly listening to 16bit recordings, often very old ones made in the 1990s, suffering the distortion and quantisation noise of old 16bit ADCs. Such theoretical discussions of digital do not take this into account.

For example they ignore distortion from old 16bit DAC ladder converters that working engineers (at Motorola, Philips and TI) knew about – hence evolution to Delta Sigma architecture, for example Philips SAA-7321 chip that replaced the TDA-1541 ladder convertor in 1989.

When Christopher Montgomery talks about 16bit, it's hypothetical 16bit, not real life 16bit! Old real life ladder converters produced 2%-3% distortion at -60dB (I know because I've measured it), compared with 0.2-0.3% distortion today – again our measurements show this, we don't pass off hypothesis as real life fact.

All this matters, as does our perception of the various distortions, noise and jitter that arise in digital conversion processes, 16bit being quantifiably poorer than hi-res 24-bit. For the latter, at -60dB distortion measures 0.02% – ten times lower than CD. That wasn't in the video, nor any discussion of how this may affect sound quality.

People like making these videos a poke around YouTube shows, and put a lot of effort into it, giving a persuasive final result. But they say more about the person making the video than the subject matter. **NK**

ARE REVIEWERS TRUSTFUL?

Hi. I'm always puzzled when a reviewer tells you that this guitar player was using



Christopher Montgomery explains on YouTube why 24/192 music downloads 'are very silly indeed'. "I would be interested to hear your take on the presentation" says Matthew Rowland.

a X guitar with Y strings and Z piezo mics. How does he/she know unless he/she was there at the recording session?

Take Jimi Hendrix as an example. OK, anyone having seen photos of him playing the guitar can identify the guitar brand he was using. But the strings? The piezo mics on the guitar? The effects he used to use on his guitar amp? The effects that were added in post-production? If you weren't there at the mixing/mastering session, chances are that you can't know. There are too many parameters which can have changed the original sound for you to identify a string brand or a guitar mic brand.

I've been doing live recording since these last 20 years. Mostly classical and jazz. With classical you cannot cheat as there is no processing. So yes, if the recording is faithful enough and if you have perfect pitch and an extended experience of classical music you might be able to recognize a Stradivarius from a Guarneri.

With jazz it's more towards the rock scene. For instance, I used to capture the whole jazz band with a stereo pair. Despite spot micing the bass amp. I lose some accuracy and tightness in the lows. Therefore I spot mic the double bass aimed at the f hole, as well as the kick drum. I use a HPF (high pass filter) on the stereo pair to get rid of the muddy lows and mix back in the spot miced bass and kick drum into the overall mix. The result is better accuracy and tightness in the lows.

But who can say that the bass player was using an X double bass, with Y strings, with a Z amplifier, with XYZ effects, with my own mix of direct bass/amplified bass? Nobody but me. So how can a reviewer know? As The Who sang it – Don't Get Fooled Again – and don't believe what is not believable from reviewers.

**Jean-Christophe JC Xerri,
5MBS Recording Team Co-ordinator,
Australia.**

Hi Jean-Christophe. Absolutely right. Dave Tutt dedicated his column to this in our April 2018 issue. It's difficult-to-impossible to know whether a recorded instrument is truthfully portrayed, be it a piano in Dave's examples or a double bass in yours.

I will politely disagree with this not-uncommon view in one respect though: human aural cognition uses a fitting process against experience and there's averaging of the experience in there. If a plucked acoustic bass consistently sounds implausible

across a variety of recordings when heard through one product but not another the listener may be – I would say likely be – right in thinking that product is not truthful. This is why we use other, often contrary products, to check the proposition. It is impossible to be certain because as you say originality is lost in the recording process.

I think some reviewers try too hard to be taken seriously, and I did say in a column (May 18 issue) a lot of CDs are blatantly and massively compressed upward (to sound loud) and therefore don't represent real life sounds at all and should be used with caution in the review process. High quality uncompressed recordings on CD, hi-res and DSD show true instrument dynamics and reviewers need to use them, irrespective of artistic merit or whether they're personally appealing. **NK**

PIONEER PREFERENCE

I wonder whether I might ask your advice on the best way forward with an upgrade. Here's a short history. For many years my system was Linn Klassik, three LK140 power amps and Linn Keilidh loudspeakers. The amps were in active configuration. I then changed the 'speakers for Spendor SP212/s a couple of years ago and disposed of two of the LK140s and the active cards. I restored the Spendors with new tweeters and new bass midrange drivers from Spendor. Strangely enough the LK140s didn't make the Spendors sing. It was all a bit neutral and un-engaging. I was most surprised.

However, I had restored an old, but in beautiful condition, Pioneer SA-9500 with new caps and some new silicon in places. From the moment I connected this up everything seemed to drop into place. Here was bass – not bloomy and waffly but 'phat' and wonderfully detailed with a lovely midrange. I also had more knobs to twiddle, should I so desire, than any man has a right to

expect. However I mostly kept the 30Hz filter in for playing vinyl and everything else flat. I really enjoyed listening to all sorts of music through this system. I love the Spendors they are the best speakers I have ever owned.

The thing is, of course, that the Pioneer is old. Probably 40 years old. It has had one Achilles heel which I have spent a lot of time trying to track down myself and then asked Dave Tutt to take a look. Each time we feel it has been sorted but it comes back. Some serious noise in the left channel and some cone flapping voltages from time to time. It is now sulking quietly in the spare room awaiting a decision. I pressed a Quad Vena I own into service as a replacement. But this has left me feeling underwhelmed. It lacks bass punch, tending to the dry side and when loud it sounds a bit harsh to my ears. Not a long listening session amp.

The local hi-fi shop suggests a Naim Supernait, or Nait XS might be a suitable listen. I cannot afford the as-new prices but wondered whether they would be a good shot second hand? What about Arcam? I know nothing about their range but they have a long history and good pedigree. Anything you could suggest would be appreciated.

The rest of the system is an LP12 with Quintet Blue through Trichord Dino, and a Linn Sneaky streamer. I rarely use headphones so that facility is not hugely important to me. I use Chord Crimson interconnects and QED silver anniversary speaker cable.

With kind regards and thanks for an excellent and interesting magazine.

**David Osborne
Cranleigh**

Hi David. The Naim Supernait would certainly give you the bass punch you are seeking (I use one myself at home). Searching around for a second-hand unit would be an option - but bear in mind that because of their build quality and Naim's ability to service almost everything they



For powerful bass "the local hi-fi shop suggests a Naim Supernait" says David Osborne. Modern Naim amplifiers are about as good as it gets, we reply.

have made, their products tend to retain their value well.

Arcam's A29 integrated amplifier would be an option. It has a nice, smooth sound with no harshness and a good deal of punch. Alternatively, Cambridge Audio's range of CX amplifiers have a big, rich sound with good detail and offer excellent value-for-money. Happy hunting! JM

Hi David. Yes, the LK140s were somewhat 'polite', something I attributed to their switch-mode power supplies. They measured well however. Just goes to show.

As your dealer suggests, the obvious route is Naim. Otherwise consider Arcam, Audiolab and Cambridge amplifiers, as well as Exposure. All three manufacturers use beefy linear power supplies. Alternatively, consider a Supernait second-hand. Modern Naim amplifiers are about as good as it gets from solid-state.

If you don't play very loud then see if an Icon Audio Stereo 30SE valve amplifier appeals, as this will certainly give you what you want and – being an SE – is reasonably maintenance free. I say this because it matches the Spondor sound: smooth, sophisticated and organically natural.

It seems to me that you need to borrow a few amplifiers for evaluation, if that is possible, as you are obviously well attuned to their sonic foibles. **NK**

ON THE MOVE

Having recently moved house (larger room, concrete floor, much more glass), I was getting truly awful sound quality relative to what I experienced previously from my system (modified Naim amplification, TEN Eclipse TD712zs, MA active subwoofer with digital active crossover).

Changing mains cables, interconnects, adding more resonance management (racks and footers) each helped, but didn't get anywhere near addressing the fundamental performance deficit I experienced between old and new properties. So to Dirac room correction to try and understand what was going on.

What you see in the attached pictures is the full measurement output of my system in the new room (after a lot of time spent trying to optimise placement by ear) from Dirac on a MiniDSP DDRC-22D. The nine measurements span my sofa side-to-side, front-to-back and top-to-seat, so not a massive physical measurement range, but look at the variation in frequency

response values between data points taken just half a metre to 2 metres apart. And they're all terrible! Yet see how much smoother the averaged response that Dirac generates is against the target curve once the room measurements are complete!

Whilst (perhaps unfortunately) there's a lot more to good sound than just a smooth frequency response (remember speakers like early 70s KEFs, et al), Dirac also simultaneously corrects phase (and thus impulse) response which very much helps as it makes transients altogether snappier and bass both tighter and better timed. The net result is a sound that is now really rather better – in PRaT (Pace, Rhythm and Timing), imaging, detail – than I had before in my old house. The Dirac room correction allows me to now fully realise the benefits of the better cables, resonance control, etc.

Some companies embrace these sorts of room correction capabilities in various ways, and some don't ... but surely this kind of thing is the future ... and yet its been here at least since the Tact RCS system about 15 years or so ago. How slow can hi-fi manufacturers, and some enthusiasts, be to use this stuff?

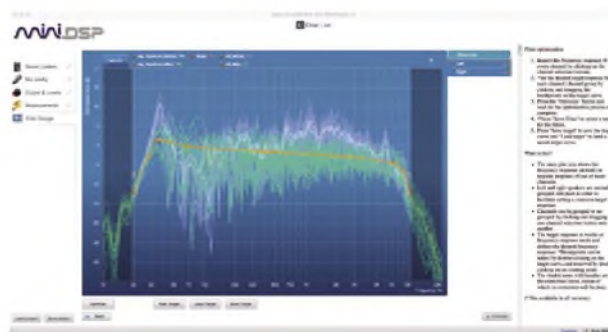
And how about that long-promised review of room correction software / systems (unless I missed it, in which case please accept my apologies for doing so). I suspect a lot of your readers could potentially benefit from this?

**Best regards,
Rod Thorogood**

Hi Rob. Yes, room correction works (up to a point), improving the sound at the listening position but not elsewhere. But it requires time and effort, as well as extra expense, and

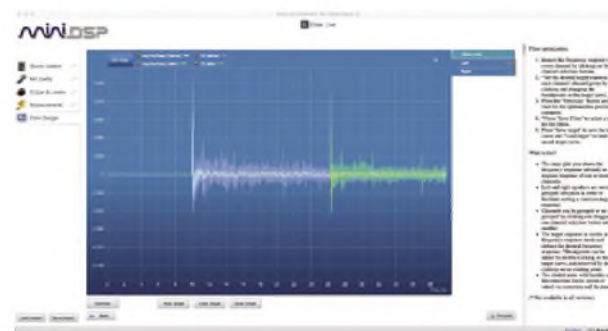
there seems to be very little interest; rarely are we asked about room acoustics. The results from Dirac look impressive and it's interesting that it's solved your problems (in a 15ft long room I calculate).

A background issue however is that low frequency room peaks and suck-outs can be narrow but high amplitude. In this situation inserting digitally generated inverse electronic correction causes more problems than it solves, as I found recently with Anthem Room Correction when turning volume up (see Martin Logan ESL11a review, September 2018 issue). **NK**



Frequency spectrum in Rod Thorogood's room before and after Dirac room correction. The light blue trace shows averaged spectrum before correction, with a high bass peak at 36Hz (left), bass loss just above it and substantial lift from 700Hz to 5kHz, making for a bright sound.

Dirac room correction – light green trace – has tamed the aberrations and smoothed the response dramatically, meeting the target result (orange).



Impulse response. Dirac has smoothed the time domain impulse response of the room over the first 1ms in particular, likely due to reduction in high frequency reflected energy levels above 1000Hz.

POWER SUPPLIES

I thought I should reply to Aaron Proctor's letter in the September 2018 issue.

The capacitor issue for amplifier power supplies is very much an issue of tuning. Large capacitors are needed to deliver current at low frequencies and higher powers. They effectively create a stiff DC power line that reduces the

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effect of AC getting into the amplifier and causing hum. However, there is an issue as the frequency you are driving at the amplifier rises. Put simply the big capacitor in the PSU just cannot deliver the current at higher frequencies without some help. So for better midrange and treble you need smaller capacitors. I always use suitable PSU style electrolytic capacitors but bypass with as many combination polyesters as I can find space to fit and the closer to the power amp the better.

I understand the effect is due to two or three things, the ESR (equivalent series resistance), and the reactance of each individual capacitor in the PSU and the DC resistance of the path to the power amp output stage.

In addition there is also the same properties of the local decoupling at the power amp. As you can imagine if you look at this as just a case of making a computer spice model of your design and running the process you won't get a great sound. It is all a tuning issue that has to be done stage by stage. Some manufacturers are great at this and they tend to be those that get 5 globes and many plaudits from the critics while others...

I am with John Linsley Hood to some extent where a regulated power supply works supplying the driver and first stage of the power amp with the final output transistors using the direct DC output of the power supply. That combination from what I remember of the Hood design sounds best. Doing it this way is not too expensive but only possible if the amp is fully discrete in its construction. Regulated supplies for a power amp need to be able to deliver over 5 amps per rail no matter what the output power of the amp so you end up with a PSU that is more complex and expensive than the amp itself.

Regards

Dave Tutt

Hi Dave. Yes, a d.c. power supply must be free of a.c. and electrolytics bypassed with film capacitors is the usual way of achieving a low effective series resistance to ground to ensure no a.c. exists.

A problem little acknowledged until recently in regulated supplies is that of noise. The low output impedance of regulators makes such noise impossible to get rid of – one reason chip voltage regulators are frowned on by people like me. I see that nowadays Naim deliberately draw attention to the fact that they use low noise voltage regulators. This moves their use closer to ideal than

is otherwise the case, but they are still feedback amplifiers with distinct transient behaviour.

There's always an argument for using a choke and capacitor Pi filter that may not have good regulation but has no noise – important on the feed to a high gain preamp stage.

As you say, amplifier design and construction at this level is as much an art as a science, demanding considerable experience. Some companies have it, others do not.

NK

WEIGHTING

Many pre and power amps that use A Weighting values in their specs perform much worse than is generally acknowledged in both hum and noise and the reality is that it gives a false impression of goodness, particularly relevant to RIAA stages. I think it's a bit dishonest and maybe somewhat misleading since one does not listen to a weighted scale but the actual sonics that emanate from a loudspeaker. My bone of contention with this is that some very sensitive speakers from your own stable and others like horns and Tannoys, can at fairly close range exhibit that power supply buzz from some power amps and certainly hiss from RIAA stages which are given a false indication of levels due to this weighting scheme.

However, engineers must make up their own mind about such matters. I have only ever measured noise directly without weighting, precisely to get a realistic sample of annoyance factors and design using quieter circuitry and better components. If it means anything to you, Ben Duncan believes that this weighting scheme is highly misleading and unnecessary. But of course it is a convenient commercial tool to give false impressions, rather like this damping factor measurement that we also discussed a while back whereby most measure it at 1kHz, which is completely the wrong frequency to do so. It should be done around 40Hz to get a realistic

figure of usefulness where a loudspeaker needs it most.

Chow

Vincent Hawtin

Hi Vince. Yes, the IEC A weighting curve is misleading, but it is easy to produce the rather simple 2kHz band pass filter and, for some reason, everyone around the world now quotes noise, dynamic range etc with this filter. So for comparability we are stuck with it and that is why noise and dynamic range measurements in this magazine use IEC A weighting. Our measured values should match those supplied by manufacturers, allowing comparison.

The French CCIR curve made more sense to me than IEC A, since it better mimics the ear's sensitivity to different frequencies (Fletcher-Munson curves and all that) but it is a pig to design and seems to have fallen out of use, perhaps because of this.

Measuring noise without IEC A Weighting makes the result dependent upon hum levels and with Phono



The common IEC A Weighting curve (courtesy Sengpiel Audio). "I think it's a bit dishonest and maybe somewhat misleading" says Vince Hawtin.

See <http://www.sengpielaudio.com/Bewertungfilter02>.

stages and their vast gain at low frequencies, coupled with erratic earth arrangements, you cannot get any idea of hiss from the value, especially in moving coil preamps.

As you say, sensitive loudspeakers draw attention to hum and buzz from amplifiers, but this afflicts valve amplifiers more than well designed solid-state. With World Audio Design amplifiers we used 1mV as the top most acceptable level of output for hum, to avoid audible hum. Today's transistor amplifiers have no problem here though; hum and buzz do not exist in a reasonably competent design, so these issues are yesterday. **NK**

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The Rocker

Gene Vincent was one of rock's original rebels. Paul Rigby talks to Vincent expert and author, Derek Henderson, about Vincent and his seminal album, 'Gene Vincent and the Blue Caps'.



BBC Radio 1 DJ, John Peel counted a Gene Vincent concert as one of his 10 best gigs of all time. The concert took place at the Liverpool Empire, on 12 April 1960, when Vincent shared a stage with Eddie Cochran. "Gene

sang along with in my bedroom echoed like something abandoned and fearful, in the Liverpool night. Gene was perfect, exactly as I had hoped he would be, and all I have to do to recapture that night is listen to 'Race With The Devil' or 'Who Slapped John' or any other of dozens of classic tracks. Perhaps the fact that Gene never really made it commercially in the way that he surely should, helped to endear him to me".

Vincent was born in Norfolk, Virginia, into a poor white family, on 11 February 1935. He wasn't well educated, only reaching the eighth grade at school. That and his lack of work-based skills prompted his move to the US Navy.

"It was whilst on leave on 4 July

1955, riding his Triumph motorcycle bought with his service salary, that he was involved in a serious accident with a car, which shattered his left leg and permanently crippled him," said Gene Vincent expert and author, Derek Henderson. "It never healed and he continually damaged it on stage. It would have been better if the limb had been amputated at the time, probably. He was continually in pain." Maybe this explains his intake of pain killers and alcohol.

It was when Vincent began performing at the weekly WCMS radio station talent show, in early 1956, that he was spotted by the station DJ, William "Sheriff Tex" Davis. Davis quickly became Vincent's manager and then undertook a



"Gene looked, as I dreamed of looking, completely out of control," said DJ John Peel.

looked, as I dreamed of looking, completely out of control. He almost completely ignored the audience, staring wild-eyed into the wings as though demons lurked behind the Empire's plush curtains.

"From time to time, he would fling his damaged leg – held together, we were told, in defiance of medical reason, with pins – over the microphone, and that unearthly high, almost feminine voice that I



Just to get a record in the national charts then was big business.



Vincent's Triumph motorcycle shattered his left leg and permanently crippled him.

To some eyes, it might seem a little odd that the manager is running around town, getting together a band. Shouldn't Vincent have already done this? Vincent, however, had no musical vision, at this stage. He wasn't a leader either at this time in his career. In fact, he was just a wide-eyed kid who went along for the ride because he dearly wanted a hit record.

On 4 June 1956, Capitol released the single, 'Be-Bop-A-Lula' and Vincent grabbed himself that desired hit single. In fact, on 16 June 1956, 'Be-Bop-A-Lula' entered the



This album revealed new depth in Vincent along with an added sense of artistic development.

"it might seem a little odd that the manager is running around town, getting together a band."

search for local musicians to cut a series of demos to send to Davis' contact and Capitol staff producer, Ken Nelson, "Cliff Gallup, in his mid-20s at the time, who was a local semi-professional electric lead guitarist with The Virginians, was one and the 15 year old Dickie Harrell, on drums, was another. Nelson was impressed enough to contact Davis and set-up a session in Nashville. This was probably when the acoustic rhythm guitarist, "Willie" Williams and double bass player, Jack Neal, consolidated the line-up".

Billboard chart and stayed there for 20 weeks and the Cashbox chart for 17 weeks, peaking at No 7 and No 5 respectively.

Once the single hit the ground running, Capitol followed suit as Ken Nelson, who produced the first session of four songs, rushed Gene and



In the early days, Vincent was just a wide-eyed kid who dearly wanted a hit record.

the band back to Nashville in June to cut tracks for their first album.

On 13 August 1956, the debut LP, 'Bluejean Bop!' was released while, on 10 September, Capitol released the 'Race With The Devil' single, which entered the Billboard chart for a week at No 96 and the Cashbox chart for two weeks, peaking at No 50. Don't dismiss the relatively low numbers, though, "Just to get a record in the national charts then was big business," confirmed Henderson.

On 26 September 1956, the LP, 'Bluejean Bop!', entered the Billboard album chart for two weeks, peaking at No 16.

As Henderson explained, "You can see the momentum here, Capitol

As soon as 'Be-Bop-A-Lula' hit the charts, Davis exploited the success to best of his ability. In mid-July 1956, Vincent began the first of many gruelling concert tours plus a national TV appearance on the Perry Como show, hosted by Julius La Rosa.

"Whilst Gene and, no doubt, Dickie made hay while the sun shone, Cliff, who was a married man, and Williams didn't enjoy the experience at all and quit the band in September 1956. At this point the Blue Caps line-ups became more complicated than we need go into. Paul Peek replaced Williams on rhythm guitar but several guitarists

temporarily filled in, including Russell Williford, who mimed Gallup's part in the cameo in 'The Girl Can't Help It' movie. Paul Peek mimed Williams' part in the movie. When it came to the recordings in October 1956, the 'Gene Vincent and the Bluecaps' album, everyone knew that Gallup was far better than

any of the stand-ins who'd been playing live gigs, so he was persuaded to return just for the sessions. He was adamant that he wasn't going back on the road".

'...Blue Caps' reveals new depth along with an added sense of artistic development, a new confidence and poise. Of course, the fact that the debut was such a rushed affair had to be a factor in that LPs rather loose structure.

The finished album was a revelation. To such an extent that it blew away every other white rock'n'roll band in the world at that time. It also cemented Gene Vincent's position in the pantheon of rock greats.

THE BLUEJEAN BOY

The story of the album, 'Gene Vincent and the Bluecaps', is also the story of Gene Vincent the man, his ambitions and his band relationships. Derek Henderson, author of 'Gene Vincent: A Companion' (Spent Brothers; spentbrothers.com/shop), was able to reveal more about the legend and the events surrounding the release of the album.

What sort of a man was Gene?

He was a mess. He was shy off stage but he also drank too much and could become aggressive. Dude Kahn, who played drums in the Blue Caps on tour on a couple of occasions told me, when I met him in Dallas in 2000, that Gene would attract the girls to the stage which annoyed their boy friends, then he would taunt and goad those same boyfriends to come round backstage after the show where he and the Caps would, "...beat the s**t out of them." I hasten to say that this wasn't something that Dude approved of or entered into.

Would you say that the sound of the 'Gene Vincent and the Bluecaps' album sounds similar to the 'Bluejean Bop!' album?

They were both recorded by the same singer and musicians, except that Paul Peek was playing rhythm rather than "Willie" Williams, in the same studio: Bradley Film & Recording Studio, 804 16th Avenue, Nashville, TN, by the same engineer, Mort Thomasson, under the same producer, Ken Nelson, in a period of about five months after producing successful hit records with the first recordings. These recordings were all cut live in the studio. That is, Gene sang and the band played live together. The songs were recorded live, again and again, until Nelson was satisfied with the results.

Why did the band break up so quickly after Gene Vincent and the Bluecaps?

Well, Williams and Gallup had had enough months before, so Gene needed a new, permanent lead guitarist. By now, he was much more self-confident and took control of the band, becoming a conscious band leader. Paul Peek took Gene to hear Johnny Meeks play. Vincent liked what he heard and asked Meeks to join the Blue Caps. Meeks did make a point of telling Vincent that he couldn't play like Gallup but Gene told him he didn't want him to. I personally feel that the later recordings, with Meeks on guitar, are at least as good as the earlier Vincent recordings. They were heavier with a greater rock sensibility.

How aware was Vincent of Elvis Presley and was there any effort, by Vincent, to be more like him?

Gene saw Elvis perform and was mightily impressed by the reaction of his audience. I've always thought that story about Elvis' mother hearing 'Be-Bop-A-Lula' and thinking it was Elvis' latest record a bit rich. I suppose one can say that 'Heartbreak Hotel' and 'Be-Bop-A-Lula' both featured slap-back echo prominently but I don't see any resemblance in the voices. I don't think Gene wanted to be like Elvis but I bet he wanted to be as popular.

You can buy Derek's book on Gene Vincent from spentbrothers.com/shop



"He was a mess. He was shy off stage but he also drank too much and could become aggressive".

wanted more, so they called the band back to Nashville again in October 1956 to cut more tracks, some of which become the second album, 'Gene Vincent and the Bluecaps'".



"I don't think Gene wanted to be like Elvis but I bet he wanted to be as popular".

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Matchless

Shanling's new MO hi-res player is little larger than a matchbox – but offers great performance at a bargain price, says Noel Keywood.

It's little larger than a matchbox but plays DSD and has Bluetooth wireless communication! Shanling's new MO player – just £99 – put a smile of disbelief on my face, but I ended up believing – even if there were a few foibles.

I was going to say the MO looks cute – but our's was block-like and sombre in black. There are more eye catching coloured versions: red, titanium, blue, purple.

A lot is crammed into the CNC machined alloy case – including batteries having a claimed play life of 15hrs. Weight on our scales was just 38gms – a fraction of the 250gms or thereabouts of other players. The MO is a flyweight against all else. However, dimensions of 45mm high, 42mm wide including the volume control and 14mm deep leave little area for physical controls so there are none, except a rotary volume control with on/off/select switch. All inputs

are otherwise through a tiny touch-screen that wasn't so easy to use, as I'll explain later.

The MO is a full high resolution digital (PCM) up to 32bit/384kHz sample rate – way beyond CD's 16bit/44.1kHz. This includes FLAC, all Apple formats and DXD. It also plays DSD (Direct Stream Digital) that sounds even better than PCM – analogue like – if you have DSD downloads to place onboard, in either DSF or DFF format, or ISO rips from SACD. The reason for this versatility lies in its ESS Sabre ES9218P DAC chip with integrated headphone amplifier and very low power consumption. Even my double-rate DSD (DSD128) files were played – not a common ability. Impressive for a player so small in size and price. Measurement showed the

massive dynamic range of

ESS Sabre32 series chips was maintained too – an advantage supported by the chip's integrated low noise headphone amplifiers. The

MO can also act as a headphone DAC – 24/192 max from my Mac. The 3.5mm stereo jack headphone output can be switched to Line (fixed volume) so it can act as a 'CD player' running from a standard 5V/2A 'phone charging supply.

The player's Bluetooth is bi-directional and can transmit to a hi-fi or headphones, or receive to act as a DAC again. But there is no S/PDIF digital output to feed an external DAC.

Our review sample came with a small and brief paper booklet, no power supply (as most people will already have many) and a 1m long USB A to USB C lead. Plugging this into my Mac (Sierra) an external drive icon appeared, showing content of the player's micro-SD card alone, free of OS files because the OS is custom, not Android. Start up time was fast at around 10 seconds.

There is no on-board memory, storage is courtesy of a microSD card, 512GB max. This is plenty enough unless you intend to store more than a few hundred DSD files. A card is not supplied.

Small size and an insensitive LG touch screen (28mm x 28mm active area) made for a difficult initial experience but I soon learnt to use strong side swipes and taps to get a response. Because there are no physical controls (stop/pause etc)





Cover art overlaid by simple touch-screen control functions.

other than volume all commands are entered via this small touch screen. The menus available are numerous, including DSD output as D2P (PCM) or DoP (packaged DSD that needs a DoP equipped receiver). Raw DSD is not available. Since the player disconnects from USB to play, I believe I am right in saying there is no digital output over USB, only over Bluetooth, via aptX and Sony's LDAC that supports DSD.

There are a myriad of music

instructions (pdf) – but they were in Chinese! The handbook and website offer no help. I found that to update, the card must first be formatted (FAT32) then the .bin file copied to it. Selecting Software Update (with USB connected) on the player completes the process – not a procedure I have come across before, arcane and not user friendly. Shanling need to provide instructions for all this.

SOUND QUALITY

OK, I didn't get the low end muscularity of our ESS equipped Audiolab M-DAC+ with its on-board linear mains power supply – necessary because its ES9018 is a 'mains chip' that chews current. The bass line of the Pink Panther theme (uncompressed CD) was all there through Quad's new ERA-1 planar magnetic 'phones if not with same bass push. That small difference apart though, I was confronted immediately by the ESS sound that is smooth and svelte in an analogue manner, but also deeply detailed. I headed straight to the filters to add some sparkle to the



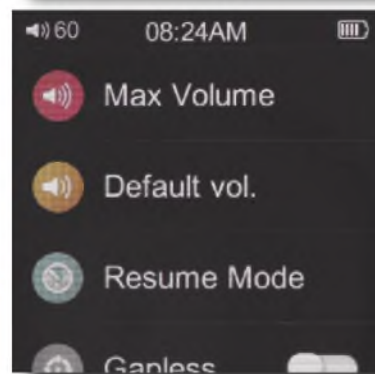
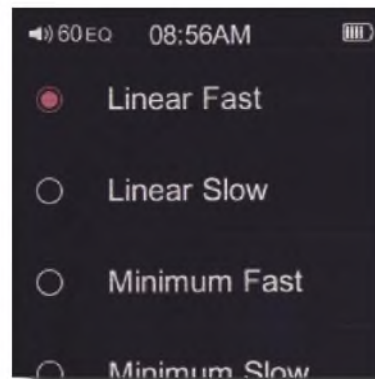
One micro-SD card slot with simple plastic cover, a headphone / line output (no optical digital) and USB socket.

EQ settings (Rock, Classical, Club, Dance, Bass – even Lobby!) and no fewer than eight filters. As is common though the filters have little affect with hi-res, measurement showed – and only minimal impact upon CD where the two Slow filters curtailed very high treble above 15kHz – barely perceptible in use.

Our player came with software Version 2 and 2.1 was available at Shanling's home (Chinese) site (www.shanling.com). Download yielded a zipped (compressed) file that had to be unzipped to get update

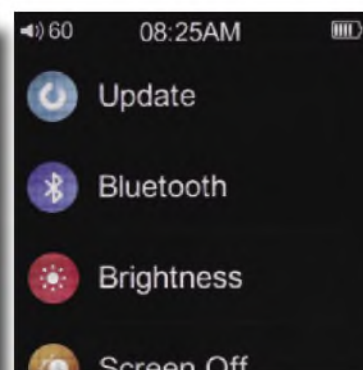
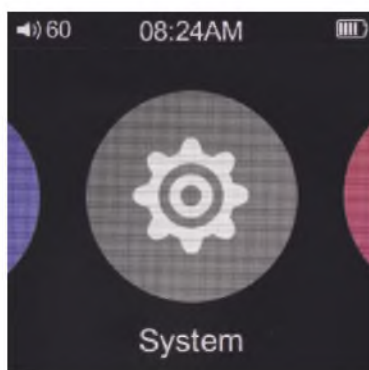
cymbal taps, alighting on Apodizing I. There isn't so much in it here, but select Slow for the old nasty coarse stuff from CD.

With the low sensitivity Quads I had volume set to High and level at 75 (of 100). Maximum volume was



Above are some of the filter options available on a list that scrolls vertically. Below are specific audio options rather than general system options.

not bearable – but not shattering either. However, I was searching for a bit more subjective impact that the player lacks – but hell it's just £99 and runs from a tiny battery! The low end was still big and warm, whilst the midband was not just relaxingly clear, but also timbrally rich and engaging with the close-miked guitar of Nils Lofgren's Keith Don't Go.



Main menu options take the coloured icons swiped left or right in sequence – effective. At right are some of the System options.



The right side carries a rotary volume control – a nice touch. With a push it also acts as a selector.

"Download yielded update instructions – but they were in Chinese!"

Strikes against cowbell at the start of Hugh Masakela's *Stimela* were easy on my ear but his vocal whoops flew out and background detail was subtly but fully rendered in true ESS fashion. The MO isn't a FA system so much as beguiling late night listening. Its huge dynamic range became apparent with Diana Krall's *Narrow Daylight*, where the piano and slow picked guitar rose smoothly from a deep background.

In use, loss of access to volume in screen-save power mode was a nuisance; I had to constantly re-awake the player to change volume. And a pointless Shanling logo (cover art replacement) infuriatingly inserts itself whilst playing, blocking the play screen, needing repeated removal. Otherwise the GUI is fairly good, once understood. But the small screen inevitably displays curtailed track titles.

The Berliner Philharmoniker sat on a wide sound stage, horns sounding rich and vibrant in Richard Strauss, *Don Quixote*; Horn Concerto No 2 (CD). It was an easy and gentle rendition. The choir behind Mercedes Sosa singing *Misa Criola* (CD) stretched wide and came across as texturally lush and easily natural.

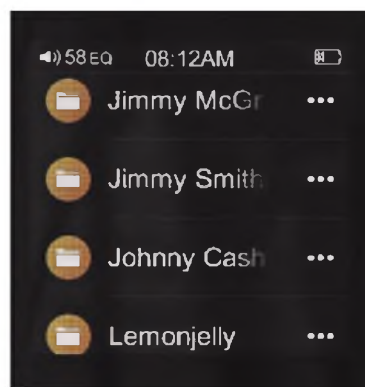
Things moved up a peg with Haydn's *Concerto for Horn No 1* (DSD) where the MO captured

a clear sense of space around the orchestra and horn, again making for a gentle but svelte delivery. The ESS

chip resolves DSD well and its gentle sound suits this file format.

CONCLUSION

Shanling's MO is laughably good at £99. It not only digs deeper into music than a lot of hi-fi DACs, but is small and light beyond comprehension. It hasn't big bass punch perhaps but still has big bass and a lovely smooth, warm and engaging sound that eases out the finest details, making for a sound that's filigree complex. A fascinating little player that delivers fine results.



The small screen truncates track titles, making search difficult.

MEASURED PERFORMANCE

Frequency response of the MO reached 56kHz (-1dB) before rolling off slowly to the upper theoretical limit of 96kHz, our analysis shows, with a 24/192 digital PCM signal and the Linear Fast filter. With hi-res the filters differed little in their characteristics but with CD the Linear Slow and Minimum Slow and Corrected Min all curtailed the high end to 15kHz and will slightly soften some sharp CDs, if by a barely perceptible degree.

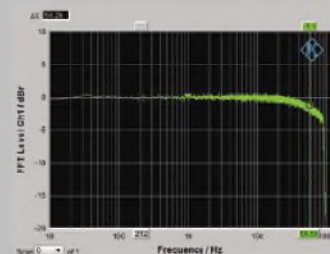
Distortion was very low, measuring just 0.02% (-60dB, 24bit), our analysis showing no harmonics and just a little noise. This resulted in a very high EIAJ dynamic range value of 120dB – better than many hi-fi DACs. Rival players commonly manage 110dB-117dB so the MO is well ahead. The Headphone Out / Line Out (HO / LO) option made no difference to results.

Output measured 1.64V (HO or LO). It's enough to drive all headphones, if a bit lower than the 2V value of a silver disc players that is common from portables nowadays.

The Shanling MO measured superbly, having impressive dynamic range. **NK**

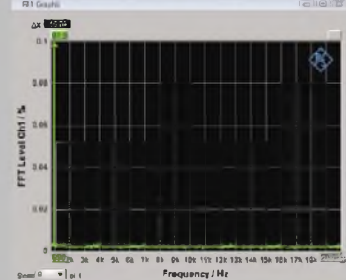
Frequency response	8Hz- 56kHz
Distortion (24bit, -60dB)	0.02%
Separation	102dB
Dynamic range	120dB
Noise	-118dB
Output (H'phone & Line)	1.64V

FREQUENCY RESPONSE



DISTORTION

THD at 0	Level [dB]	Frequency
0.0208 %	1.6483 mV	0.9970 kHz
OFF	OFF	OFF



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VERDICT

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FOR

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- Bluetooth

AGAINST

- awkward control scheme
- inadequate instructions
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DIY diskery

As Martin Pipe recalls, it took nearly two decades for the prospect of making your own CDs to become affordable – courtesy of machines like the Philips CDR775



Within fifteen years of its 1982 introduction, CD had become the prime means of distributing music in physical form. CD, like vinyl before it, was of course a pre-recorded format. For most of us, recording meant analogue tape: open-reel or cassette. But in the 1980s, digital recording systems started appearing for those with the money. PCM systems that used videotape as a high-density storage medium were followed by DAT, which used a small VCR-like case. Both found use in professional circles rather than the home.

During the late 1980s and early 1990s, rumours of a recordable CD

system started to surface; an 'Orange Book' standard for the 'WORM' (write-once, read many times) discs had been established in 1988. First came CD-R that could be recorded only once, then CD-RW that could be erased and re-recorded.

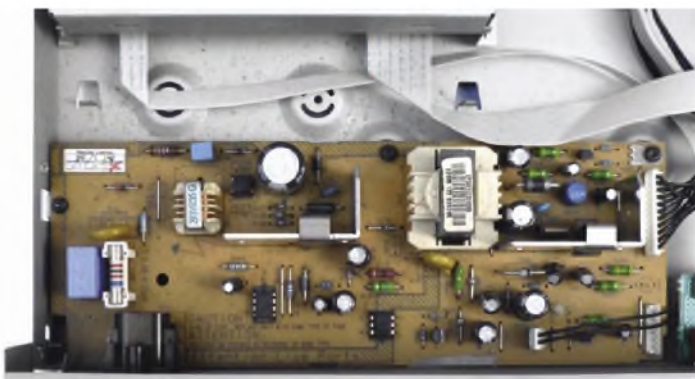
Introduced in 2001 or thereabouts, the Philips CDR775 featured here could record to both disc types, but it took things one stage further by using a twin-tray arrangement to facilitate dubbing. There was also a Marantz-branded version, and competing 'double-decks' from Sony and other big manufacturers. Dubbing decks like this have



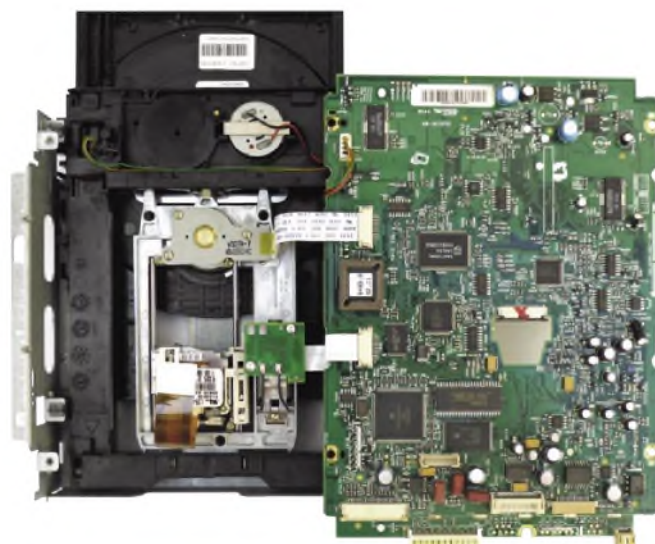
everything you need to make compilation CDs – the digital equivalent of the 'mixtapes' so beloved of some – in a single neat box that, at the time, retailed for less than £300.

On the left of the CDR775's fluorescent display, headphone socket and various controls is the CD recorder section; on the right lurks the player-only drive. Above each tray are the associated transport controls. One of them, a 'jog-dial', is used in conjunction with the display for various set-up and programming functions. Copying from one disc to another – in 'double speed' mode, if desired – is however subject to the constraints of SCMS flags.

If digital copying isn't allowed, an analogue recording is made in 'real-time'. Here, the decoded analogue audio from the player is routed to the recorder's analogue-to-digital converter. By default the machine will try to copy the entire disc, and if there's insufficient remaining capacity on the destination CD-R or CD-RW a 'does not fit' error will be displayed. You can however program the



A way of keeping costs down is to use a switch-mode power supply (SMPSU). The SMPSU in the CDR775 can suffer dry joints, causing erratic behaviour – cured by re-soldering.



What the CDR775's CD burner looks like in pieces. This specimen failed after finalising a disc. Luckily, I had another partially-working unit to cannibalise!

playback-only deck so that only one track - or a selection - is copied from the source disc. This procedure can be repeated with your other source discs, until the recordable disc is full.

Needless to say, the discs should be fed into the machine in the appropriate order if your 'mixtape' is to have the desired musical flow! This 'program play' function also works for listening; other operational features take advantage of the two drives. The machine can be used as a 2-disc changer, and for the more adventurous there's a 'DJ' mode in which both drives can play simultaneously. Random and repeat playback are also available, for one or both drives.

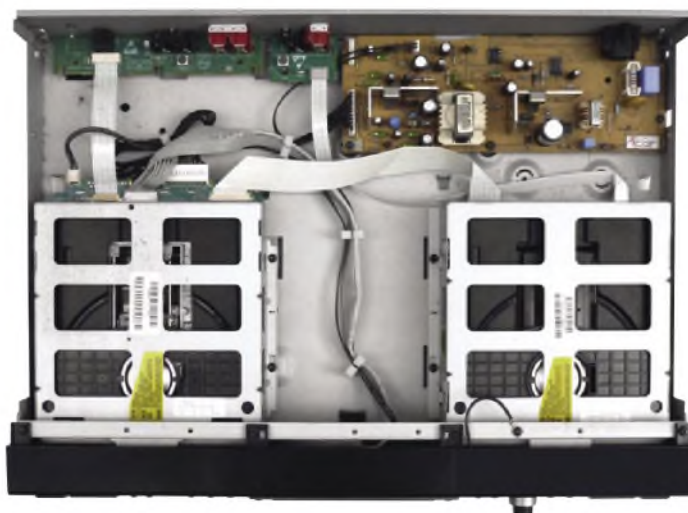
Double-speed copying – or 'RECORD FAST', as it appears on the screen – proceeds silently. Copy in 'real-time', though, and you can listen if you remember to engage 'rec listen'. Make a mistake, and you can delete the corresponding track; the capacity can only be reclaimed if you're using CD-RW. Another recording mode ('MAKE CD') will

automatically-finalise the disc after copying so that it can be accepted by 'normal' CD players. Older (pre-1998) models will struggle with

CD-RWs, but the majority will accept CD-R media.

Naturally, you can also make recordings from analogue or digital sources – phono, S/PDIF coaxial and optical socketry lurk on the rear panel (oddly, the CD section gets dedicated digital and analogue outputs – possibly for the benefit of the DJ mode). To engage it, select the appropriate input with the 'EXT. SOURCE' button and press 'REC MODE' until 'REC EXT MAN' appears. The jog dial can then be used to adjust recording level. When you're ready, pressing the RECORD button kicks off the burn.

The source can be monitored while the recording is being made. A neat trick is that tracks and albums alike can be named, courtesy of a CD-Text feature, before the disc is finalised. Entering this information is rather laborious, as you have to rely on the remote (does anyone remember composing SMS on archaic mobile phones?) or the jog wheel.



Integration was required to bring down the price of the CDR775 – made in Hungary. In this picture are the master (record/play) and slave (play-only) disc transports, on the left and right respectively.



The CDR775 had optical and coaxial digital inputs for recording from sources like DAT, DCC, Minidisc or DAB; there's also an analogue input for 'needle-drops' (via your phono stage) and archiving tapes.

It's a pity that Philips didn't include a computer keyboard socket, as Sony did with some of its Minidisc hardware. The information will appear on the display of any player compatible with CD-Text.

Playback audio performance is more than acceptable given the low price – we're in definite budget player territory here. The presence region is clean and smooth albeit a little lifeless, which is alas rather important when it comes to voices! Treble tends towards the bright, with an occasional tendency to 'bloom'

depending on the source material. Bass is fairly well-controlled but lacks absolute depth and authority, and when complex music is being played some of the subtleties are masked in a fairly obvious way. An external DAC improves things no end.

Recordings from analogue sources are robbed of their vitality, as comparisons between 'needle-drop' recordings and the original vinyl painfully reveal. A player like this will suffice for in-car use, parties and DJ use are concerned, but not critical listening.

Digital sources are another matter and the results can be excellent, to the extent where it's difficult to tell copy apart from original even when they're being played through a revealing DAC.

The internal layout is reasonably-uncluttered. Most of the functionality is built into the CD burner, the read-only playback transport being

codec! To facilitate the CDR775's DJ mode, the playback-only deck has an independent analogue output courtesy of a 'low-cost' Philips UDA1320 Bitstream DAC.

The biggest everyday problem with the CDR775 is its reliance on expensive 'audio' blank media. Some third-parties came up with hacks that

compilations and copying discs, but not the expensive media or SCMS limitations that dogged consumer CD recorders. Easy-to-use PC software that 'ripped' and 'burnt' discs were free of such nonsense, and so this quickly became the accepted route – unless you specifically needed to record from analogue sources. Also impacting sales of CD recorders were solid-state players; Apple's first iPod was, like the CDR775, launched in 2001.

Then there were the reliability problems that people had with the CDR775. Sometimes, one or both of the transports would stop working without warning – or users would encounter burning errors. It wasn't uncommon to discover that a newly-purchased machine was faulty 'out of the box', leading one wag to describe buying one as a 'crap shoot'. Despite this, CDR775s sold well and are fairly plentiful second-hand, but there's usually something wrong with them (or soon will be)! Incomplete machines, missing one drive, crop up too.

The CD burner of the machine featured here failed completely after finalising a CD-RW I had recorded as part of the preparatory work for this article. Luckily, I was able to get it going by replacing the drive – an identical unit, the playback-only deck of which was hampered by a faulty laser, was the donor!

As with so many items featured in Olde Worlde, the CDR775 has been made redundant by technology. If you still need to make CDs from external sources, a PC is probably your best option. Decent PC USB converters, like ART's USB Phono Plus, can be had for under £100. Use a high-quality field recorder for the task, and its memory device can be transferred to a PC. Once those audio files are on your computer, they can be edited and burnt to cheap CD-R!



Both of the CDR775's disc transports are compatible with CD-R and CD-RW media, finalised or otherwise, although only the one on the left can record onto it!



The CD burner, showing the laser sled (under the metalwork) and the various connections. It can copy at double-speed from the play-only transport and supports CD-Text.

a comparatively-simple affair. The front-panel, connector board and a switch-mode power supply (which can suffer from dry-joints) are the only other items.

The CDR775's service manual doesn't provide schematics for the burner, which the repair technician must replace as a complete unit – an expensive proposition, if you're out of warranty. The burner contains the all-important chip responsible for conversion between analogue and digital. This Philips UDA1341TS, which incorporates a Bitstream DAC and a delta-sigma ADC, is described as an 'economy audio

allowed cheap computer discs to be used instead; with some recorders, you could forcibly replace an audio disc with a non-audio one before recording began. My solution was to record onto CD-RWs exclusively, and then use a PC running Nero Burning ROM to make a bit-perfect copy onto cheap computer-use CD-R. The CD-RW could then be erased and re-recorded (1000 such cycles are allegedly possible).

Sadly for manufacturers like Philips, PCs equipped with CD (or DVD) burners) were gaining acceptance in the home. The music-loving public liked making

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A good egg!

Martin Pipe tries out some very unusual speakers from Japan

Loudspeakers don't have to be the nondescript box-shaped objects. For time immemorial, different approaches have been tried – whether for stylistic or technical reasons – and some have been more successful

bottle! More recently, we've had the influential Nautilus from B&W, Cabasse's Spheres and the organically-curvy Pods from Blue Room.

Spherical and egg-shaped loudspeakers – the latter in particular, lack parallel internal surfaces and the resonant modes they suffer, so make good sense. The cabinets are rigid too. Eclipse have a range of models and now we have the TD508s,

with multiple drive units suffer crossover issues, subtly-different listening paths that lead to phase-cancellation. Then there are the cabinet-diffraction effects, responsible for unwanted 'delayed' sounds that can interact with direct ones. A single drive unit such as that in the TD508 avoids these issues, optimising its time-domain performance, i.e. impulse response.

In Eclipse's words "the internal standing and diffraction waves generated at the front baffle edges are largely-eliminated by adopting a rigid yet tactile egg-shaped form, in which no two radial surfaces are in the same plane".

There is a single custom-designed 80mm full-range driver with a 52mm-diameter fibreglass diaphragm. Behind said drive unit is an efficient magnet, which has been endowed with 17% more flux density than the Mk.2 version's driver. The driver incorporates a highly-flexible (but damped) butyl rubber surround and a

conical 'mass anchor' designed to ensure, according to Eclipse, that air movement corresponds only to your source material. It is held internally within a diecast 'diffusion stay', a floating mechanism that decouples the drive unit from the substantial moulded enclosure yet maintains an airtight seal – basically, a permanent bond is combined with a flexible coupling. Vibrations are thus prevented from being transferred to the enclosure, consequentially reducing colouration and other unpleasanties. The enclosure has, by the way, been enlarged by a

into their third iteration.

Eclipse is a brand-name of Denso Ten, a collaboration between the Japanese corporations Fujitsu, Toyoto and Denso. In the early 2000s, Eclipse launched a series of speakers based around time-domain theory – hence that 'TD' prefix and, equally importantly, their distinctive appearance.

Traditional rectangular speakers

than others. Consider the Goodmans omnidirectional 'Stereophonic Bowl', Quad's iconic ESL electrostatics, the spherical GB-IE Spectrums from JVC and the Jordan-Watts Flagon – a speaker designed to resemble a ceramic



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Red Cartridges

A hugely popular all-purpose cartridge with a Tipped Elliptical stylus that delivers an open, dynamic sound with a slight touch of warmth.



Blue Cartridges

An affordable step up in the range, which adds greater dynamics, resolution and detailed sound thanks to the Nude Elliptical stylus.



Bronze Cartridges

Featuring a superior body, the Bronze picks up even the highest frequency information for a rich, detailed and deep soundstage, and can be further upgraded with ease.



Black Cartridges

The musician's choice and flagship of the range, the 2M Black features a Nude Shibata stylus which guarantees a true-to-life sound performance.

claimed 37% relative to the Mk.2 in order to achieve a better low-end performance

The integrated pedestal stand can be angled over a 40 degree vertical range, so the speaker can be aimed at the listener. The stand is designed to be as secure and rigid as possible – the TD508 Mk3 is heavy at 3.5kg. The design and compact size (180x289x268mm, with stand) of the speaker lends it to ceiling and wall-mounting, and to this end an optional bracket (the CBI) is available; Eclipse also sell the 508DMk3, a matching floor stand.

The TD508 Mk3 is available in glossy white, black and silver finishes (there isn't, alas, a black version of said stand). The speaker's 8 Ohm drive unit, the 30 Watt power handling and 82dB/W of which are rather low by conventional standards, connects to an amplifier by means of decent-quality terminals on the rear of the enclosure.

SOUND QUALITY

I tried the TD508 Mk3s with a variety of different components. However, their limited power handling means care should be exercised with bigger amps like the Arcam A49 I used – and low efficiency means they are best suited to small rooms. The sources I used for this review were digital – a Cambridge CXN, and the Auralic Aries G2 (featured elsewhere in this issue, feeding a Prism Callia DAC) playing hi-res content and lossless CD rips held on network shares and USB media. I installed the speakers on a flat horizontal surface, as per the manufacturer's recommendations set out in the instruction book, in a small room measuring about 12 x 10 feet. The front grilles were not fitted.

From the outset, it is clear that the TD508 Mk3's greatest strength is its agility. Those who consider pace, rhythm and timing above all else will revel in the sounds these little speakers pour out. Take for example Radiohead's Idioteque (Kid A, CD FLAC rip). Percussively speaking, there's plenty going on and to make sense of it a playback system needs speed and 'snap'. These speakers were capable of delivering such immediacy, immersing me in the music. The revealing nature of the TD508 Mk3s means you can distinguish individual sounds without much effort.

The unusual melodic structures, some of which have been sampled from 1970s-era electronic music, also fared well. Their timbres emerged

from the soundstage intact, while Thom Yorke's vocal sounded as urgent as ever.

But there's a caveat. You simply don't get the sheer bass impact demanded by music of this nature; these aren't speakers for fans of dance music and heavy rock, except with an active subwoofer. Eclipse sell such 'speakers – but they ain't cheap!

The upper-midrange region is endowed by a perceptible 'crispness' that gives some percussive instruments an edge and the TD508 Mk3's reliance on a single driver translates to a lack of the high-frequency 'presence' that I'm used to from the ribbon tweeters of my Quadral Aurum Wotan Vills. The triangle in Liszt's first Mephisto Waltz (Minnesota Orchestra/Eiji Oue, CD FLAC rip) lacked a certain 'sparkle', presumably because the single drive unit is unable to fully reproduce upper harmonics. The speaker did however handle dynamics superbly without strain and with a very natural stereo image to boot.

A recording that contains rather fewer musical forces, the Kronos Quartet's Pieces of Africa (CD FLAC rip), also showcased the TD508 Mk3's strengths. Wawshishijay (Our Beginning) was given plenty of the necessary space and atmosphere, while the stringed instruments and percussive sounds were well-defined. Solo piano music – for example, Herbie Hancock's The Piano (CD

FLAC rip) – benefitted from a realism that I've seldom heard in the home before. Intonation, dynamics and timbre were all as you would expect from a live performance, a freedom from colouration helping the illusion too.

CONCLUSION

To those used to the big sound of big boxes, the TD508 Mk3s may come as something of a shock. However, their lack of output at frequency extremes is more than compensated for by an innately-communicative and insightful character that outshines other often more expensive speakers. Their low power handling, compounded by a lower-than-average efficiency, means that the TD508 Mk3s are best suited to small listening rooms – where their small size and mounting flexibility would be of obvious benefit.



As a single-unit design there's no need for biwiring, hence a single pair of gold plated screw terminals. Note too the port directly above them; the TD508 Mk3 is a bass-reflex design. The rigid three-point mounting of the adjustable stand is also visible.

MEASURED PERFORMANCE

The compact TD508 Mk3 has a small single drive unit to cover the whole audio band and it did this quite well our frequency response analysis shows. There is a +5dB peak at 2kHz that will add some extra presence and brightness to the sound but this apart output is even.

There is – inevitably at the size – little low bass, output rolling down quickly below 90Hz. While the port (red trace) provides some output at 60Hz its small size means there is little acoustic power.

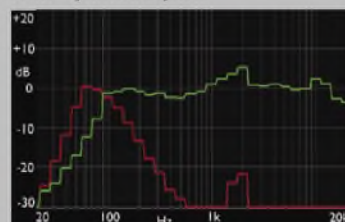
Impedance measured a high 11 Ohms overall (with pink noise) and DCR was 8 Ohms., as shown in our impedance analysis. As a result sensitivity was poor at a low 83dB Sound Pressure Level from one nominal Watt (2.84V) of input. The Eclipse needs a lot of power to go loud as a result, but its small drive unit will be unable to absorb too much, so high volume isn't

going to be possible.

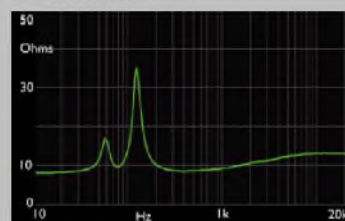
The TD508 Mk3 is reasonably accurate in its tonal balance but lacks bass and suffers very low sensitivity. **NK**

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



ECLIPSE TD508 MK3 £960



EXCELLENT - extremely capable

VERDICT

A convincing if bass-shy speaker, with unusual styling that might not appeal to everyone. Good for small rooms.

FOR

- exceptionally-revealing
- agile and immediate
- compact design

AGAINST

- restricted power handling and efficiency
- lack of bass impact

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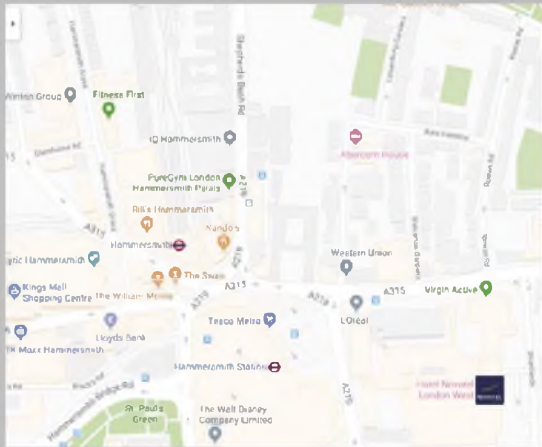
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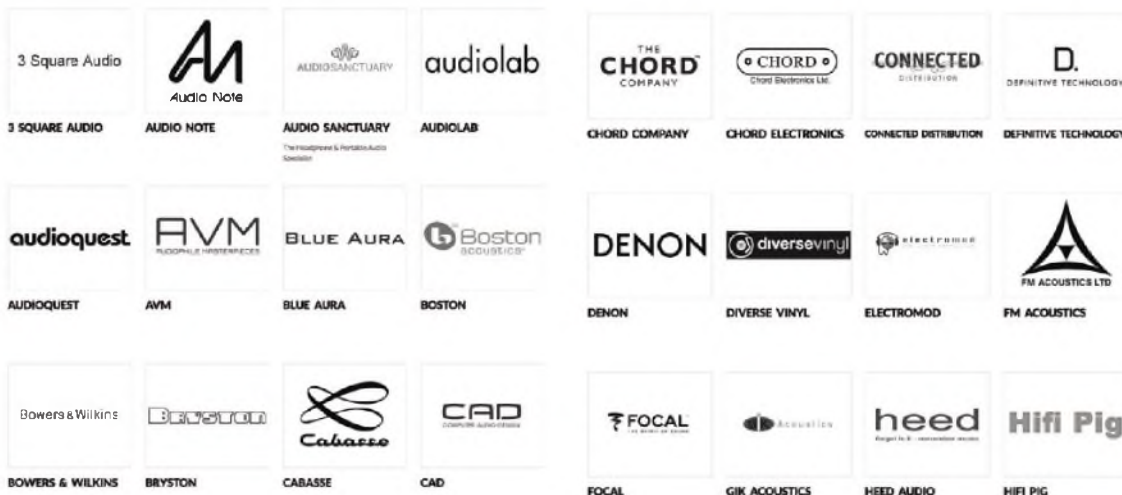
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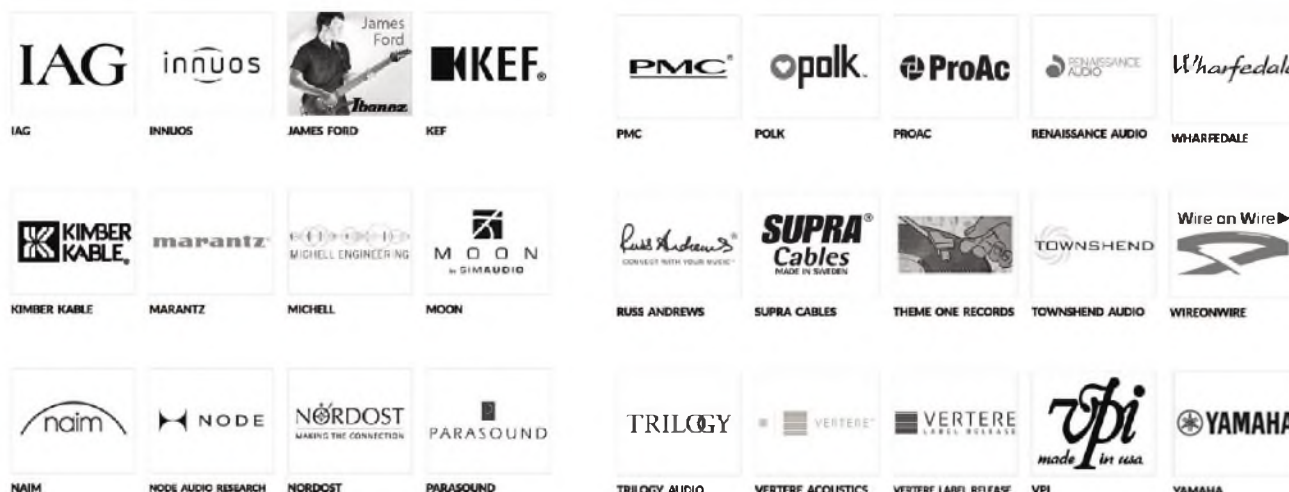
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STONE THE CROWS & MAGGIE BELL

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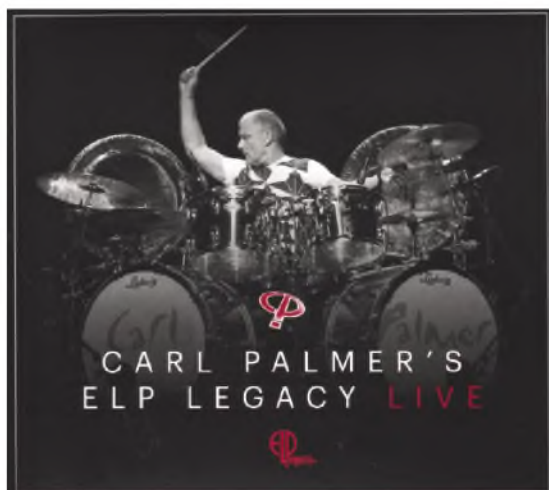
Scotland-spawned Stone the Crows had everything going for them but luck. They were talented, well known and respected – but never received the success they deserved. Maggie Bell was the principle lead vocalist. She didn't have the range of Janis Joplin but she could certainly belt out a tune. Alex Harvey's brother, Les was there too – along with ex-John Mayall drummer, Colin Allen. Led Zep manager, Peter Grant became the band's producer.

A double disc CD package, this set is split between group and solo. The first disc cherry picks from Stone The Crows' first four albums and focuses upon the work completed between 1970 and 1973. The second CD is rather more targeted as it looks at Bell herself dipping into her first two solo LPs from 1974 and 1975. There are two exceptions to that neat list – the live track from 1993 entitled 'Only Woman Bleed', plus the track 'No

Mean City' which was used as the theme tune to TV's drama show 'Taggart'.

In terms of mastering, the audiophile will notice an element of compression around the midrange which can produce a slightly edgy nature around vocals during crescendos especially. Guitar solos exhibit equivalent issues. Similarly, treble can be a little pinched which means that both cymbals and tambourines, for example, are a tad strident in their output. That said, the compressive effects are not severe and the album remains perfectly listenable with a broad and expansive soundstage pushing the sonics to the far left and right extremities. Bass is honed and punchy, giving the music a fast paced element, while there is enough space around the soundstage to prevent any cluttering claustrophobia. That is, despite the profusion of backing singers and musicians, there's plenty of instrumental separation to provide a relatively open and detailed presentation.

AUDIOPHILE CD



CARL PALMER

Carl Palmer's ELP Legacy Live
BMG

This set features two live shows. On the CD is a show from 25 November 2015, featuring the ELP album 'Tarkus' alongside 'Mars, Toccata and Fugue in D Minor', 'The God Of War / 21st Century Schizoid Man' and more at New York's Tralf Music Hall.

The DVD features Steve Hackett (Genesis) and Mark Stein (Vanilla Fudge) from the Olympia Theater, Miami, on 24 June 2016 and includes ELP tracks such as 'Bitches Crystal', 'Hoedown', 'Karn Evil 9' (Welcome Back My Friends), 'Romeo & Juliet' and 'Fanfare For The Common Man'. Both offer powerful performances from drummer Carl Palmer – immensely entertaining with superb musicianship – serving as a wonderful testament to both of his lost friends.

In terms of mastering, the

live production is big - epic even - and expansive in presentation. The layout is very much one of personality and occasion; there is nothing wrong with this CD. Spacious and open mids combine with strong and powerful bass while all frequencies are generally well behaved.

Palmer has grabbed the grandiosity of Emerson, Lake & Palmer and ramped up the bombast to the boundary, pushing max. Being a Palmer vehicle, it's interesting how the microphones have been arranged because Palmer's drums are definitely the stars of the show. Bass guitar hangs onto the drums in desperation – at times the percussive juggernaut crushes everything before it.

That said, Palmer is the star of the concert and this occasion is his baby. It is the Carl Palmer show, indeed.

An expanded two disc edition of the original album. Originally released in 1972, it was the first to feature the line-up of Sonja Kristina (vocals, acoustic guitar), Darryl Way (violin, piano), Francis Monkman (guitar, keyboards, VCS3), Florian Pilkington-Miksa (drums) and new member Mike Wedgwood (bass, vocals).

This expanded two-disc edition includes three bonus tracks, unreleased versions of 'Marie Anotinette' and 'Melinda (More or Less)' with French and Italian lyrics respectively and the non-album single 'Sarah's Concern' (released on CD for the first time).

Curved Air were an innovative art rock outfit, exploring prog, jazz, the avant-garde and more. There was never anything staid or predictable about Curved Air and this is a fantastic album full of superb vocals, plus under-stated

musicianship.

In mastering terms, there is an interesting sheen of compression, evenly applied to the general soundstage. These days, a CD production especially will be digitised and specific frequencies will be targeted for attention from the mastering engineer. This reissue sounds like its compression stems more from the original source. As if the original analogue stream was pushed through a compression box, en masse. Accordingly, the compression is more easily dealt with. Backing off the gain by three or four clicks on my pre-amp tamed the effects. Once done, the music settled down and the production could be thoroughly enjoyed.

Full of energy, these CDs provided a busy and varied output with easily accessible detail combined with a range of beautifully translated sonic textures that never failed to entertain.



CURVED AIR

Phantasmagoria
Esoteric

AUDIOPHILE CD

A 4CD clamshell box set from this Southern rock band, it includes lead singer Jimmy Farrar on the first CD of the set 'Take No Prisoners' (powerful but not as potent as earlier outings). The CD includes radio edits of 'Lady Luck' and 'Power Play' plus 'Mississippi Queen', with Ted Nugent. The rest of the CD is completed by a show recorded at Lakeland Civic Center Arena in 1980.

The second CD includes 1983's 'No Guts... No Glory' (a quality release) with Danny Joe Brown back on lead vocal plus 'Kinda Like Love' (Radio Edit) and 'Fall Of The Peacemakers' (Short Version) bonus tracks.

The third CD is 1984's rather commercial outing, 'The Deed Is Done' in which the band relax too much. It includes

radio singles 'Satisfied Man' (Short Version) and 'Stone In Your Heart' (Radio Edit).

The fourth CD includes 1985's 'Double Trouble Live' (a fine collection) including 'Bounty Hunter', 'Gator Country', 'Flirtin' With Disaster' and the epic, 'Boogie No More'.

In terms of mastering this box set took all of the accolades, being the most evenly produced of all the CD reviews I cover here. The music offered a wholly neutral and balanced output with strong bass, an informative suite of midrange frequencies and delicate treble, plus an abundant sense of dynamic range that was weaker or wholly absent on the other CDs in this column. It might be heavy rock, folks, but that doesn't mean it can't offer you delicacy, nuance and subtlety when required.



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"It's like listening through two letterboxes, one for each ear."



Noel Keywood

Who would want to buy a pickup cartridge for £599 – the Hana SL Mono we review in this issue – just to play old records? Why do it with a top quality moving coil when a simple MM slogger would likely be preferable, since they better plough through prehistoric marmalade in the groove and fluff above it. It made me look at this subject closely – and it's fascinating.

Old LPs are rightly seen as carrying historic performances worth reproducing properly. Not all are of course – Matt Munro might not make the grade. A lot of tat worse than Matt has gone onto the vinyl disc – I know because I am storing too much of it in racks behind me! – but that can distract us from the fact that older recordings can provide a look back into the past; they can be a sociological record as well as a musical experience and then upfront – let us not forget – lies the commercial imperative, the desire by the artist to make a living from music.

The Beatles sang to make a living after all. Their music arose out of serious toil in the clubs of Hamburg's Reeperbahn that even today is – er – a bit real. As John Lennon said "we were born in Liverpool but grew up in Hamburg". They were working for a living and their skills were honed doing it.

You can hear that in early recordings such as Twist and Shout where John yells into the microphone. I'm told by a musician friend that that comes from trying to be heard in busy clubs and bars. I was made aware of just how strong Lennon was in his delivery when listening to Please Please Me LP from our recently re-mastered The Beatles in Mono box set. And here of

course we start to get to the topic of mono, retro and all else! Although fascinating it can be confusing.

Let me cover the peculiar issue of mono first though. As a single channel and a single loudspeaker – true mono – it was fine with a single singer or instrument, but not so convincing with orchestras, ensembles or stage performances.

Alan Blumlein famously explained back in 1931 that with two loudspeakers you could get more than just two channels of mono – a singer through the left 'speaker and a violin through the right for example, leaving a massive gap in the middle. It might seem funny to us now but early Beatles stereo LPs were just that – dual channel mono, with vocals in one channel and instruments in the other – a distinctly odd experience when you hear them. It's like listening through two letterboxes, one for each ear.

It's possible to fill the hole-in-the-middle with images. The human brain will do this if presented with equal sound pressure in left and right ears, in-phase. A singer recorded onto both left and right stereo channels equally appears to be at centre, something early recording engineers failed to appreciate. This is known as 'phantom stereo'; the image is constructed in the brain – it is an illusion.

When mono is put through a stereo system in a typical living room reflections off side walls widen the image making it seem like a sound stage. You get an orchestra stretched large and wide with a decent pair of floor standers. Gone is the letterbox effect. Mono is enhanced by a stereo system; it's no big shock to hear it after playing a stereo LP.

Another issue that came up in our Hana SL Mono review is that of the stylus needed to play old LPs. There's a lot of talk about this

and a lot of confusion too. Hardly surprising when the common view is you need a 1mil tip for vintage mono but a 0.7mil tip for modern stereo LPs, including those cut in mono – but manufacturer's specs seemingly don't correspond at all. I spoke to two people involved with this – and we were all confused!

Time to do some digging then and you can see on p93 what I found after trawling through the historical information I keep on vinyl. Stylus tips and their shape I'm afraid to say have become increasingly complicated after Mr Shibata came up with the 'Shibata' stylus shape in 1974 to read up to 45kHz for CD-4, a four-channel surround-sound scheme on LP the world has now forgotten.

Ironically, whilst JVC's CD-4 surround-sound has passed into history his stylus hasn't. Shibata tips are now increasingly used in modern cartridges. But whilst Shibata is still effective it seems it is still yesterday, a method of grinding a tip mechanically to get a long contact in the groove.

Nowadays lasers can shape a tip more intricately but the process is expensive – and little talked about, probably because there is something of a commercial battle going on in proprietary tip shapes.

Laser shaped tips can have just about any shape: Ortofon's Replicant and Audio Technica's Microline tip are both examples of long line contact shapes created by this modern process.

Modern long contact tips suit mono as well as stereo. It may well be that 1950s mono LPs don't have the high frequencies they can retrieve, but who knows? It's still fascinating that we're now seeing sophisticated mono cartridges being produced – able to get the best from the past. ●



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"a switcheroo where the fans evolve...backwards"



Paul Rigby

Music fans can be a fickle bunch. In a previous column I touched upon the fact that, if a member of a popular band leaves to undertake a solo career, it's often the case that the fans will, at least initially, often react badly to the split. From the fan's perspective, that bit of fractured politics has ruined their fun, spoilt the flow and brought a halt to their expectations.

What happens to the old band? Is that the end then? Will the rest fall away and crumble? If not, surely the music will never be the same? And then there's the solo artist. Their stuff can't be any good, surely?

The above is, of course, a wholly selfish attitude to take and terribly inconsiderate of what the artist themselves may be going through. It also ignores the growth and creative evolution that any artist: musician, painter, dancer or author, has to adopt to grow and thrive.

The very nature of a 'body of work' means that to repeat a set style is to vegetate and grow stale. Look at The Beatles in 1963 and compare to the same in 1970. You're almost looking at two different bands.

Which brings me to the point that is now staring us right in the face.

We have issues with a band splitting to grow and evolve, to change and remodel. Yet we have no problems when our favourite band stays together and does just that very same thing.

Why is that? Why are we happy to go on a journey with a united band or artist or even record label that will take us towards uncharted territory but we find it uncomfortable to do the same when

the original band splits? It's the same people involved. The same brains are doing the creating. The influences remains the same. We were happy to follow earlier impulses and drives.

Is it because of the nature of the change and the speed of the change? Growing and changing in the company of a friend is much less of a shock - it can be almost unnoticeable even - than seeing that friend for the first time in twenty years and taking in his extra body weight...and new glasses...and lack of hair. Change, all at once, is a tough one for us humans. We tend to welcome change if done slowly. We welcome the variety, something new, fresh and imaginative.

Are human beings just not designed for sudden change?

I was prompted to consider the above after seeing a batch of CDs arrived from the UK-based, CD reissue record label, Jasmine (www.jasmine-records.co.uk). In there was 'I Can't Give You Anything But Love' from Judy Garland. Now there was a lady who changed, drastically. This CD ranges from 1938 when Jack Kapp signed her to Decca up until 1961, when she was signed to Capitol and, boy, did she change in her: looks, drugs, neuroses, husbands and music. Yet the fans accompanied Garland on her fateful journey, Loving her to bits and lost in the drama. Rooting for her over every stumbling, tragic and tear-jerking step.

This phenomenon doesn't have to follow an artist. How about a record label? How about Stax? Looking at my new Jasmine copy of 'Stack of Soul', featuring twenty-eight classics from the company, here I realise that this classic label began as a purveyor of rockabilly and country music under the name

of Satellite Records. Actually, techie fans, that label became Stax partly because the staff invested in an Ampex 350 mono tape recorder (vintage 1953). From that point a staff producer, Chips Moman, introduced rhythm and blues to the management through his meeting with the artists, Rufus Thomas and his daughter Carla. After they recorded the track, 'Cause I Love You', the name change to Stax occurred and the music style transfer was complete. A label legend was born and the label would track the long evolution of soul.

Just to confuse matters, I also noticed the release, 'Northern Soul Story: The Start of an Era', featuring fifty early hits and rarities. Here is a switcheroo, a genre of music staying stock still but the fans evolve...backwards. It was they that moved to meet the music. That is, many fans who were not present (or even born) at the dawning of the genre often became enamoured with the music later on. Looking backwards and returning to the time and the place through the music, adopting the fashions of the time and the dances of the time. This has happened more recently in terms of rockabilly and rock'n'roll where young wannabe bands are playing the music of yore while young people are wearing the clothes of the 50s. I know one individual whose entire house contents is fifties in vintage. Less of an evolution than a regression, then. Nevertheless, an acceptable move for that person that was, no doubt, easier to make on gradual terms than if the change had to occurred overnight.

If nothing else, music can certainly provide an insight into human behaviour. ●

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"Currys offers lots of audio but very little hi-fi"



Martin Pipe

Every summer, journalists covering consumer issues, trade reporters and lifestyle bloggers tend to be even busier than usual. Nothing to do with holidays (unless you're a travel writer) although it can be just as much fun! Instead, they are reacting to the call of the big retailers, who are proudly showing off to the media what they hope the Great British Public will be buying ahead of that special time of year when the snow lies deep and crisp and even...if only on the glittery seasonal greetings cards that'll be appearing in the racks as summer draws to a close.

In other words, their 'Christmas collections' are being plugged. PR companies often put on parallel 'Christmas in July' events, which assemble the seasonal offerings of clients selling food and drink (the more luxurious, the better!), fashion, 'gifty' items, technology and anything else that might generate column-inches. The supermarkets probably put on the biggest shows, taking over large venues in central London with zones dedicated to specific market sectors.

As with other retail strains, supermarkets operate in a mercilessly-competitive field – now even more so with recent players like Aldi and Lidl entering the fray. On-line is encroaching upon supermarket territory – just as the 'big boys' once starved the independent family-run grocers, fishmongers and butchers of custom. Tellingly, Amazon runs its own Christmas showcase nowadays.

Invariably, food accounts for the largest slice of real-estate as far as supermarkets are concerned. Any supermarket tech tends to be of the mainstream variety – kitchen appliances, toys, gadgets and so on. Amazon's events naturally have a

tech focus.

The Currys/Carphone Warehouse chain's show helpfully places products in appropriate living spaces, eliminating any doubt as to their application. It rented out for the day the iconic Violin Factory, an elegant and flexible warehouse-conversion near Waterloo Station that can accommodate a wide range of corporate events. Its kitchen was busier than most with dishwashers, kitchen scales, coffee-grinders, juicers, fridges, cookers and the occasional appearance of a celebrity chef to show us how some of them could be used.

In the bedroom area upstairs, one could marvel at brush-cleaners, manicure-sets, beard-trimmers, styling-wands and the new Dyson 'Supersonic' hairdryer. Innovative, yes, but it needs to be for a penny shy of £300. The room above targeted the photographically-minded, with compacts, bridges, DSLRs, camcorders (they refuse to die!) and self-developing film cameras (Fujifilm Instax, rather than Polaroid or Kodak. Is another analogue revival waiting in the wings?). Alongside were some pretty nifty drones – curated by a marketing guy who knew a lot about them, and had the footage to prove it! He also showed me the effective DJI Osmo, a £130 handheld 'gimbal' platform for smartphones that stabilises video footage in three axes.

Elsewhere could be found all manner of consumer desirables. Cardboard 'Labo' Nintendo accessories are designed to encourage teenage users of Switch gaming consoles to be creative – just not, one supposes, outside on a rainy day. It was amusing to see thirtysomething journo's wearing cardboard-boxy 'Robo' backpacks and moving as if they

were indeed powered by stepper-motors! Also vying for attention were the clearly Segway-influenced £350 IconBit SmartScooter, robotic vacuum-cleaners, fitness-trackers, a giant UHD TV that cost over £10,000, various computers, NowTV, smartphones, Amazon Echo, NAS drives, and numerous tablets. All are so clever that Currys' Team Knowhow must fear for their jobs...

Some pressured high-street retailers are attempting to provide the kind of personal service that's difficult to buy online; not all lend themselves to the dem-room approach that has saved 'real hi-fi' shops. Carphone Warehouse offers a free smartphone 'health check' instore. The assistant plugs your phone into a laptop via a widget, and runs a series of tests that examine performance and battery life. My elderly Samsung lacked sufficient memory to run the test, thereby confirming at least one aspect of my phone's performance. I was then told that, eventually, users will be able to perform this health-check at home...

There was a time when hi-fi was core to the sales figures of Currys and Dixons – many will remember the budget Prinzsound-branded products. Today, Currys offers lots of audio but very little hi-fi. Content to spend nearly a grand on a sunglasses-wearing red bulldog designed by Jean-Michel Jarre? You're catered for. Also on display were less garish Bluetooth speakers (including a Bose finished in...red. This year's colour?), an Akai (the word means 'red' in Japanese) retro record-player of dubious quality (why can't iconic brands be left to rest in peace?), plentiful headphones (some of which may have been finished in red) and Sony's PS-HX500 USB turntable – the only featured Currys product that HFW has reviewed. Enough to make you see red...●



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"there will be no old hi-fi from this generation – just a pile of burnt out scrap"



Dave Tutt

I have a big Sony STR-DB1070 A/V receiver rated at 100 Watts with me today and usually hardware like this has digital failures that are largely unreparable – but the fault in question here was entirely analog. The front speakers go off with a click of the relay I was told by its owner.

With the Sony stripped down it wasn't difficult to see why. Each power amp is a combination of ICs comprising a dedicated power driver device interfaced via a sub driver board then routed back to the main board carrying the output transistors. No need for a circuit diagram here – the hundreds of bad solder joints on the power driver chips were plain to see. With no heat sinks on the chips the circuit board (PCB) takes all the heat and is therefore going to be under thermal stress. With thin tracks and the dreaded lead free solder it is a problem waiting to happen.

An hour with a soldering iron proved to be worthwhile. The Sony has now been running here for a day without showing any tendency to shut down. It does get very warm even at a small output of no more than a few watts however. It may well be that some changes to its plethora of little electrolytic capacitors might be necessary.

In this month's stupidly hot weather putting a receiver like this in a cupboard, even with the doors open, isn't going to give it a long life so I advised the owner to let it breathe.

Finding enough speakers as a load for the Sony was a little bit of a challenge for a running test. Sourcing 5.1 audio from Blu-ray DVD or the Virgin box in my living

room resulted in a little crowd of stuff just where my wife didn't want it! Sorry! Only a day until collection!

Having been through every setting I really couldn't get a sound from this receiver that I thought was worth it. I've had quite a few of these A/V receiver boxes from a broad selection of manufacturers and their effect seems the same: an urge to turn it off. I well remember the first one I repaired which was so horrible in stereo 2-channel that I had a feeling that it was still faulty and it took the customer to confirm that's how it was. Not a cheap one either. Perhaps I'm just getting old!

I also received an old Yamaha soundbar. Yamaha stuff is pretty hardy. Dealing with pianos and synths in for repair it is Yamahas at up to 35 years old that are still around, most of their rivals becoming skip fodder at a far younger age. So to get an old Yamaha soundbar was a bit of a first.

Sad to say it has the same issue as the multi media and surround systems. This one had several of its screws missing and it was damp, suggesting to me it was not going to be repairable. My customer admitted that it cost a fiver at a boot sale! All the same, it was worth opening up for a peep to see how it ticked. As is often the case, its custom made switch-mode power supply was not doing anything.

Always a difficult decision at this point. If I repair the power supply and the rest of it has been damaged, not only am I not going to be able to charge for the fun and games I've had fixing it – not to mention trying to source rare components that might take forever to arrive – but the cost of the second part of the repair might not justify the

additional work.

Of course there is also the further possibility that the clever bit of the circuitry, the HDMI audio take off, DACs and the audio EQ and decoding are dead too so it is easy to see that what might seem to the customer that "its just blown an internal fuse" is actually going to cost more than its worth to fix. A quick look through the internals and a probe with a multimeter suggested that I would be better boxing it back up. My customer sold it on and made a profit on it as spares for repairs, so at least someone did okay out of it! Shame I didn't think it worth fixing as usually Yamaha stuff is well worth the effort.

If my experience with modern bass guitar amplification is an example, the worst thing you can do is mix Class D amplifiers with switch-mode power supplies. I know I keep saying it, but if you see the resulting damage in these things, someone somewhere needs to re-evaluate the manufacturing process else there will be no old hi-fi from this generation – just a pile of burnt out scrap that all sounded the same until the smoke came out of it!

Finally this month I have been digitising reel-to-reel and cassette tapes of church services. There are so many variables in this process, especially for open-reel tapes dating back to the 1970s. Tape quality is the first, tape speed and track type, quality of original machine etc. All have to be re-balanced, corrected, split into tracks, amplified, EQ'ed and generally sorted. Five solid days of work here but what will my customer make of it? Old analogue might now be romantically perfect, but in truth it had problems too. Keeps me in business though! ●

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Audio Research Ref 210 Monos, boxed	used	5799
AVI S2000 Pre/Monos, fair cosmetics	used	999
BAT VK50se Preamp/Amplifier, factory service 2016	used	2249
Bryston B135SS12 with DAC, excellent boxed	x/d	3499
Bryston 785ST2 Monoblocks, ex demo	x/d	5999
Bryston 2.5BS12, excellent boxed	x/d	1799
Bryston BP17/BB51 pre (new) power (used)	used	3399
Cairn 4810 Integrated with tuner, boxed nr mint	used	779
Cairn 4808 Integrated with tuner, boxed nr mint	used	479
Cairn Nitro pre with K1a Monoblocks	x/d	Call
Cairn Diablo Integrated, boxed nr mint	used	379
Cyrus 8 Power, vgc+	used	399
Cyrus 8XPd excellent, boxed	used	549
Cyrus One, new (non HD) version, boxed	used	499
Cyrus Pre VS2, excellent	used	249
Cyrus Pre XVS, excellent boxed	used	449
Decware SE34i.3, near mint	used	999
Densen Beat 100, vgc boxed	used	499
Devialet 200, mint boxed ex demo	x/d	Call
Devialet 250, mint boxed, ex demo unit	x/d	6999
EAR 834L, excellent line level preamp	used	899
Graef GM50b, excellent no remote	used	2199
Heybrook Signature Mk1 Amps/PSU, boxed	used	599
Leema Libra Dac/Preamp/Amplifier, nr mint	x/d	2999
Leema lucana 2, nr mint boxed	used	2495
Linn Kairn Preamp/Amplifier	used	499
Luxman L81, Integrated excellent	used	429
Marantz Model 1150 Integrated, good for year	used	499
Meridian G56 Power amplifier	used	899
Meridian 551 Integrated amplifier	used	499
Moan W785, excellent, boxed	used	3899
Musical Fidelity A3 Integrated	used	399
Musical Fidelity A3.2CR power amplifier	used	599
Musical Fidelity The Preamp mk2	used	149
Musical Fidelity A3.2 CR Preamp/Amplifier	used	699
Musical Fidelity M3i Integrated amplifier	used	449
Musical Fidelity M6i Integrated Amplifier	used	1099
Musical Fidelity SP80/SA07PSU Pre/Power combo	used	1199
NAD C270 Power amplifier, vgc	used	299
NAD C350 Integrated amplifier	used	179
NAIM NAC12/NAIP120, collectors items, superb!	used	999
NAIM NAC72, excellent	used	399
NAIM NAC202, excellent boxed with Napsc	used	849
NAIM NAC272, excellent boxed	x/d	2949
NAIM NAC282 & NAPSC, excellent boxed	x/d	2599
NAIM NAIT XS2, excellent, remote & boxed	x/d	1199
NAIM NAP150, excellent	used	399
NAIM NAP150X, excellent	used	499
NAIM NAP155XS, excellent boxed	used	699
NAIM NAP200, excellent boxed	used	899
NAIM NAP200DR, excellent boxed	x/d	1839
NAIM NAP250, Olive, excellent	used	999
NAIM Unit Nova, as new boxed	used	3899
Neukomm CP433, well built Swiss integrated	x/d	699
Parasound Zamp v3, excellent mini amp	used	119
Pathos InPol Remix Hi Dac, ex dem.	x/d	1899
Pathos TT Anniversary Integrated, excellent,	used	3249
Pioneer SA900 vintage integrated	used	129
Pioneer A400x, good condition from	used	139
Plinius SA100 Power amplifier, superb	used	1899
Puresound A10, mint boxed	x/d	649
Quad 405 upgraded to mk2 lovely order	used	379
Quad 44 preamp/Amplifier, excellent late grey	used	399
Quad 33/FM3 in teak sleeve with 303 boxed	used	449
Quad II Monos, Pre and tuner, excellent	used	1199
Quad II Eighty Monoblocks, excellent boxed	used	2899
Quad 99 Preamp/Amplifier, excellent	used	399
Rego Elicit, excellent	x/d	1199
Revox B750 Integrated, just serviced	used	399
Sugden Masterclass Monoblocks	used	3499
Tag McLaren 60i Integrated amplifier	used	299
Tag McLaren 100P Stereo Power amplifier	used	399
Talk Electronics Storm 2 Integrated	used	349
Technics SU-C800U/SE-A900s Pre/Power combo	used	549
Unison Research Unico Secondo, excellent boxed	used	1199
Unison Research Unico Primo, superb condition	x/d	899
Unison Research Simply Italy, near mint	x/d	899
Unison Research S6 mk2, near mint	x/d	1999
YTL Deluxe 300 Monoblock Valve amplifiers	used	1949
Yamaha MXA5000, excellent	used	1499
Yaquin MC10T, excellent boxed	used	349

Radio/Recorders

Arcam Alpha 10 DAB, vgc	used	199
AVI Lab Series FM/DAB Tuner	used	399
Fostex G16, 16 track Reel to Reel, amazing!	used	Call
Nakamichi DR2, excellent	used	399
Nakamichi BX150e, good condition boxed	used	149
Pioneer TX7500, retro quality	used	89
Primare T20, vgc	used	199
Quad 99FM, excellent	used	249
Quad FM4, excellent serviced	used	119
Quad FM3, excellent for year	used	89
Revox B760 tuner, just serviced	used	299
Revox PR99, crated, REDUCED	used	699
Rotel RT06 FM/DAB Tuner, excellent	used	149
Sansui T-60, vgc	used	39
Sony MiniDisc Recorders from	used	69
Sony ST-D77ES, high end DAB tuner	used	299
Tascam CDRW900mk2 Recorder, near mint boxed	x/d	349
TEAC WB90r, Double cassette as new	used	199
Yamaha KX580, vgc+	used	59
Yamaha T-D500, excellent DAB tuner as new	used	219

Analogue

Acos Lustre GST1 Tonearm, near mint boxed	used	219
Anatek MCR Reference MC 2 box Phono stage	used	899
Clearaudio Concept package, one tiny mark	new	799
Clearaudio Performance, Splitly, Maestro, excellent	used	1199
Dr Feickert Twin, monster deck Audioquest cut boxed	used	3199
Garrard 301, Hammerite, serviced	used	1999
Garrard 301, cream, serviced	used	1499
Garrard 401 Motor unit only no arm	used	649
Golding Legacy Ltd edition	new	Call
Graham Phantom Supreme 12", SME cut	x/d	3199
Kronos .5 and Helena tonearm	used	12999
Lehmann Black Cube Se	used	449
Linn Lingo PSU, vgc+	used	449
Linn Basic, Akita, AT cart excellent	used	379
Linn LP12, Hercules2, litok, new lid boxed	used	1999
Linn LP12, new plinth, Hercules2, Project 9cc, new lid	used	1999
Linn LP12, Basic Plus	used	599
Lyra Skala, excellent boxed	used	1749
Michell Gyratec, Rega arm, excellent boxed	used	1399
Musical Surroundings Phenomena Phono & psu	used	449
Nottingham Analogue Mentor & Tesera psu	used	1149
Okki Nokki mk2 RCA with lid	used	349
Ortofon Cadenza Black, mint boxed	x/d	1399
Project Dabul Espirit 3, excellent	used	199
Project P1, new motor and lid, vgc	used	149
Project Xpression 3, 2M Blue, Speedbox II, excellent	used	299
Rego Planar 6, Ania MC, vgc	used	999
Rego Planar 1 RSD 2018, excellent	used	239
Rego Planar 2, brand new customer return	used	299
Roksan CX2 phono preamp/Amplifier	used	699
Roksan Nima, excellent	used	379
Rotel RP1500, vgc cool retro deck	used	299
Shelter 9000, excellent boxed	used	1499
Sansui SR222MkV, vgc	used	1899
SME IV, mint, just had full £600+ SME service	used	1499
SME IV, vgc boxed	used	349
SME Seies III S, excellent boxed with cable	used	189
Systemdek IIX900, excellent late model, no armboard	used	349
Systemdek II, matching arm, vgc	used	749
Technics SL110, SME3009i detachable, good condition	used	579
Thorens TD150, 2000 Plinth and 3009, superb	used	x/d
Thorens TD209 turntable package	used	599
Thorens TD125 with SME3009	used	699
Thorens TD160 motor unit only, no arm or lid	used	89
Townshend Elite Rock, Excalibur, cover	used	949
Transcriptors Hydraulic Reference / Fluid arm	used	1199
Transcriptors Skeleton, excellent	used	1199
Transfiguration Temper, excellent boxed	used	799
Transfiguration Axia S, VdH retip and boron cantilever	used	799
Transfiguration Phoenix S, excellent boxed	used	999

Digital

Arcam CD72, excellent in black	used	189
Arcam UDP411, superb boxed	used	529
Aria Piccolo, excellent boxed	used	1399
Audio Analogue Vivace USB DAC, with Pre out	x/d	999
Audio Analogue, Crescendo Airtech CD player	x/d	349
Audio Analogue, Fortissimo Airtech CD player	x/d	699
Audio Research DACB, excellent boxed	used	2199
Bel Canto DAC1.5 and upgrade LMS-1 PSU	used	699
Bel Canto DAC3.7 and VBS1 PSU	used	1999
Bryston BCD-1, ex display as new boxed	x/d	999
Bryston BDP-1, ex display as new boxed	x/d	1099
Bryston BDP-1 USB, brand new sealed box	new	899
Cairn Mistral/Breeze, silver as new boxed	x/d	899
Cairn Tornado, as new boxed	x/d	329
Cambridge Audio Azur 752BD BluRay player	used	449
Chord Qute EX/Linear psu DAC	used	749
Chord Qute, as new	x/d	999
Chord Mojo, excellent boxed	used	299
Chord Hugo 1T, excellent boxed	used	2399
Cyrus CD-Xt Signature transport, boxed	used	999
Cyrus DAC XP Signature, boxed	used	1649
DCS Scaloati Masterlock boxed	used	2399
EAR Acute 2 CD player, superb sound	used	1999
Krell Connect, excellent boxed	used	1399
Krell Evolution 505 CD/SACD Player, nr mint boxed	used	2799
Leema Antila IIS Eco, excellent boxed	used	1999
Linn Numerik DAC, vgc	used	399
Linn Karik CD player, vgc with remote	used	399
Linn Akurate DS renew, excellent	used	119
Logitech Squeezebox Touch, excellent	used	149
Marantz SA7 ST, flagship near mint boxed	used	2899
Marantz CD6005, excellent boxed	used	189
Marantz CD4500, vgc	used	199
Meridian 506/20, excellent player in VG+	used	449
Meridian 500 CD Transport	used	499
Meridian 800Reference CD/DVD player, vgc+	used	1499
Meridian Saaloo Control 15 and Twinstore NAS	used	1599
McIntosh, MCD201, excellent	used	1499
Musical Fidelity A3 CD 24 bit player, excellent	used	349
Musical Fidelity kW DM25 Transport and DAC, excellent	used	1499
Musical Fidelity M6SCD player, excellent	used	1299
NAIM CDX2, excellent boxed with remote etc	used	1449
NAIM DAC, excellent with remote etc	used	1299
NAIM HDX, great condition SSD version	used	1999
NAIM NDSXS, ex demo near mint	used	1299
Neukomm CD33, nr mint boxed	used	699
Nova Fidelity N15D Streamer with USB DAC	x/d	499
Pioneer N30, excellent	used	298
Project Streambox DS, excellent	used	249
Quad Elite CDS CD player	used	499
Quad 99CDP2 CD/Preamp/Amplifier	used	399
Resolution Audio Opus One, excellent crated	used	1199
Shanling CDT100 Valve output CD player	used	499
TAC C60 Valve Output CD player, superb	used	1499
Tag McLaren, CD120/DAC20, excellent!59	used	599
Talk Electronics Thunder 2 CD player	used	199
TEAC PD-501HR, CD player, superb mini format player	used	399
Wadia S7i, excellent boxed	used	6249

Loudspeakers

Acoustic Energy AE1, matching stands	used	799
Aspara Acoustics HL6 in Oak	used	1499
Audio Note A2-Two, fair condition boxed	used	749
B&W 804D2, excellent boxed	used	3399
B&W 603S2 boxed	used	349
Canton Vento 809DC	used	499
Castle Severn 2, fair	used	149
Castle Severn 2 se, excellent	used	229
Castle Knight 3, excellent	used	379
Castle Avon, vgc+	used	149
Celestion Triton 66, fair condition	used	899
Dali Zensor 1/Vokal/E-9F Sub 5.1 package	used	699
Focal Diablo Utopia, superb with matching stands	used	3999
Focal Aria 948, excellent in glass box	used	1499
Focal Electro 1028Be, champagne, superb boxed	x/d	2899
Icon Audio MFV6, excellent boxed	used	199
Infinity RS2.5, ok condition, sound great!	used	999
Infinity RS4.5, fair condition, huge!	used	1499
Kef Q700 sealed boxes	new	599
Kef R100, excellent	used	399
Kef R300, excellent	used	699
Kef 104ab, excellent	used	199
Linn Kaber Aktiv with 3 x LK100, excellent	used	999
Magneplanar MG1.7 mint boxed	x/d	1299
Martin Logan Ethos, excellent no boxes	used	2499
Martin Logan Ethos, near mint boxed	used	3249
Mirage M1st vgc boxed	used	999
Monitor Audio PL300s boxed superb	used	3499
Monitor Audio Silver 500, gloss black boxed	used	1499
Munipulse 42a, good condition boxed	x/d	999
Musical Fidelity MF10, excellent	used	699
NEAT Momentum SX5i, excellent boxed	used	149
NEAT Motive SX2, excellent boxed	x/d	Call
NEAT Motive SX3, nr mint in black oak	used	Due in
Penatonic Rebel 2 cherry & matching stands	used	549
Pioneer CSA3i, amazing for age	used	549
Pioneer CS-06, superb	used	149
PMC Twenty5 26, boxed	x/d	199
PMC Twenty 26, boxed	used	4999
PMC Twenty5 24, boxed	used	2999
PMC Twenty5 23, boxed	x/d	3199
PMC Twenty5 22, boxed	x/d	2199
PMC Twenty5 21, boxed	x/d	1799
PMC Fact 8, excellent boxed	x/d	1399
PMC DB1 Gold, excellent boxed	x/d	3249
PMC Twenty 23 oak/amarone, boxed	x/d	799
Proac Tablette 50, vgc+	x/d	1699
Proac Response 1sc, vgc+	used	799
Proac D20r, excellent boxed, ex dealer demo	x/d	1849
PSB Synchrony Iwo B, superb boxed	used	399
Quad ESL-2805, excellent	used	1995
Quad 12L2, vgc	used	299
Quad ESL57, vgc	used	499
Quad ESL57, One thing serviced 2008 boxed	used	799
Rego RX3, excellent boxed	used	489
Rogers LS1, bookshelf excellent	used	199
SDAcoustics OBS in good condition	used	599
Sonus Faber Olympia 2, Walnut boxed vgc	x/d	4999
Sonus Faber Venere 1.5 with matching stands	x/d	949
Sonus Faber Venere Centre channel excellent	x/d	349
Spencor BC1, near mint boxed	used	499
Spencor S3/Si2, near mint boxed	used	599
Tannoy Albury, excellent with serviced drivers	used	999
Tannoy X16f, vgc	used	499
Usher Be20, excellent boxed	x/d	11999
Usher 6371 fantastic sonic bargain	used	949
Usher SW103 Sub, superb	used	229
Veritas H3 (Lowthers) gloss black, 100db,	x/d	1999
Wharfedale Diamond 220, excellent	used	89
Wilson Watt/Puppy, crated, new foams, lovely	used	Call
Yamaha YSP4300 Soundbar/Sub, excellent boxed	used	399

SPECIAL SYSTEMS DEALS

Cairn Diablo/Tornado Amp/CD pack was £1900	x/d	599
Arcam Solo and speakers	x/d	Call
Cyrus Streamline 2, excellent	used	599
Devialet 400 & Magneplanar MG3.7i speakers	used	9979
Leema Pulse 3/Stream 3, excellent	used	Call
Naim Muse nr mint boxed	x/d	799
Naim UnitiQute nr mint boxed	x/d	749
Primare CDT10, excellent all in one system	used	499
Scanosonic USB100 Turntable & Active Speakers	new	349
Sonos various pieces used and x/d	used	Call

AV/Accessories/Cables

Audeze EL8 Headphones	x/d	399
Audeze LCDX, near mint boxed with cables	used	999
Chord Sarum, original	x/d	Call
Creativity Audio 4 Racks under half price	new	299
Cyrus PSXR, excellent from	used	299
Elemental Audio speaker stands	x/d	399
Hifi Racks, large black oak AV rack	used	Call
LFD Silver Reference Tonearm arm	used	Call
LFD Silver Horizon and Silver Scorpion 0.7m pairs	used	Call
Naim Headline Headphone amplifier	used	249
Naim HCap DR, excellent boxed	used	899
Naim Supercap DR, excellent boxed	x/d	3499
QED XT Evolution Reference 5m	used	49
Naim Supercap DR, excellent boxed	x/d	3499
Sennheiser HD598/650/700 & 800s all in stock	used	Call
Siltech LS-188 Classic mk2, 1.5m pair	used	999
Siltech FW-6 Classic Mk2 Firewire	used	299
Stax Lambda and SRM1 mk2	used	599
Stax SR404 and SRM006Ti	used	699
TEAC HAS01 Headphone amplifier	x/d	499
Townshend Seismic rack	used	Call
Van den Hul Drhid QLB RCA	used	159
Van den Hul D102 mk3, selection	used	Call

Tel: 01642 267012 or 0845 6019390 Email: world@2ndhandhifi.co.uk



KRALK AUDIO KALSU £120

KALSU is designed to set the ideal orientation of your speakers so each of your ears is receiving the same information at the same time, in a balanced manner.

The main parts are two skinny black boxes. Each contains a battery-operated laser that can be switched

on and off. You also get a bubble balance gadget and a measuring tape.

The idea is that you use the supplied tape measure to set up your speakers in a basic way. That means five to 10 feet apart with each speaker's outer edge the same distance to the

wall. Once you've done that, you place each laser unit on top of each speaker and align the front of each box with the front edge of each speaker, making sure that the tweeter is aligned too.

Next swivel the lasers towards your listening position. The lasers will also show the first reflection point.

That is, the first position on the side walls where the sound first bounces after leaving the speaker. When you find it, make sure you damp this area to stop nasty reflection echoes.

The system, which Kralk uses itself to set up speakers, is easy to use and works. For example, I thought my system was set up accurately but found out, after using the KALSU, that the left speaker was actually ending up two foot too far to the left and the right speaker wasn't hitting my right ear but my left ear! After using the KALSU, I notice a big improvement in the structure of my soundstage. It was much more balanced and coherent with everything clicking into place: the vocals were pushed back into the stereo image creating a 3D effect.

A brilliantly simple system. Easy to use and quick to process, it does the job and does it efficiently. **PR**

Tel: +44(0)1924 828545
www.kralkaudio.com

SOUNDBITES



TIMESTEP T-01HS EBONY HEADSHELL £145

The T-01HS headshell is made from Ebony. A rigid material. You're not talking wimpy thin wood here. There's nothing delicate with this headshell which, to be honest, gives you confidence. After all, a typical cartridge reacts to the tiniest of movements and any micro-flexing in a headshell will react negatively with it. Just looking at this Ebony slab, I

can't imagine it being effected by micro anything.

Toting silver leads, the T-01HS presents a weight of 15g in mass terms. Useful for low compliance cartridges.

I loaded it with an Ortofon Cadenza Bronze to see what happened.

I began with the ballad People, sung by the bassy tones of Earl Coleman with Billy Taylor's orchestra on the original 'Love Songs' album from Atlantic (1968). The sonic change from the reference Technics headshell to the new Ebony version was, frankly, immense. The Coleman vocal was very confident indeed. It lent real weight to the singing, giving

the delivery gravitas. The upright bass also solidified and focused during its tenure within this track, giving the lower frequencies a solid foundation.

I moved to the goth-like atmospheres of Andreas Gross and 'Rain Without You' from the LP, 'Close To Home' (KS), a more dynamic affair, this one.

Here, the Timestep allowed the turntable the freedom to 'do its thing', giving the bass a real fillip and enhancing the timing of the same, adding focus and enough precision to blend an organic feel to the bottom end but alongside that a crisp, powerful impact. This was not a crash, bang wallop thing, each bass hit was one of some significance and with purpose.

The Timestep T-01HS Ebony headshell allows the music to speak with great confidence, giving the soundstage a commanding influence.

PR

[+44(0)1803 833366
www.soundhifi.com]

We do not sell these products. It is for your information only.

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 LVX 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 dubious 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. Scarily complicated and with no spares support - buy with caution!

TRIO LO-7D 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 infra 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 PL12D 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 Syrnix 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 cost-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 masterclass.

AUDIOLAB 8000S 2006 £400
In another life, this sold for three times the price, making it a stand-out bargain now. Very clean, 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 B 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

LECSO 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 spry, 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.

LECSO 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
Smallish 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 DVD/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 nought. 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 paperbook-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.

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Come in No.75!

Looking to enhance your hi-fi's performance with a quality mains cable? Paul Rigby reviews one example, MCRU's No.75.

Whenever I buy a new piece of hi-fi hardware, the first thing I do, before I even take the product out of the box, is reach for the bundled, kettle-type mains cable and sling it out of the window – accompanied by numerous Latin curses. Why? Because your basic mains cable does less than nothing to remove intrusive, veiling noise. It often aids the stuff and helps it along!

If you've spent a packet on your hi-fi system, do yourself a favour and invest in quality cabling. Does this MCRU example qualify as quality, though?

The No.75 is made from a pure copper core, silver plated and cryogenically treated. I was pleased to see that the cable was terminated by a Furutech FI-1363 plug (specially made for MCRU). I have a lot of time for Furutech. Yes, there are other fine termination plugs out there but

the use of Furutech products shows that MCRU means business. The only possible issue with this plug is that, when installed, the cable emerges vertically from the plug and not horizontally. Be aware of that in case it causes space issues.

The company does proclaim the use of internal filtering although there's no external evidence of it.

SOUND QUALITY

Plugging the 1.7m version into my Icon Audio PS3 phono amplifier I played David Bowie's 'Breaking Glass' from the Berlin-centric LP, 'Low'.

I was impressed because in and around the central stereo image is where the gated drum sounds lived, normally swamping the attendant bass guitar right alongside. Not here, though. The bass guitar was easily separated by my ear and was defined enough to be followed easily right through the track. Meanwhile, the ride cymbal offered enough clarity and precision to reveal its the unique

pulsing effect, but there was also sufficient definition to exhibit a more complex tapping rhythm than is normally heard from cables (of lower ability).

Switching this mains cable to my pre-amp and moving to the jazzy honky tonk from Don Cornell and 'Heart of my Heart' from the original 'Great Hits' Dot release, I was happy to hear added space and air in and around the soundstage – and good attendant instrumental separation.

Finally, delicate percussive taps emerged adjacent to the shy piano sounds, both clearly identifiable at the rear of the mix unlike before.

CONCLUSION

A well behaved mains cable, in sonic terms, that adds no colour to the musical presentation, the No.75 cable provides both midrange and bass insight, digging gently yet significantly into the mix and, for the price, providing significant overall clarity.

**MCRU NO.75
MAINS CABLE
£135 1.7M
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AVAILABLE)**



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vinyl section

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RELOOP TURN 5 84

A modern Direct Drive turntable package reviewed by Noel Keywood.

HANA SL MONO CARTRIDGE 89

Hanna's SL Mono MC cartridge for old classic LPs, by Paul Rigby.

MONO CARTRIDGE FEATURE 93

Noel Keywood on how to play Mono.

AUDIOPHILE BOOK 95

Tangerine Dream: Force Majeure, by Paul Rigby.



news

AT THE MOVIES

A wide range of soundtracks have been released via At The Movies (www.musiconvinyl.com) including a range of single sleeved releases including 'Death Wish' on red vinyl, limited to 500 copies plus 4-page booklet. Not Charles 'No, I'm not sucking a lemon' Bronson but Bruce Willis, music by Ludwig Göransson.

Also limited to 500 copies and 4-page booklet is 'Gunpowder', on silver vinyl, music by Volket Bertelmann.

Two classics now and 'The Sound of Music' (1965), in stereo, with an 8-page booklet plus 'All That Jazz' (1978), limited to 1,000 copies on silver vinyl and including the track, 'Broadway', from George Benson.

Presented as double albums in gatefold sleeves now are 'The Adventures of Tintin', from John Williams, on coloured vinyl, limited to 2,000 copies plus printed inner sleeves, three postcards and an exclusive litho print.

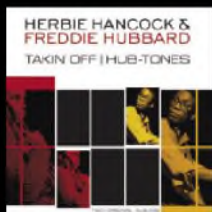
'Tomb Raider', from Tom Holkenborg, is limited to 1,500 copies on coloured vinyl plus printed inner sleeves and poster.

Finally, 'How To Talk to Girls at Parties' is limited to 500 copies on yellow vinyl and includes tracks from The Damned, Velvet Underground and Matmos.

ORIGINAL MOTION PICTURE SOUNDTRACK



MUSIC BY LUDWIG GÖRANSSON



VINYL PASSION

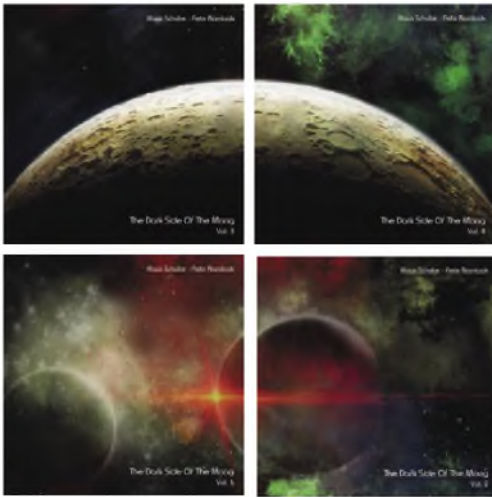
Ideal for Nat 'King' Cole fans, over two LPs is 'Sings for Two in Love' (1954, a themed concept piece)/'Ballads of the Day' (1956, a sort of hits package), two LPs with a gatefold but with ten bonus tracks from 'To Whom it May Concern' and 'St. Louis Blues'.

Conducted by Frank Sinatra is Dean Martin's 'Sleep Warm' with five bonus tracks.

Speaking of Sinatra, he appeared in the film, 'The Man with the Golden Arm', Elmer Bernstein's soundtrack is now out on coloured vinyl, featuring Shorty Rogers and Shelley Manne.

Also look out for Herbie Hancock & Freddie Hubbard's 'Takin Off/Hub-Tones', two-in-one LP collection from 1962 plus The Everly Brothers 'It's Everly Time' (1960)/'A Date With The Everly Brothers' (1961).

MUSIC ON VINYL



One of the recent release highlights from this company is its magnificent four volume electronic music release from Klaus Schulze & Pete Namlook (and a bit of Bill Laswell). 'The Dark Side of the Moog', released in 1994, 1995 and 1996 they appear on vinyl for the first time. They also remove the beats and infuse the soundstage with minimalistic, ambient soundscapes of a cool, meditative style. Essential for electronica fans. I hope more LPs in this series will be released soon.

Alanis Morissette's 'So-Called Chaos' (2004) is wholly romantic and luvvy duvvy. A change for this feisty singer who was in a happy romance at the time. Worth persevering with and full of quality.

From afro-pop specialists, Osibisa comes 'Welcome Home' (1975) a slightly poppy, African-skewed Santana-type rhythm approach. It also features a range of deep and serious grooves.

Also look out for The Motels' 1979 self-titled, middlin' new wave LP, featuring Martha Davis' excellent vocals; Dutch rockers sixth album Claw Boys Claw's '\$ugar' (2008); Canadian prog rocker, ex-Saga man, Rob Moratti's solo debut, the wholly commercial AOR outing 'Victory' (2018) and Marianne Faithfull session man Barry Reynolds' 1982 and only LP, 'I Scare Myself'. A worthy outing, mixing new wave and reggae.



MOBILE FIDELITY

Two releases from MoFi (www.mofi.com) Bob Dylan includes the 1962 debut. In this case, it's been expanded to two discs and it runs at 45rpm, both features included to enhance the sound quality. The same can be said for 'Another Side of Bob Dylan' (1964). Both are classics and focus on Dylan's folkie period while both have been released in mono and so I recommend listening to the records via a mono cartridge with a 0.7mil tip.

In stereo this time but also released in 1976 is Ry Cooder's 'Chicken Skin Music' that focused on Cooder's world music philosophy in terms of musical style and instrumental application with a quirky approach.



BLUE PLANET II

Via Silva Screen (www.silvascreen.com) and from an original score from Hans Zimmer, Jacob Shea and David Fleming is the BBC's 'Blue Planet II' original television soundtrack packed in two discs, within a gatefold sleeve plus hi-res images inside the gatefold and an outer band to keep the gatefold closed.



...AND FINALLY

From Bear Family and on the Cree label (cree-records.com) is the Modern Sound Quintet's 'Otinku' (1971), originally released in Finland and featuring musicians from Trinidad, Barbados and more playing nicely restrained steel-pan jazz but with added funk.

Energetic rock from Paulo Furtado in The Legendary Tigerman's latest, 'Misfit' ([Munster, www.munster-records.com](http://munster.com)). Nothing unique here but its hugely entertaining, dramatic, over the top, banging rock.

From the same label but on the VampiSoul imprint, Garotas Suecas' 'Futuro do Preterito' mixes lazy soul with pop and jazz-funk. Feel-good sound with a distinctly seventies vibe.

Kamaal Williams' new LP, 'The Return' ([Black Focus; blackfocusrecords.bandcamp.com](http://blackfocusrecords.bandcamp.com)) is a completely delicious jazz-funk outing with sumptuous grooves and complex beats. Beautiful.

From Laurence Pike is his debut solo album, 'Distant Early Warning' ([Leaf; theleaflabel.com](http://theleaflabel.com)) "Originally conceived as a technological and spiritual jazz suite for drums," said Pike, the music combines that with avant-electronica to produce a quietly complex symphony of sounds.





A Direct Drive turntable – at a low price. Noel Keywood reviews Reeloc's Turn 5.

Direct-ED

Direct-drive is gaining a decent reputation after being mauled by the UK hi-fi press long ago (er...1970s!) for its poor sound compared to belt

drive. Technics have spearheaded the revival by honing their new motor to counter the criticism, generating a lot of interest around the subject with a brace of new designs. Reeloc's Turn 5 Direct Drive turntable is similarly

styled – but costs far less – just £699. So here – potentially – is a wallet friendly alternative. But it had the problem of early designs.

The Turn 5 comes as a package with arm and cartridge fitted. Unlike



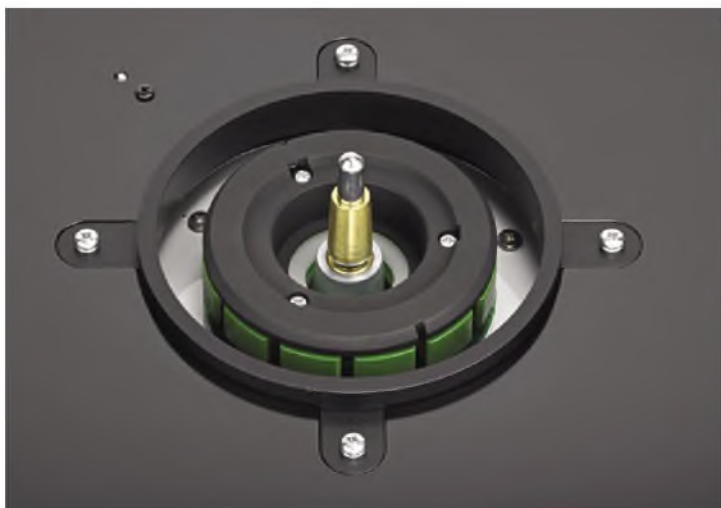
The Turn 5 comes with an Ortofon 2M Red MM cartridge fitted. It gives a clean, modern sound and can be easily upgraded to higher spec. models in the 2M range.

the Reloop Turn 3 I reviewed in our January 2017 issue the '5 has no phono stage so an amplifier with inbuilt stage is needed – or an external stage. There are three speeds, 33, 45 and 78 rpm, set by frontal push buttons, accompanied by a large start/stop button. The power switch lies atop the strobe light – and yes that means there are raised strobe markings on the platter to confirm speed-lock. It makes for an entertaining display, but speed cannot be varied on this turntable – unlike a Technics – and if the LED is driven from the motor supply then lock will be demonstrated irrespective of true

with its gold anodised markings. I saw immediately that the platter reaches speed almost instantaneously, within 0.2 secs Reloop state.

Such a fast start is easy to achieve with a lightweight platter – but this one is not. Reloop use a heavy (1.8 kgms) aluminium die cast platter, damped on its underside and covered by a 5mm thick rubber platter mat on its top side to resist vibration and colouration; it's no lightweight flimsy affair. Instead the motor is a powerful modern design with massive start torque to get it up to speed.

The plinth is also heavily built and



The Direct Drive motor sits right below the platter. It is a high-torque design with very fast start up.

supply stability.

The supply is quartz-locked Reloop say, meaning it will not wander from a precise quartz reference – and it did not under test. So although Reloop's system doesn't have variable speed and the strobe isn't as meaningful as a Technics or Garrard strobe – it still looks good

damped, with shock resistant feet for effective decoupling, Reloop say – but they don't height adjust. Weighing 12.8 kgs in all it feels substantial, measuring 458mm wide, 369mm deep and 162.4mm high with the lid closed. With lid open however it is 400mm high, and 410mm deep, needing a 16in (406mm) deep shelf minimum

if placed in a wall shelf system. A formed acrylic dust cover moves on spring loaded hinges that clip onto both the cover and plinth, lifting and lowering easily – and making it easily removable.

The S shaped arm has a removable head shell using a conventional bayonet connector, making cartridge changing quick and easy. The head shell supplied is well designed and rigid, measurement showed, and because the arm is standard-pattern it will accept other custom headshells. Cartridge weight range is quoted as 3.5gms - 8.5gms but in fact was 13gms maximum – sufficient to accept moving coils like Ortofon's Cadenza series at 10.7gms.

Lateral tracking angle is adjusted by moving the cartridge forward or backward in the head shell as is common, there is no azimuth adjustment but the arm will height-adjust to be perfectly parallel to the turntable surface irrespective of cartridge body height – or to allow fine adjustment of Vertical Tracking Angle (VTA) for those fastidious enough to want to do this.

Putting the arm into balance I found it moved freely laterally and vertically and there was no free play in the bearings. Outward bias is set conveniently by a small dial on the arm base.

In the UK this turntable comes with a budget Ortofon 2M Red moving magnet cartridge that can be upgraded to Blue, Bronze or Black by a stylus change.

The unit accepts mains power direct via its own power cord; there is no external power block. Consumption is a low 9 Watts and input voltage 115-230V at 50Hz or 60Hz for EU and US, suggesting an



The arm has a large peripheral adjustment ring to set height – and it is calibrated so preferred settings can be returned to.



A simple rear panel with one set of phono outputs and earth terminal. There also a voltage select switch (230/110v) and an unusual voltage inlet with asymmetric calculator-style socket.

on-board switch-mode supply is used.

A not-to-be-underestimated feature of a standard pattern design turntable like this is ease of set-up and simple no-hassle usability – valuable particularly for newcomers to vinyl who can understandably be frightened by the religion, heavily talked up on the 'net. The arm has a simple damped lift/lower mechanism

that matters and here the Reloop 'shell is rigid and relatively free from high frequency vibrational modes, measurement showed.

In all then I have no criticisms to make of this classic turntable, arm and cartridge arrangement. It's well made, well finished and the strobe light on those gold anodised strobe marks looks the part. You don't get

Direct Drive problem – made worse by today's powerful motors. See Measured Performance.

SOUND QUALITY

I put the Turn 5 into a system comprising Icon Audio PS3 MkII valve phono stage, Icon Audio Stereo 30 SE single-ended valve amplifier and our in-house Martin Logan ESL-X hybrid



A strobe light illuminates markings on the platter rim, giving the professional appearance of early broadcast turntables like Garrard's 301/401.

that worked well and if like me you prefer to hand cue, the head shell finger lift is cranked upward to give room underneath for the average finger. Flat ones are all but unusable. There's no auto-stop so you get the full vinyl click...click...click experience at the end of a side!

Balancing the arm and then setting down force is done by the age old method of a calibrated counterweight – simple, quick and effective. I set 1.8gms on the counterweight dial and an electronic gauge confirmed it as correct. Cartridges can be swapped in and out easily, unlike fixed head shell arms. And although head shell bayonet connectors raise suspicions, so long as they are done up tightly and there's no free play in the 'shell they're plenty good enough at this level. It is head shell structure

"a dramatic presentation and looks the part, and is appealing in its own way."

a Technics style DJ pop-up cue light though.

Provenance? Reloop are a German company but likely get this made for them by Hanpin of Taiwan, since only Hanpin and Technics have the ability to build such a turntable. Bringing me to the issue of torque and 'cogging' in a servo motor that bedevilled early Direct Drive. Technics are acutely aware of the criticism, making torque adjustable in the SP-10R I reviewed in our August 2018 issue. Setting it low minimised cogging whilst lengthening start-up time – as expected. The Reloop starts fast, but the downside is that it cogs measurement showed – to a degree not suffered by Technics or belt drive turntables. This is a classic

electrostatic loudspeakers, their supplies driven from an Isotek Evo 3 Mosaic Genesis mains regenerator – necessary.

Ortofon's 2M Red cartridge offers even tonal balance, free from the warmth of older designs. It tracks well and does a good job all round as a starter cartridge, but for review purposes I used Ortofon's 2M Black with its Shibata stylus and sophisticated delivery to better separate the sound of the Turn 5 from cartridge issues.

I did not expect the cogging of Reloop's Direct Drive motor to be aurally influential – but it was. But let me paint the broad picture first. The Turn 5 had a vivid delivery: it was temporally tight as you'd hope and



Platter topside without mat shows finger holes to facilitate lift from, or lower onto the tapered motor spindle.



The arm bearings were well adjusted to move freely, but without play. There is bias compensation too.

expect. With Fleetwood Mac's The Chain its grip on timing during the guitar introduction was obvious and Mick Fleetwood's kick drum came across with both clarity and force. The later jangling guitar work that is used as a Formula 1 introduction had a little emphasis and sharpness I fancied. On balance though what I heard was fine midband clarity, rock solid timing and lucid yet strong bass.

But our recent re-pressing of Fleetwood Mac's Rumours LP came across as brightly lit in its treble, more so than I am used to from our 2M Black in other turntables. The trend continued through a wide range of Rock LPs, rim shots and cymbal crashes in So Far Away from Dire Straits Brothers In Arms LP stabbing out with cracking force. Generally

the turntable was clear and insightful, not warm or vinyl like; it has a bright tonality.

It was with Marianne Thorsen playing Mozart Violin Concertos, backed by the Trondheim Soloists, that the known effects of flutter – fast frequency modulation – became apparent. There was a shimmer and a slight edginess to her violin strings. The accompanying soloists were however clearly lit and well separated.

Running our Timestep modified Technics SL-1210 MkII with SME309 arm and Audio Technics VM-750SH MM cartridge straight after I was greeted by a smooth and cohesive vinyl sound, Marianne Thorsen's violin in particular settling back to sounding

forward yet natural in string texture, with smoothness of tone.

CONCLUSION

The Reeloop Turn 5 is well made and finished, easy to set up and use – and looks the part too. This is exactly the package for those who want a 'pro' looking turntable under £1000. However, classic Direct Drive cogging (flutter) affects its sound and there's little sign of vinyl warmth or smoothness, so it may not be quite what some buyers expect. I suspect it would be better if the servo-feedback was backed off a bit to reduce the cogging. As it stands the Turn 5 has a dramatic presentation and looks the part, and is appealing in its own way.



The platter's underside carries a circular rotor cage with magnets, driven by the field coils on the chassis below. This is a low speed electronically commutated d.c. motor.

MEASURED PERFORMANCE

The Turn 5 produced a steady 3155Hz test tone from our DIN 45 545 test disc's 3150Hz test track, giving almost perfect 33rpm speed accuracy. More important however was the lack of speed wander in either the short term (<1 sec) or long term (>1 sec). It held absolutely stable frequency where most other turntables do not – a sure sign of a quartz-locked speed reference.

Wow (cyclic variation of speed) measured a low 0.08% but Flutter also measured 0.08% – high; around 0.04% is common. The total, DIN weighted W&F (Wow and Flutter) figure was 0.1%, a good result and better than most belt drives – but not the 0.06% I expected from Direct Drive. The reason was obvious in our spectrum analysis of speed variation where a high flutter peak at 6.7Hz caused by cogging dominates. Servo-Feedback has been set high for a fast start time and this is the downside.

On the matter of figures, Reeloop claim 0.01% weighted RMS W&F (impossibly low) but our result was 0.1% DIN weighted and 0.07% JIS weighted

(the Japanese measurement standard used by Technics). A Technics SL-1200GR measured 0.025% JIS W&F (August 2017 issue).

Reeloop also quote 30gms effective arm mass – way too high and likely arm mass. They say maximum cartridge weight is 8.5gms, but it is 13gms – so their quoted performance figures are randomly inaccurate.

Arm behaviour was as expected due to construction. The simple alloy tube has a strong resonant mode at 275Hz – not wonderful – whilst the rigid ribbed headshell was very 'quiet' (non-resonant) – wonderful. So a mixed bag.

The Turn 5's speed stability is dominated by a high level of classic Direct Drive cogging; otherwise it performs well and as expected. **NK**

Speed error +0.1%

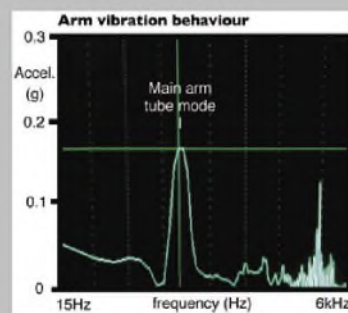
Wow (DIN) 0.08%

Flutter (DIN) 0.08%

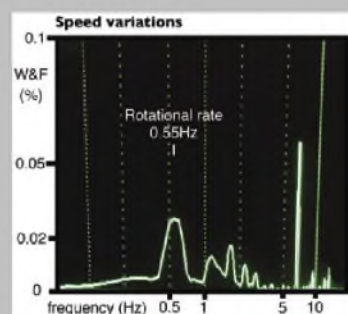
Total W&F (DIN wtd) weighted 0.1%

Total W&F (JIS wtd) weighted 0.07%

ARM VIBRATION



WOW & FLUTTER



RELOOP TURN 5 £650



EXCELLENT - extremely capable.

VERDICT

A nice package but lacks the vinyl sound and suffers classic Direct Drive cogging (flutter).

FOR

- easy to set up and use
- three speeds
- looks good

AGAINST

- suffers DD cogging
- needs 'warm' cartridge
- no speed adjust

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Mono Magic

If you really want to get the best from your mono vinyl, you need the right tool. Paul Rigby reviews one contender, Hana's SL Mono moving coil cartridge.

For most of the fifties and sixties, mono was king, on LP and in broadcasting. Mono has now re-established a measure of importance within the current vinyl sector. There are numerous album releases and magnificent box sets featuring nothing but mono vinyl from the likes of The Beatles, The Rolling Stones, The Kinks and more.

I recently undertook a sort of psychological sonic experiment and listened to nothing but mono for a few weeks. My vinyl collection is around a third pure mono. I had a great time, thanks. Thing is, though, when I eventually switched back to two-channel, stereo sounded like a gimmick. A toy. It was mono that sounded like the real thing.

The real thing because I employed the proper tool to do the job. I played this vinyl with a mono cartridge which meant that the [cough] stereotypical nature of mono was blown away. That is, there was a wide soundstage, instruments offered a layered and structured level of positioning within the same while vocal harmonies were richly honed and put together. Most unlike the traditional 'narrow' view of the



when looking for a mono cartridge but the main one is the stylus tip. If you want to play the trendy new vinyl mono reissues then you want a 0.7mil tip size. To be fair, most modern mono cartridges fit that specification. Pre-1965 – give or take, no-one really knows the cut off date(s) – you're generally looking at larger groove sizes. So original Frank

side radius) for older wider grooves but it still tracked our 'stereo' test disc perfectly, meaning it reads later stereo LPs correctly.

Toting a Shibata stylus tip on an aluminium cantilever, the Hana SL Mono requires a reasonable 2g in tracking force.

SOUND QUALITY

Speaking of The Beatles, I played the reissued mono version of 'Good Day Sunshine', from the LP 'Revolver' (1966) and it was good to hear the bass on offer here that, like the rest of the frequency spectrum, was well behaved, easy going and clean in terms of presentation. There was no bass bloom and, for that matter, no pinching treble or smearing mids. Paul McCartney's lead vocal was open and full of complex textures as he bent his vocal chords for effect. Similarly, Lennon's harmony backing highlighted the smooth mids and, as our tests showed, low distortion.

There was enough separation in the presentation to allow the ear to

"The Hana SL Mono puts the music and the entire performance of the music at ease."

format, yes?

It's because of this detail and presentation that using a stereo cartridge with an engaged mono switch on your phono amplifier just won't cut it. To be frank, in comparison to a well designed mono cartridge, the stereo/mono switch option is poor.

There are a few points to note

Sinatra LPs, for example, tend to require a 1mil stylus tip. Saying that, you can still use the 0.7mil tip on vintage originals but you might lose a bit of bass character and fine upper mid detail. This is still a better option than the stereo cart and mono switch option, though.

The Japanese Hana SL Mono uses a 1.57mil wide tip (0.27mil

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You get standard stereo output pins for convenience of connection, each channel carrying the same signal to give a mono sound.

recognise that Lennon's voice was, in fact, a separate one.

Subtlety was well described by the Hana. Low key secondary tambourine effects were easily recognised by my ear while Lennon's sotto voce "She does" to McCartney's initial "She feels fine" line was highlighted with ease.

'Time and the River' from Nat King Cole's LP, 'Looking Back' produced a notably twangy bass guitar which was nicely focused and offered a worthy foundation for the track, while the Cole voice was as easy going as the overall performance of the SL Mono cartridge itself.

The Cole vocal proved to be open and quite emotive in terms of its delivery and while that legendary smooth delivery was in evidence, the Hana was able to note emphasis and texture as Cole manoeuvred his voice around the lyrics.

CONCLUSION

There's no tension or stress when employing this cartridge. In fact, this flat and accurate design impressed by its gentle clarity. The Hana SL Mono puts the music and the entire performance of it at ease.



A standard lightweight alloy cantilever but fitted with a wide Shibata stylus tip.

NOEL SAYS -

Why use a mono cartridge? Because it only senses lateral movement of the stylus tip; vertical movement produces no output at all. That means it rejects vertical noise caused by dirt and groove damage – especially ticks and pops.

A notable feature of the SL Mono however is that it uses a 1.57mil wide Shibata stylus profile with narrow 0.27mil side radius, where traditional mono cartridges use a 0.7mil-1mil conical tip with a circular profile – a simpler and cheaper compromise shape. As a result the Hana better reads high frequency detail than most mono cartridges – and with very low distortion measurement showed. But its extra width keeps it above the noisy floor of a wider mono groove. In all then it better reads mono music (lateral groove modulation) whilst avoiding noise (vertical groove modulation) than a simpler conical design.

Finally, this moving coil (MC) cartridge needs an MC preamp as always, and it isn't easy to fit, lacking captive nuts or a threaded body. Best used in an arm with a removable headshell.

REFERENCE

Origin Live Sovereign turntable
Origin Live Enterprise 12 arm
Myajima Kotetu cartridge
Icon PS3 phono amplifier
Aesthetix Calypso pre-amp
Icon Audio MB845 Mk.II monoblock amplifiers
Quad ESL-57 speakers with One Thing upgrade
Vertex AQ & Tellurium Q cable
Blue Horizon Professional Rack System
Harmonic Resolution Systems Noise Reduction Components
All vinyl was cleaned using an Audio Desk's Ultrasonic Pro Vinyl Cleaner

MEASURED PERFORMANCE

The SL Mono measured perfectly flat up to 20kHz (JVC TRS-1007 test disc), lateral cut. Few cartridges manage this. It makes the SL Mono superbly accurate in tonal balance, avoiding spitty or dull treble. This was helped by a Shibata stylus with narrow 0.27mil side radius that was capable of tracking inner grooves with almost no loss (red trace) – exceptional.

Tracking was good, if not up with the best. The SL Mono cleared 20cms/sec in the midband (1kHz) but distorted heavily at 25cms/sec (B&K 2010 test disc). The same for a lower frequency test (300Hz, CBS STR-112 test disc) where the top torture track again distorted heavily through mistracking, but the stylus stayed in the groove. It cleared all vertical modulation test tracks so will play stereo LPs without problem. Rejection of vertical info (noise on mono LPs) was good too.

Distortion was low, measuring 0.7% on +12dB above 11.2µm peak amplitude (CBS STR-112 test disc) where 1% is a typical value, so this is a linear generator.

Output measured 0.4mV at 3.54cms/sec on lateral modulation (JVC TRS-1007 test disc) – low but

acceptable with a quiet MC preamp.

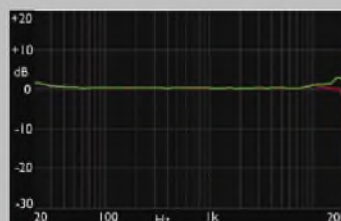
The SL Mono is very light at 5gms where 6gms is a common minimum weight. Most arms accept 4gms minimum but some may not balance out, unless additional weight is added at the head shell, or a heavy headshell is used.

The SL Mono measured well all round, like other Hana cartridges. Its Shibata stylus tip gave exceptional results and is a distinguishing feature.

NK

Tracking force	2gms
Weight	5gms
Frequency response	20Hz - 20kHz
Tracking ability (300Hz)	
lateral	63µm
vertical	45µm
lateral (1kHz)	20 cms/sec.
Distortion (45µm, 300Hz)	0.7%
Output (5cms/sec rms)	0.4 mV

FREQUENCY RESPONSE



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A Mono Tip

To play vintage mono LPs you need the right stylus. Noel Keywood travels back to find just what was used at the time.

Why would you want to play a mono LP? Answer: for the historic performances you might find on it. The LP was introduced in 1948 to replace fragile shellac 78s and like them it was mono. Stereo 'microgroove' LPs started to appear ten years later, so there's a decade of recorded musical performances on mono to be discovered and enjoyed. The change over to stereo was slow and a bit shaky so mono was being laid down into the mid-1960s – think early Beatles and Rolling Stones, but also a lot of classical recordings.

If you have a serious interest in reproducing early mono LPs there are some hardware issues to consider. One of them that came up in our Hana SL Mono review this month (p89) is that of the stylus needed to play such LPs. And here the situation gets confusing.

The reason for confusion is that coarse groove 78s were being phased out, microgroove monos were coming in, then stereo appeared – all within a short period.

References here are original data from the period, not internet speculation. The period is roughly 1950-1960 so relates to LPs cut then, not modern mono re-pressings such as The Beatles in Mono.

British Standard 1928: 1965 states 'Fine groove' (i.e. not 78) monophonic groove 'minimum top width' as 0.002in (2mil) and diagrams in 'Pickups – the Key To Hi-Fi' Walton (1968) and Pickups & Loudspeakers (John Earl/Gordon King, 1971) show 0.0025in (2.5mil) top width, the figure

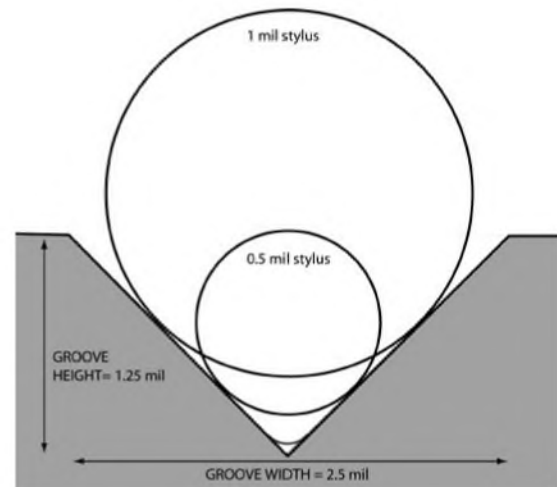
I have used for our scale diagram.

At the time stylus radius is commonly quoted as nominally 0.001in (one thousandth of an inch, or 1mil) for early mono LPs, reduced to 0.0005in (0.5mil) for 'microgroove' stereo LPs to lessen pinch-effect distortion and loss of high frequencies on inner grooves. A compromise was struck at 0.7mil for a basic 'spherical' tip and has remained that ever since.

British Standard 1928: 1965 states a mono stylus for LP (Fine groove) should have a radius of '0.001in - 0.0007in' and Langford-Smith in Radio Designers Handbook (1960, p711) says 0.001in (1mil) quoting an RTMA Standard. I think we can be fairly certain that a 0.001in (1mil) radius conical stylus was correct for mono LPs at that time and sure enough, our diagram shows that such a stylus fits the groove perfectly, confirming the dimensional link between mono groove and mono stylus of the period.

The situation starts to complicate once stereo is introduced. I bring this up to explain origins of other stylus tip dimensions. Here British Standard 1928: 1965 states '0.007-0.005in' for a stereo stylus and early (1957) EMI test discs I have state a 0.006in-0.005in stylus be used. A 0.0005in stylus sits low in an LP groove our diagram shows, although it clears the bottom radius.

There seems to be no justification for a conical tip larger than 1mil radius. Larger tips were needed for 78s however (3mil) and since these were labelled 'coarse groove' styli some may well think they were for early mono LPs – not so.



Our scale diagram shows a 1mil radius stylus (2mil diameter) fits a 2.5mil wide mono groove perfectly. Smaller conical tip diameters sit lower, the stereo 0.5mil conical tip profile shows. It does however clear the bottom radius.

A conical tip is referred to as spherical because it is rounded to become a hemisphere.

Elliptical and special tip geometries reduce the side radius typically to 0.3mil or thereabouts to reduce distortion and maintain treble on inner grooves – an improvement that seemingly suits the mono groove.

Audio Technica suggest a conical stylus is best for old mono LPs but they use a 0.6mil conical, which our diagram suggests isn't optimal insofar as it sits low in the groove.

Now we come to the confusing issue of the Shibata tip that Hana use in their SL Mono we review this month. They quote a major radius of 1.57mil – but this isn't the width as it would be if it were the bottom radius of a spherical tip. The major radius of long contact tips is not their groove width in other words – confusing.

Our measurements confirmed the Hana tracked lateral and vertical modulation perfectly well. Since a mono stylus needs to be wide at 1mil I would think a long contact Shibata may well offer a better result than a point contact conical that is too small. The ideal for old mono LPs then is basically a 1mil conical tip, Shibata profiles used by Hana for vintage mono and Ortofon (2M Mono SE) for modern mono (The Beatles in Mono) being modern developments.

1mil = 0.001in = 25µm = 0.025mm

Tip radius of reproducing stylus	Intended use
0.002-0.003 in (0.051-0.076 mm)	Coarse groove
0.0007-0.0010 in (0.018-0.025 mm)	Fine groove monophonic only
0.0005-0.0007 in (0.013-0.018 mm)	Fine groove monophonic and stereophonic

Stylus tip radius defined by British Standard BS1928: 1965, likely derived from a U.S. RIAA Standard since the LP is a U.S. technology.

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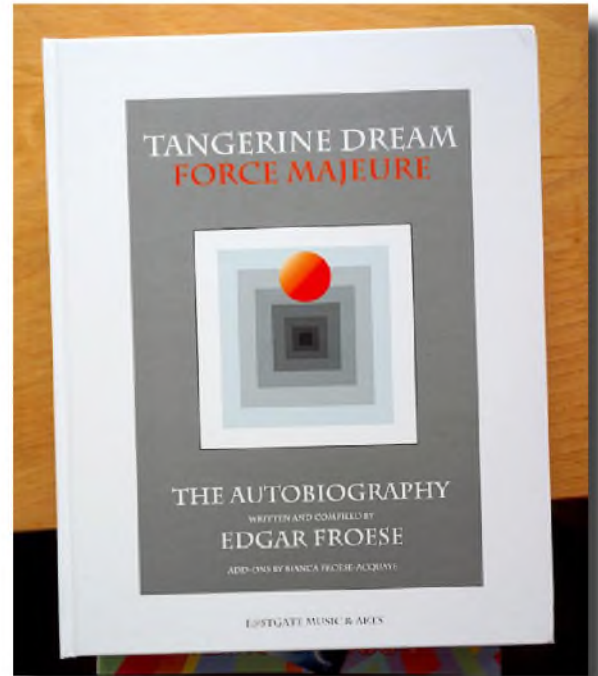
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More Than A Dream

Paul Rigby has his brain expanded by a book that looks at the history of Tangerine Dream.

Tangerine Dream: Force Majeure
The Autobiography
Author: Edgar Froese
Publisher: E@stgate Music & Arts
Price: 69.90



An incredibly influential krautrock band that has touched on a wide array of areas within popular and experimental music from ambient to film scores and from the modern dance scene to prog rock. Tangerine Dream spans an enormous career period from 1967 to present day. Their last remaining original, active band member, Edgar Froese was a creative force to the very end when he died in 2015.

Before he died, though, he penned this book which spans 381 pages. As you might expect, it takes the reader through the history of the band but also reflects on the various scenes that Froese occupied at the time, plus the ever changing line-up of the group.

It took Froese seven years to write. Spanning 30.5 x 24.5cm, this is a big book in terms of physical size while the text has been translated from the original German edition.

For anyone interested in Tangerine Dream, the mere existence of this book is the main – actually, is the only – thing. Daring to cast aspersions on such a publication is not only unthinkable but, for many, pointless. That said, removing the fan element from it and looking at the

release in neutral terms, there are points to address here.

Firstly, the layout of the text is slightly questionable. I have other fan-based, large format books, the Bruce Spizer Beatles releases come to mind. The Spizer pages are laid out well with a sensible font size and spacing. The Froese book font looks a little large and the spacing slightly exaggerated. As if the text has been enlarged and spread to increase the page count and to justify the price.

On the flip side, there are forty-two pages of colour inserted into the centre of the book which must have cost a bit and I imagine that the limited print run of this first edition will have upped that price too. So you may need to take such issues into consideration.

Yes, I'm being picky here but then I'm paying €70 (and yes, I did actually buy this book, it wasn't a freebie) so I have the right to be.

Push the format, design and aesthetics to one side though and you are left with the point of this tome. The reason for buying it in the first place: Froese's thoughts and memories.

Although the book takes a vaguely straight line through Tangerine Dream's history, it's not a surprise that, like many people who

talk about their days in well known bands, the book doesn't list events and landmarks on a blow by blow, forensic basis. There is less, 'they did this and then they did that' and more thoughts and insider reflections from moments and events. That's fine, though, because insider thoughts are what we need from a guy who was, after all, on the 'inside'.

As a 'voice', Froese is detailed and refreshingly uncompromising. His observations are honest and his conclusions can be both caustic and wonderfully cutting. Everything from the casual racism experienced in Berlin, directed toward Jimi Hendrix who he was supporting on stage in 1967, to tense negotiations with his then UK record label Virgin, in 1977. Froese's candour throughout these and many other events is wholly welcome, providing a unique insight and a sense of history.

Even the end of the tome, entitled 'Thoughts of Friends, Colleagues and Fans' including everyone from Jean-Michel Jarre to Bob Moog's daughter adds to the tale.

Despite my design and format reservations, the thoughts and emotions from Edgar Froese himself are worth the price alone. It's an important story, well told.

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A jazz group that walks a different path from the mainstream. The modern line-up is a tad different but this LP featured guitarist/pianist Ralph Towner, double bassist Glen Moore and percussionist/sitar player Collin Walcott along with oboist Paul McCandless.

Before the formation of Oregon, the first three members joined the Paul Winter Consort in 1970. As Towner recalled: "We would tour for weeks on end and play together, all four of us writing together in a station wagon".

Back in New York City during the late sixties, running through to the early seventies, the city was a centre of activity. Legendary bands such as Weather Report and Mahavishnu were active, while other musicians were buzzing around and about to form a hive of creativity.

"I remember being in a group with Jimmy Garrison, Coltrane's bass player and we were rehearsing at Chick Corea's apartment" said Towner. "We were all living pretty much in the same area – you could afford to do that then".

So when the guys were hired by Paul Winter they had an interesting concept of music. "But he was doing interpretations of various music – hardly any original composition. We played adaptations and arrangements of Brazilian music and Renaissance music and some Baroque things and some other pop things – Joni Mitchell kind of things. And so it was a real potpourri of styles".

Towner began writing his own arrangements to this music, gaining experience all of the time but integrating an oboe and tabla into the mix. Which lead eventually towards Oregon and the use of a wide array of instruments to form a unique sound, everything from a flügelhorn to a tin flute.

The bottom line was an ensemble playing a hybrid style of jazz, rock, free jazz – and more. Even a sprinkling of pop found its way into the music.

This 1978 LP release was typically eclectic and wide-ranging. The diverse styles touched on classical music as well as Asian and African modes of music with the obvious jazz vibes gluing the whole lot together.

"The compositions are not always standard jazz forms", said Towner. "I started writing

sectional kind of things which would involve the improvisations on different material rather than have everyone playing on the same chord changes. Trying to make more long forms – that basically is one of our identifying factors, along with those different rhythms – not always swing time. If the music wasn't good, we would have stopped quite awhile ago", said Towner.

When it comes to creating the music, Towner did and does most of the writing. "In a funny way, I'm the musical director of the group" he said. "Without all the parts working together, the group wouldn't function. It's a kind of recipe for a small village. It's not a bad example of how to get along. We give each other a lot of room".

And this is the shocking thing about Oregon...they get on! There's none of the inter-group jealousies here, no arguing, no bad feelings, no simmering resentments and none of that petty, moody, sniping stuff. It's quite refreshing. "No-one's tried to inhibit another's individual aspirations" said Towner. "There's a lot of generosity that way. The thing about it is it's very serious and involved with the music when we do play. No-one's doing it because it's just a job. It's a real, living thing and we still get very excited about it. After every concert, we talk about it. We're excited about what we do. We always feel we have to do better. It's a wonderful thing. It's like an incredible kind of brotherhood.

So, it's a group that's not going to disband. It would be like disbanding from your parents. It's truly a family but not a restrictive or suffocating one. It's a good model for relationships in that there's a lot of respect and it's very relaxed. It's very unusual in that it's really great people, not just musicians. They are wonderful people to hang out with".

This newly reissued version of 'Roots in the Sky' has been splendidly reissued by Speakers Corner (www.speakerscornerrecords.com) as it has been remastered from the original master tapes and pressed by one of the best pressing plants in the world, Pallas in Germany. This edition is a true duplicate because the sleeve is unadorned by zip codes and other modern ephemera which can get in the way of the experience. A superb edition.

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