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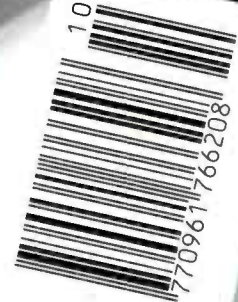


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Paul Rigby, Rafael Todes, Jon Myles,
Martin Pipe



What a glorious sight the McIntosh MT5 turntable was – and what a glorious sound it gave. It had a deep, dark and spacious soundstage, that impressed all who heard it. These qualities put it up amongst the best vinyl spinners, whilst the green glow from its acrylic platter was intriguing in low light. You'll not be missing this player in the dark after the first bottle of Champagne in a late night listening session! To see how well it fared in detail see our review on p13.

At the other end of the price scale in this issue we also bring you the Audio Technica AT-LP5 Direct Drive turntable. We're talking beer budget prices here – forget the Champers. But whilst you don't get a bright green glow to lead you to LP, as it were, you do a great budget starter package. I was happy to be reminded that the dear old analogue turntable is so easily upgraded, so what you get is by no means what you are stuck with. Audio Technica do a great job in providing a product that'll work out of the box, not damage your precious record collection yet can easily be improved as funds permit. Read more about this fine budget vinyl spinner on p83

At the other end of the technology scale, you might think, is Entotem's newly upgraded Plato streaming digital player. Except this is one of the few players available with an on-board phono stage, so it can also play LP. Even more surprising is that it can recognise what is being played and look up album title and cover artwork in an on-line database. Frightening! Entotem have pushed it to the front of the digital pack by upgrading it with one of the best DACs available today. You can read our report on p40.

It's great to see how both old analogue and new digital are slowly coming together in strange and previously unimagined ways. As LPs from a vast trove of historical music are carefully remastered and re-pressed on high quality vinyl – now commonly 180gm – for a market prepared to pay for the end result, we are seeing music quality being raised steadily all round. Only these days, it is digital that has to keep up!

Noel Keywood
Editor



hi-fi world

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verdicts

●●●●●	OUTSTANDING	amongst the best
●●●●	EXCELLENT	extremely capable
●●●●	GOOD	worth auditioning
●●●	MEDIOCRE	unremarkable
●●	POOR	flawed
●	VALUE	keenly priced

ELECTRONIC MAGAZINE

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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.



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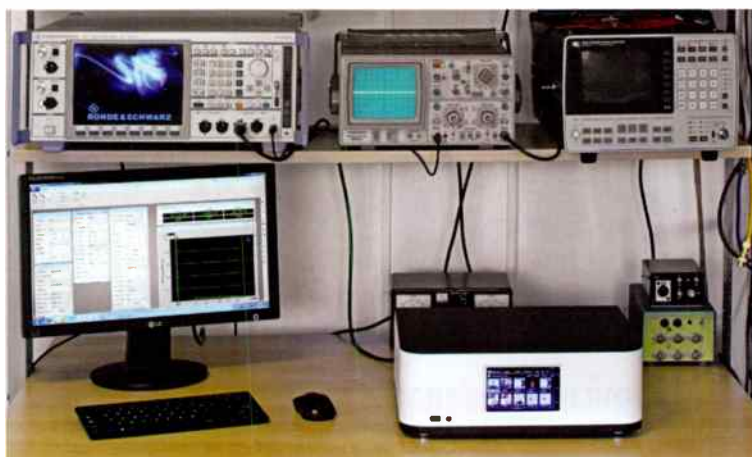
Paul Rigby on Australian underground music: Magnetophonics.

Hi-Fi World measurement

Two products in this month's issue, under test.

The products we review are tested first to ensure they work properly and meet their manufacturer's specification. Our measurements also look at factors that affect sound quality, like frequency response, distortion and dynamic range, as well as those that affect compatibility, such as output level, output power etc. These tests are complex and can only be made using a professional audio analyser, calibrated to international ISO standards to ensure accuracy – we use the excellent Rohde&Schwarz UPV.

Loudspeakers and headphones require acoustic analysis. For this we use the well known Clio test system from Audiomatica, Italy to provide reference standard acoustic measurements, within a very large 6000 cu ft test room. You can be sure our loudspeaker reviews, covering the full audio band from 20Hz to 20kHz, are accurate as a result.



The Entotem Class A Plato under test this month, connected to our Rohde&Schwarz UPV audio analyser at top left, with a repeat screen beneath it.

On screen is a measurement of distortion through the Plato's S/PDIF digital input, with 24bit resolution PCM digital at 96kHz sample rate, at a -60dB level. We test at all sample rates from 44.1kHz up to 192kHz to check for clock related variations caused by internal sample rate conversion. 24bit digital typically retruns 0.02%-0.1% under this test, where older 16bit manages 0.22% at very best, limited by quantisation noise.

The UPV also measures the important dynamic range value accurately, in this case recording a value of 122dB.

Measuring the Audio Technica AT-LP5 turntable's digital output. Test signals from test discs were recorded to a MacBook Air running Audacity, as shown here, and for higher resolution an analogue signal was injected directly into the arm by disconnecting the cartridge and injecting a signal directly into the cartridge connecting leads.

These tests allow the point at which peak digital level (0dB) occurs, that also corresponds to digital overload. Signal-to-noise of the ADC, distortion and frequency response can also be measured.



email:news@hi-fiworld.co.uk

news

SONUS FABER SF16

This new app and remote controlled streaming 'speaker features one front and one rear-firing 127mm bass driver in a wooden and aluminium casing. The sound firing in opposing directions reduces vibration, say Sonus Faber.

At the sides are two extending satellite speakers housing four 15mm silk dome tweeters (two front and two back) and four 50mm ceramic midrange drivers (front and back). The idea is to enhance separation across the soundstage.

Optical and coaxial digital inputs and a pair of analogue RCA inputs are also available for external connection, while DTS Play-Fi is used for streaming – it's able to link in eight stereo pairs, connecting with other brands using the DTS Play-Fi platform.

Weighing in at 25kg and spanning 224 x 640 x 408 mm (closed), the SF16 supports MP3, M4A, AAC, FLAC and WAV files up to 24bit/192kHz plus Deezer, KKbox, Rhapsody, Songza, Tidal, Spotify, Amazon music, streaming services. Price is £9,900.

For more information go to www.absolutesounds.com or call 020 8971 3909.



MRSPEAKERS ETHER FLOW HEADPHONES

MrSpeakers is introducing ETHER Flow and ETHER C Flow headphones using its own, patent pending, TrueFlow and V-Planar technologies.

As sound waves pass magnets in the headphone motor they experience diffraction and reflection, adding resolution-cloaking noise to the music. TrueFlow, say the company, reduces these effects by smoothing the path of the sound wave.

TrueFlow works by filling spaces between magnets with a perforated material to form a flat surface, reducing the negative effects of the motor assembly on the audio waveform, say the company.

ETHER Flow and ETHER C Flow includes MrSpeakers' hand-made DUM Cables or Premier Cables and will be available to purchase from £1,750.

For more information visit www.electromod.co.uk



TALK RELEASE NEW EDWARDS TURNTABLES

TALK Electronics has announced the release of both the Edwards Audio Apprentice TT and TT LITE Mk.2 turntables.

The turntables have been developed from the ground up and are based around a new, in-house designed and manufactured stylish plinth.

Constructed from CNC-routed water-resistant 18mm Solid Medite, the in-house designed and manufactured brass bearing housing and custom belt form the heart of this new turntable. It also has an improved 12mm acrylic platter with a CNC machined outer edge. It is available in two forms; the LITE which has a EA101 tonearm and C50 cartridge and the full Apprentice TT package which features an EA202 tonearm and is also supplied with the C50.

Both are available in satin black/white or red finishes as standard and supplied with full dust covers.

Price for the Edwards Audio TT LITE is £299.95 with the Apprentice TT at £379.95, including C50 cartridges, in a choice of black, white or red satin finishes.

To learn more, click on www.talkelectronics.com.



SCHIIT MODI MULTIBIT

Schiit Audio has introduced the Modi Multibit DAC

Modi Multibit is built on Schiit's proprietary multibit DAC architecture, featuring Schiit's closed-form digital filter on an Analog Devices SHARC DSP processor. For D/A conversion, it uses a medical/military grade, true multibit converter specified down to 1/2LSB linearity, the Analog Devices AD5547CRUZ.

Modi Multibit is Schiit Audio's fourth multibit DAC and is built on the company's second major multibit platform that was developed from the ground up.

Multibit DACs differ from the vast majority of DACs in that they use true 16-20bit D/A converters that can reproduce the exact level of every digital audio sample. Most DACs use inexpensive delta-sigma technology with a bit depth of only 1-5 bits to approximate the level of every digital audio sample, based on the values of the samples that precede and follow it. Price is £249.

Contact schiit.eu.com for more information.



MARK LEVINSON NO 526 DUAL-MONAUROAL PREAMPLIFIER

The Mark-Levinson No 526 is a 12-input dual-monaural design. Designed and engineered at parent company Harman's Engineering Centre of Excellence in Shelton, CT, USA. The Mark Levinson No 526 offers a discrete, balanced R-2R ladder volume control plus a choice of two balanced and three single-ended analogue audio inputs, stereo phono inputs and six digital inputs, supported by the Mark Levinson Precision Link DAC and up to 32bit/192kHz from PCM and double-speed DSD.

Its proprietary Precision Link DAC incorporates an ESS Sabre32 Reference converter supporting six digital audio inputs, including asynchronous USB, AES/EBU balanced, Toslink optical and coaxial unbalanced. For listeners whose libraries contain older or lower resolution content, the No 526 incorporates proprietary Ciari-Fi music restoration technology which, says the company, rebuilds musicality and detail lost in the compression process.

In addition, the No 526 is equipped with a Pure Phono stage which operates in Class-A throughout, offering a fixed-gain MM section with five capacitive cartridge-loading settings and an MC section with three gain settings and ten resistive cartridge-loading settings. An infrasonic filter compensates for rumble and warping.

The preamplifier delivers its signal to balanced (XLR) and single-ended (RCA) stereo outputs, as well as a 6.3mm Main Drive Headphone output integrated with the front panel metalwork – a first for Mark Levinson. The Main Drive Headphone amplifier circuit drives up to 32 Ohm headphones in class A by employing the main output circuit rather than a secondary signal path.

The unit is built with a 6000-series aluminium housing in black with silver trim. It can be controlled from the front panel, from the remote control supplied and via a range of system integration connections. Price is £15,000 each.

For more information, contact 01423 358846 or www.karma-av.co.uk.

SOUND QUALITY FOR GAMERS

With the release of its PC 373D, Sennheiser's new open acoustic gaming headset delivers 7.1 Dolby Surround Sound and noise-cancelling. The Surround Dongle and software uses the shape of your ears to simulate the projection of sounds from different angles, creating a 7.1 experience with a two speaker system.

The equalizer offers four settings including an eSports mode, and an 'Off' setting that allows for a neutral sound performance. The PC 373D also provides a music mode. The noise-cancelling microphone uses a noise reduction algorithm. Three side tone settings, adjustable via the software interface, allow gamers to choose exactly how much they hear of their own voice.

Sound is controlled via the volume button, which is integrated into the right ear cup, with muting. The headset is equipped with large XXL velvet ear pads on the laser-cut, open design aluminium ear-cups. Price is £210.

Contact www.sennheiser.com for more information.



NEW FROM YAMAHA

Yamaha is expanding its line-up of stereo receivers with the R-N402D. It supports wireless music streaming from a home network via Apple Airplay or by Bluetooth. Streaming services such as Spotify or JUKE are also available. In addition, there's a DAB/DAB+ tuner for digital radio reception. And with MusicCast, the network receiver can be integrated into the Yamaha multi-room system. The R-N402D is compatible with all common high-resolution audio formats. It plays back Apple Lossless (24bit/192kHz) as well as WAV, FLAC, AIFF (24bit/192kHz) and DSD (2.8MHz/5.6 MHz) and also has support for wireless playback via WiFi on home networks, for example from a PC/Mac or NAS.

The network receiver can be controlled using the free Yamaha MusicCast app for smartphones and tablets (Apple iOS/Google Android). As an alternative to the app, the R-N402D is also supplied with an infrared remote control.

Also available is the new MCR-N470D – a CD receiver and compact speaker ensemble that plays music from a variety of high-resolution digital audio sources including streaming services, home networks and Internet radio. What's more, thanks to MusicCast, the micro system can be incorporated in the Yamaha multi-room system. Music can be sent wirelessly from a smartphone, tablet or notebook via Bluetooth or Apple AirPlay. The WiFi and DLNA-certified micro system is integrated into the home network via WiFi, allowing music to be streamed from a PC/Mac and NAS. Supported formats include FLAC and ALAC while three popular music streaming services Spotify, JUKE and Napster are also integrated. The unit can be controlled using the free Yamaha MusicCast app.

Finally, the WX-010 network speaker is a closed two-way system with two additional passive radiators. It was developed for stand-alone use but two WX-010 speakers can be connected wirelessly to form a stereo pair. The model is available in both black and white. Thanks to the integrated wall mounting fixtures, the WX-010 can be installed almost anywhere.

To learn more go to www.uk.yamaha.com.



NOBLE KATANA NINE-DRIVER FLAGSHIP IN-EAR

Noble Audio has announced its new flagship model Katana, complete with nine proprietary drive units for each ear.

The nine-driver Katana configuration is also available as a custom-fit model, using alternative construction materials from the Noble range including acrylics and exotic solid woods (Prestige range). A 3D-printed option (SLA range) is also available for faster builds.

The new Katana features a top half with a gun-metal grey anodise and a bottom half sporting a striking satin-black anodise. Further features include a detachable two-pin cable and supplied accessories include a Pelican 1010 (crush-proof carrying case), a black velvet soft pouch, twelve pairs of ear tips (four kinds in three sizes), two Noble Audio bands or amp bands, a cleaning tool, a Noble cable and an ownership card.

Price for the Universal-fit is £1,350, for the Custom-fit is £1,350, for the SLA (3D-printed custom) is £1,199 and for the Prestige custom-fit is from £2,150

To learn more go to www.nobleaudio.com.



THE HOST

A new digital music server, in a machined aluminium case, The Host is equipped with a USB digital audio output, Ethernet port and solid-state drive for music storage. A full linear power supply is supplied with low noise regulator modules. A custom made Linux OS Roon or Daphile OS are supplied as options.

Spanning 322 x 260 x 90mm and weighing in at 7kg, the server has a range of storage options from 256GB up to 2TB.

To learn more, call 01284 716415 or click on www.lwaudio.co.uk.



AVID REFERENCE FOUR LOUDSPEAKER

Following the launch of the Reference loudspeakers at the Munich HIGHEND show, Avid has expanded the range further to include the entry level Reference Four that employs consistent cabinet construction and vibration damping techniques, sandwiching the drivers between metal plates.

Manufactured from up to 15mm aero-grade aluminium plate at the company's Huntingdon factory, each hand crafted cabinet contains one 152mm Bass/Mid driver and a 28mm soft dome tweeter, each retaining the titanium voice coil former, identical to the other Reference models.

The Reference Four cabinet is also reflex loaded, with the tuned port exiting below onto a diffusing plate. The speaker weighs in at 26kg, or 48kg including the stand.

The speaker can be purchased in black, bronze or charcoal silver with copper trim. Price is TBA but will be in the region of £10,000

Call 01480 869 900 or click on www.avidhifi.com for more information.

Prism Launch New UK Dac

Martin Pipe reports on an established British pro-audio gear manufacturer's first audiophile product.

These days, you can't move for new DACs – with or without headphone amplifiers. But when an established British firm, with a pedigree in DACs for professional studio use, makes a serious foray into audiophile territory then that is big news. The firm in question is Cambridge-based Prism Sound, the measurement and digital-audio products of which are subjected to everyday use by a multitude of famous names including Lucasfilm, Decca, Roger Waters, Metallica, Abbey Road, Telarc, Universal, Coldplay and the BBC.

And the new audiophile DAC in question is the £1500 (ex.VAT) Callia. It was introduced to the press at Mark Knopfler's Chiswick-based British Grove Studios – itself a user of Prism's professional converters. The compact Callia incorporates some very interesting technology that has been adapted from its vastly more expensive studio brothers, but offers features – notably DSD (up to 2x) decoding – that have no equivalent in Prism's professional DAC range. It is produced, as well as designed, in the UK.

The Callia's conversion circuitry is very interesting, as Prism's technical director Ian Dennis reveals: "We do the first part of the processing in the digital domain using proprietary technology, and then use the 'back end' of a DAC produced by somebody else" (subsequently disclosed as Cirrus). Dennis explained to me in depth the attention to detail that has been furnished on other important elements of the Callia – among them the clocking system.



Graham Boswell, Prism's founder and commercial director, told me he built his own belt-drive turntable as a student. Here, though, he's introducing the Callia – which, he claims, will offer "pro-grade performance at a relatively-affordable price".



Graham Boswell presides over the listening session, the ATC monitoring speakers being clearly visible. Music played included tracks from Eric Clapton's new album (recorded at British Grove), Sting's Moon over Bourbon Street, Elton John's Saturday Night's Alright for Fighting, Albert King's recording of Call It Stormy Monday..., Mark Knopfler's Wherever I Go and classical compositions by Britten, Saint-Saens and Buxtehude.

He also informed me that the Callia changes DSD into a "strange shape of PCM" prior to analogue conversion, rather than going directly from DSD to analogue. Dennis claims his approach yields improved performance, and points out that most material released in DSD form has already been processed in the PCM domain (during the production phase). Some of his other observations will be detailed in my column next month.

Graham Boswell, Prism founder and commercial director, explains how Callia came about: "Some of our professional converters were being used by music-lovers at home – notably in the Far East". This gave Prism the idea of developing a unit primarily for audiophile use – design goals included "ease of use" (no selectable digital filters, for example) and a lack of "nasties". Most important, of course, was performance. Callia was to achieve "a first-class listening experience...with no characteristic sound at all – just transparent, as if nothing's there".

Callia is also interesting insofar that USB audio was a primary driver; it supports UAC2 (USB Class 2) mode, 32-bit/384kHz-sampled PCM and DSD-over-PCM (DoP). Indeed,



The Prism Callia DAC and headphone amp, in all its hi-res glory. Note the indicators for source selection and source format, plus the separate volume controls for headphone and line output. We hope to get hold of a review sample shortly.

during the launch Boswell only mentioned the other digital audio inputs – optical and coaxial, up to 24-bit/192kHz – in passing.

A firm of Prism's reputation placing such emphasis on USB must surely be an endorsement of the 'computer-as-source' concept? That said, many home recordists and musicians working to tight budgets tend to rely on computers as production tools. The Callia could therefore be used for monitoring 'at work' – and then taken to the hi-fi system!



One of the mixing desks at British Grove. In this particular control room, the Callia was demonstrated. Dwarfed by the console, it can be seen next to the right-channel speaker. The laptop being used as a source (it was running iRiver Media Center) is also visible.

Talking of which, another key element of the Callia is its headphone amplifier. This has, in Boswell's words, been designed for "critical listening" applications. It is capable of low-impedance drive, and DIP switches on the rear panel enable the amp's sensitivity and output impedance to

and hi-res tracks representing various musical genres. Boswell's claims of transparency and neutrality can, in my opinion, largely be justified. It's a tonally-balanced and highly-detailed sound. Even CD-sourced 16-bit material (notably a fine mid-90s recording of the Saint-Saens Organ Symphony made by Jonathan Wearn, himself present for the listening session) was remarkably open yet immediate. We look forward to bringing you a full review of the Callia in an upcoming issue.

**Further details: Prism Sound, 01353 648 888
http://www.prismsound.com/hifi/products_subs/dac1/dac1_home.php**



British Grove may employ Callia converters, but they love analogue too – as the presence of these three classic two-inch Studer tape machines (two 24-track, one 16-track) reveals. What albums and singles, one wonders, might have at some stage passed those heads?

be optimised for the listener's choice of 'phones. Dedicated control over headphone volume takes place in the analogue domain; the levels of the line output (in both balanced-XLR and unbalanced-phono form) are independently-adjustable, a 'bypass' function being available for those who need it.

To demonstrate the Callia, it was fed through the impressive ATC monitoring speakers of one of British Grove's control rooms. The source was nothing more than a USB-interfaced laptop, loaded with CD

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10 products of the year and most wanted components
in just 2 years by preserving relative phase relationships in a signal



"If you're looking for a major jump in your system's performance, I'd suggest buying a pair of these instead of considering a hardware upgrade. Before you write this advice off to cable delusion, expectation bias, or the recent Mercury retrograde phase, please take note: I have never said this in TONE's 11-year history"

Jeff Dorgay, Tone Audio

"Well, I have just stumbled upon a speaker cable that I'm very tempted to put in a class of its own"

Mono & Stereo



"Tellurium Q have surpassed themselves here. It is often said that all cables colour the sound of a system to some extent, but the Silver Diamonds do it to a lesser extent than any other product I've heard so far."

John Myles, HiFi World

The effect of phase distortion can be likened to smearing a beautiful picture or looking at it through frosted glass. All signal cables do this to some degree and the better you tackle the engineering challenges to combat phase distortion the more natural the sound you get.



== TQ ==

Green machine

Iconic American brand McIntosh has added a turntable to its range – and Noel Keywood finds it is a potent performer.

Walk into a room and you'll see this turntable straight away, your eyes drawn by an eerie green light from its platter. To achieve this effect McIntosh place green LED uplights beneath a clear acrylic platter. It's all part of this American company's bold JS style – and it draws attention like little else. So if you want people to see your turntable, the MT5 has more visual oomph than most.

In keeping with this strong and distinctive house style comes ease of use and breadth of ability: where belt drives have in the past offered 33rpm and 45rpm, because a 78rpm pulley stretches the belt too much, the MT5 has a simple, switchable 78rpm option I suspect not many people will want to use it because 78s are more of historical interest to collectors than chuck-about entertainment items for the rest of us, as you find out when you drop one and it shatters, but electronic

speed control makes this added ability easy to offer – so McIntosh have done so.

All of which is to give you some idea of where McIntosh are coming from with the MT5. They present it as a turntable package for those who want high quality but ease of use. It speaks loudly about what it does, in the form of that brightly lit green platter; friends won't walk in and miss the turntable. Happily, nowadays there are no lack of LPs to go with it, as LP pressing plants around the





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world work overtime to supply demand.

Testament to ease of use are two traditional-style rotary switches on the front panel. At left is the speed selector: 33, 45 and 78rpm. You don't have to move the belt manually as required on simpler, albeit less expensive, designs.

At right is another three-position rotary switch that has Off, Standby and On positions. With the last of these all lights come on and the heavy acrylic platter slowly runs up to speed. All lights? Yes, that means fascia back-lighting so all legends and the manufacturer's name can be read in low light, as well as the lights beneath the platter that make it glow green. I'm reminded that old radios and the like commonly used similar back lighting: McIntosh are reviving an ancient practice here but with new technology - filament bulbs are gone, long life LEDs replacing them. The Standby position relates to use with a Macintosh preamp, where the turntable lights up but doesn't start, when the preamp is switched on.

Whilst the turntable employs

"this deck delivered dynamic contrasts seemingly greater than hi-res digital, graced by a silent background"

modern electronic control of speed, using a stainless-steel brushed d.c. motor, the arm remains firmly manual. It is a simple design with a damped manual lift and lower platform, actuated by a side lever.

Into the arm is fitted a high output Sumiko Blue Point 2 moving coil (MC) cartridge, purposed for an MM input - I have to explain this



The motor drives a sub-platter that sits on a large magnetically cushioned bearing, employing a hard ceramic bearing shaft.

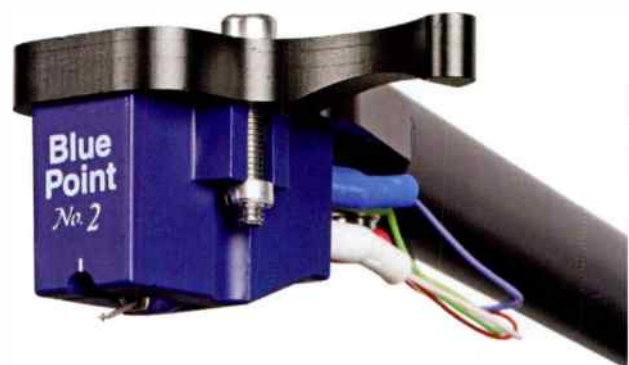


A large knurled-edge thumbwheel at left applies magnetic bias correction to the arm. The rear counterweight is uncalibrated so a stylus downforce gauge is needed.

better later as the handbook leaves the subject hanging.

A turntable like this is equally suited - arguably more so - to a high-quality moving magnet (MM) cartridge from the likes of Audio Technica, Nagaoka, Goldring, Ortofon and a host for others not forgetting Shure's M97XE for those too cack-

I pushed a 4mm banana plug with attached earth lead into this terminal to establish earthing to our Icon Audio PS3 phono stage. At far right, looking from rear, lies a small d.c. power input since the power supply is not on-board, being a small free



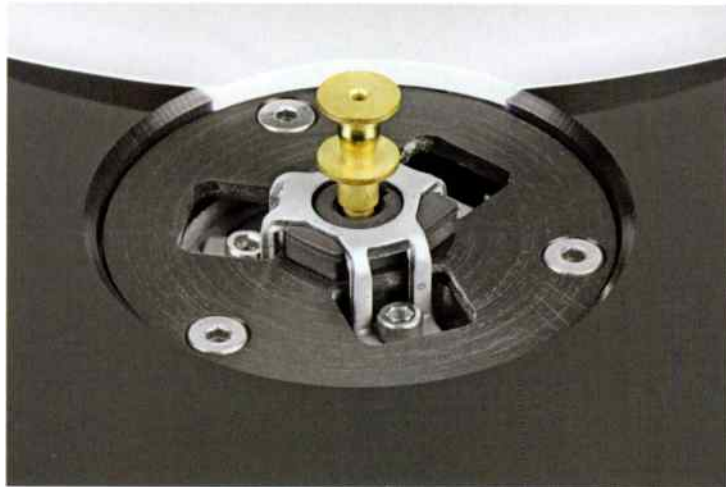
The Sumiko Blue Point No.2 moving coil cartridge. It is inexpensive and can easily be bettered.

handed to feel confident about manually lifting and lowering a tone arm. I'm thinking very much here of all those souls used to bullet-proof digital devices but drawn by the lure of ancient analogue - especially when it lights up green!

McIntosh continue with their policy of glitz by using a highly polished stainless steel chassis that offers a gleaming finish all the way around. At rear it is studded by a pair of gold-plated phono output sockets, plus a gold-plated earth terminal no less - the first of its kind I ever recall seeing; these things are usually paltry little thumbwheels on a threaded shaft.

standing plastic case (not a wall wart) with 4ft of thin twin core flex that carries 12V to the turntable, and a two-pin 'calculator socket' input for a suitably terminated mains cable (not supplied). As you'd expect nowadays this is a universal power supply that works anywhere, accepting 110V/240V, at 50 or 60Hz.

The MT5 is big: it weighs 14.3kgs, and measures 43cm deep and 45cm wide. There is no suspension system so it needs a firm and level surface to stand on, one able to support its weight. Also, the dust cover is not hinged; it must be lifted off and placed to one side, so space for this is needed, together with the inevitable LPs that will lie about. This suggests a suitably strong and stable wall shelf system to me. The plinth



The d.c. servo motor has a single capstan step for the belt; manual speed change by moving the belt between steps is unnecessary.

feet are height adjustable.

Although the MT5 is easy to use, and comes as a convenient package, if you look at the handbook available on line you will see a prodigious set-up procedure. Ours was the only UK sample and came boxed from the factory, not set-up – but this is a Clearaudio-sourced design with protected ceramic centre bearing shaft, lubricating oil, shaft, hub and much else in the box that I have encountered before, so knew what to do – including the need for a long run in and subsequent speed re-adjustment. It is a complicated design and best set up by a dealer.

You can, however, fit any cartridge into the arm and a full range of arm adjustment is available,

including arm height; only headshell azimuth adjustment is not possible, but neither is it in most fixed-head arms (e.g. SME, Rega). The three speed adjusters sit behind a small cover; to use them a stroboscope disc is needed or, better, a test disc (Clearaudio) and frequency meter (Maplins). Also on the back panel are synch inputs for a Macintosh hi-fi system. You get a turntable mat and even a heavy puck to hold records flat.

And now to the Sumiko Blue Point 2 moving coil cartridge and what the handbook doesn't make clear. This is a high output moving coil (MC) cartridge purposed for moving magnet (MM) inputs, not MC inputs as suggested in the handbook.



The arm is lowered and lifted with a damped platform, operated by a lever. Manual cueing isn't so easy, because there's little clearance between the flat finger lift and the record surface. Finger lifts are usually curved upward to avoid this difficulty.

It needs a 1000 Ohm (minimum) load Sumiko say, where most MC inputs are 100 Ohms. If you plug it into an MC input it will work OK, as output will drop substantially into 100 Ohms and being a resistive generator treble is maintained (I tried it). But I felt MM sounded better, a tad more dynamic. The Blue Point 2, although an MC with non-removable stylus, costs just £200 or so; it is a super budget design – and sounds it. It tracks well at 2gms, but gives a dynamically lacklustre sound with overly strong high treble; I soon changed it for something better – then the MT5 showed its mettle.

SOUND QUALITY

The MT5 was run for a week, during which time it slowly speeded up from 3120Hz to 3215Hz before its speed settled. It was then adjusted back to 3150Hz – the correct value – and connected to our Icon Audio PS3 valve phono stage MM input, fed direct to a pair of Quad QMP monoblock power amplifiers driving Martin Logan Renaissance loudspeakers.

I know the Sumiko Blue Point well and received the same clear sound I have heard in the past. The MT5 had a gratifyingly stable sense of tone to piano in the Scissor Sisters 'Mary'. This track was grounded in its timing, firm and assured in progress, with cleanly delineated intervals between notes, free from time domain blur.

I heard exactly the same clean, assured sound with sustained synth chords on Alison Goldfrapp's 'Ooh La La' – and if you are wondering why I do not mention piano it is because synthesiser sustains are electronically timed, free of vibrato or other influence and commonly not subject to analogue tape recorder wow either.

It was obvious that the MT5 holds time well, underpinning instruments by removing subliminally disconcerting lack of stable pitch, that often affects belt drives.

However, by the time I had played a wide range of LPs and reached the Zuton's slightly bright, hard sounding 'Tired of Hanging Around', the limitations of Sumiko's Blue Point 2 – those I have baulked at in the past – were beginning to play on me.

Treble emphasis gave the track 'Valerie' a thin, sharp top end and there wasn't the subtlety and insight I am used to from other cartridges,



The polished stainless steel rear carries gold plated phono socket audio outputs, as well as speed adjusters at right and a d.c. power input at far right. There are also actuator outputs for a McIntosh system.

most with better stylus profiles than the simple elliptical of the Blue Point 2.

So I reached for our Ortofon 2M Black with its superb Shibata stylus and this transformed the sound, adding in stronger insight and better delineation of high frequency sounds, plus a better sense of coherence.

Now the MT5 started to sing, sounding open and sophisticated in its delivery. With a top recording and pressing like Mark Knopfler's 'True Love Will Never Fade' from the LP 'Kill to Get Crimson', this deck delivered dynamic contrasts seemingly greater than hi-res digital, graced by a silent background, embellished by firm transients from his guitar and underpinned by a clean bass line, if not one that is overly heavy from the 2M Black; a Goldring 1012GX that I reviewed last month has a tad more bass and would also suit.

Once I had sorted this cartridge issue out, the qualities of the MT5 began to shine through in our now desperately revealing system terminated by the fabulous Martin Logan Renaissance hybrid electrostatic loudspeakers. Their deep revelation made changes in sound quality when reviewing the MT5 starkly obvious.

For some reason the Renaissance loudspeakers work with vinyl better than most, revealing recording quality and pressing quality through ruthless insight. This told me the MT5 offers a solid and clear sound with great temporal grip and fluency, whilst dynamic contrasts were conveyed with conviction. This is a fine turntable once run in and

fettled – and equipped with a pickup cartridge more deserving of its abilities.

CONCLUSION

The MT5-6 is, beneath its glitzy illuminated exterior, a complex design. I found it easy to use and yet both good and flexible enough to accept very high quality pick-up

cartridges, which reveal its sonic strengths.

It's ideal for those wanting a high-quality, easy to use package, one able to get the best from the new, high quality re-issues hitting the market today. From them it delivers spectacular sound I found, when played through one of the most revealing hi-fi systems available today.

MEASURED PERFORMANCE

The MT5 ran slow in initial tests but after run in settled at +1.6% fast. However, speed is adjustable so this was corrected before use.

Over a long period wow (speed variation below 10Hz) consistently

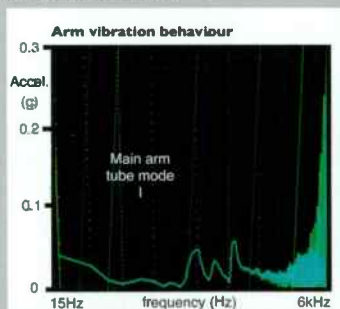
measured 0.15% (DIN peak) and when weighted dropped to 0.08% – good and typical of high quality belt drive. Our spectral analysis of demodulated Wow & Flutter from a wow & flutter meter shows basic rate wow at 33rpm (0.55Hz) was responsible, usually caused by hub or bearing eccentricity. There was no flutter, the analysis shows.

In conjunction with the Sumiko Blue Point cartridge fitted, our arm vibration analysis shows a stiff and well damped arm tube and headshell, free from the usual tube arm bending (ringing) modes, the main one being around 200Hz with aluminium – very well suppressed in this analysis.

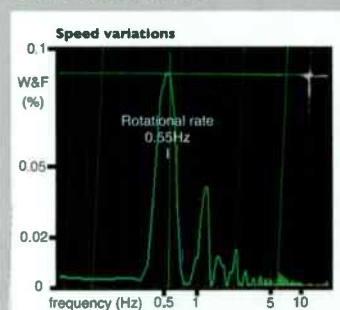
The Sumiko Blue Point moving coil cartridge had strongly rising treble, sufficient for there to be a little obvious brightness in use, likely heard as top end 'sting'. Tracking was very good, so the sound will be stable and confident.

The MT5 worked well in all areas. It offers a good basic performance, with easily selected, adjustable speed. **NK**

ARM VIBRATION



WOW & FLUTTER



Speed	+1.6%
Wow	0.15%
Flutter	0.04%
Total	0.08%

MACINTOSH MT5 TURNTABLE

£7,495



OUTSTANDING - amongst the best.

VERDICT

A high-quality turntable, very specialised under the hood, yet up with the best in sound quality. Spectacular sound when fitted with a good pick-up cartridge – and visually entertaining too.

FOR

- ease of use
- sound quality
- appearance

AGAINST

- unhinged dust cover
- needs adjustment after run in

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Lux like heaven

Luxman's new DA-250 DAC is a superb performer with impressive flexibility says Jon Myles.

In theory making a good standalone digital-to-analogue convertor shouldn't be all that difficult. Select your DAC chip – or in the case of Chord Electronics make your own – design a circuit around it and then choose the casework, controls and inputs.

Of course, things are never quite as simple as that. Just as manufacturing a great loudspeaker takes a fair bit more than simply fixing some drive units into a cabinet, the art of producing a good DAC has many pitfalls awaiting any designer.

Indeed, there are so many potential nasties lurking in the digital domain, it's a wonder just how many companies are producing new products. But as computer-based

audio and high-resolution downloads continue their exponential sales rise this is how more and more people are consuming music.

So even venerable companies like Luxman – who, it must be remembered, produced their first tube amplifier way back in 1958 – have to move with the times to stay relevant.

And that is exactly what they are aiming for in the new DA-250 DAC/pre-amplifier which sells for £1999.95 – a slim unit measuring 81mm x 364mm x 279mm (H/W/D) and weighing in at 5.4kg.

More important, though, is its range of options. Digital inputs consist of one USB, one coaxial and two optical S/PDIF, plus a single unbalanced analogue. For outputs

you have both balanced XLR and unbalanced RCA analogue, plus coaxial and optical digital; there's also a dedicated headphone output circuit.

The DA-250 has fixed or variable output. With variable the DA-250 can be connected directly to a power amplifier or active loudspeakers to act as a DAC/pre-amp. With fixed control of volume comes from the input source.

Internally the Luxman is built around a Texas Instruments PCM1795 DAC chip, meaning it can handle file sizes up to 32bit/192kHz and DSD (2.8MHz and 5.6MHz) via the USB input, as well as 24bit/192kHz on S/PDIF.

The front panel contains the on/off switch, input selector and volume control, as well as a small but



readable red LED display window that handily can be set to show the sampling rate of incoming files.

A credit card sized remote control allows for operation from across the room but there's also Luxman's own Audio Player software (available free for both Windows 10 and Mac OS-X) which works admirably well when the unit is hooked up to a computer.

Indeed, I installed both versions on my home computers (both Mac and Windows) and was up and running within minutes. The only thing, however, is that Windows users will have to install the free drivers - but we are all used to that annoyance by now, hey?

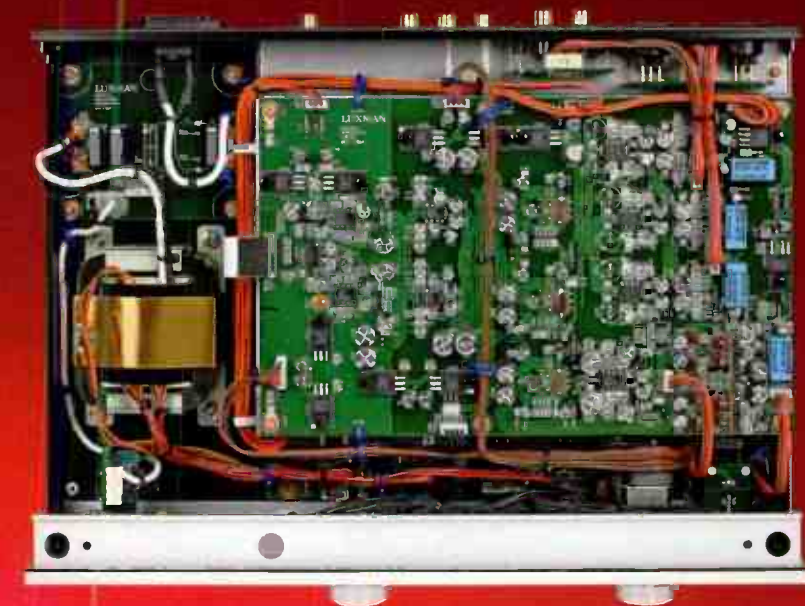
SOUND QUALITY

Luxman has always had a distinctive sound quality and it errs towards the rich and vibrant. This new DAC is no exception.

One of the most frustrating things about computer audio is that at times it can sound harsh and clangy with a decidedly edgy nature. The DA-250 ameliorates this by having a warm and forgiving sound quality.

Connected to a MacBook Air and playing into a pair of Wharfedale's excellent Reva-2 loudspeakers the Luxman sounded rich and effusive in very much the same manner as the company's amplifiers.

On The Clash's 'Live At Shea Stadium' (24196) there was a depth



Internally the Luxman DA-250 uses a Texas Instruments PCM1795 DAC chip and a high quality linear power supply.

to the soundstage that brought out the atmosphere of this live recording. Listening to the opening 'London Calling', Paul Simonon's bass lines had a fulsome quality that made the track drive out of the loudspeakers.

Joe Strummer's growled vocals also had admirable clarity while the guitar work of Mick Jones was easy to pick out. This isn't the best live recording of The Clash and can sound unduly harsh via some DACs. The Luxman, however, got it just right bringing out all the energy of the performance without drawing

attention to the deficiencies of the sound.

Much of this is down to the fact that the Luxman seems to have been voiced for musicality and a smooth, even sound - paying dividends during long listening sessions.

As such it loses something in terms of outright detail compared to the likes of the (admittedly more expensive) Resonance Invicta Mirus which is almost forensic in terms of pulling out every element of a recording. However, the Luxman counters this with a lusher and richer





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Digital inputs comprise one USB, one coaxial and two optical S/PDIFs. There is also an analogue input. Balanced XLR and unbalanced RCA outputs are at top left, plus coaxial and optical digital at bottom right. A fixed or variable output selector switch sits at bottom left.



presentation.

This becomes evident on the San Francisco Symphony's rendition of Mahler's 'Symphony No 1' conducted by Michael Tilson Thomas on a 2.8MHz DSD file. There was a wide soundscape of the opening horns echoing in the distance, before the

full orchestra came in; it was an enthralling presentation.

Switching out the loudspeakers and bringing in the headphone section via a pair of Noble K10s and Audeze LCD3 planar magnetics revealed a similarly impressive sound.

In-ears like the Nobles are always sharper and slightly more strident than over-ears such as the Audezes. However, they can bring out more detail and presence and the Luxman showed the difference between the two.

With a 24bit/96kHz download of Bruce Springsteen's 'Dream Baby Dream' the Nobles were sharper in the treble but brought in more

bass while the Audezes had a softer quality overall. That is just how it should be – showing the Luxman's headphone section is delivering just what you expect from your partnering equipment.

CONCLUSION

The Luxman DA-250 is an extremely impressive performer which demands a listen. Its sound is rich and warm in traditional Luxman fashion but that is no bad thing. Add in an exceptional headphone section and decent range of inputs and outputs and you will find it tempting at the price.

MEASURED PERFORMANCE

At full volume the DA-250 delivered a very high 5V from its headphone output from a peak level digital input (0dB) – more than enough to drive any headphone, since around 1V is very loud and 2V shattering. With Hi Sens (high sensitivity) this increased to 8.7V.

Both the phono socket line output and XLR balanced output delivered 2.4V – sufficient to drive any power amplifier, since most need 1V.

The analogue preamplifier section had no gain, 1V in delivering 0.9V out, so as a preamp the DA-250 lacks the x3 gain common in preamps and isn't suitable for low output sources like old tuner or cassette decks (0.3V out). With 2.7V input overload it is fine with all silver disc players, all of which deliver 2V.

Distortion at -60dB was low, measuring 0.02% with 24bit and 0.22% with CD, the latter being as low as it can get due to 16bit quantisation noise.

The important Dynamic Range value measured a high 119dB via both Phono socket and XLR analogue outputs – very good for the Burr Brown PCM1795 DAC chip used internally. Due to noise, likely in the USB receiver, this value fell to 114dB via the USB input, a large 5dB

decrease. Noise via USB is becoming rare these days, so the DA-150 could be better here. Worse, from USB to the headphone output Dynamic Range measured 112.5dB, due to a little noise

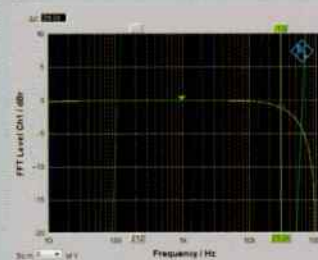
in the headphone amp. – rivals like the Audiolab M-DAC+ manage better for less.

The optical S/PDIF digital input worked to 192kHz where many reach 96kHz maximum, important for Astell&Kern portables with optical output delivering hi-res to 192kHz.

Frequency response reached 30kHz (192kHz sample rate) with Filter 1 and 2, the latter steepening roll off, whilst giving better time domain impulse response. With CD Filter 1 measured flat to 21kHz, whilst Filter 2 reached a lower 17kHz. These differences are small but Filter 2 is likely to sound subtly cleaner and more natural.

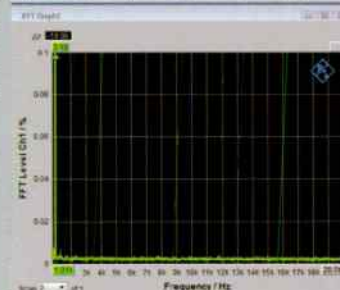
The DA-250 measured well in all areas but has minor blemishes; it isn't ahead of competitors. NK

FREQUENCY RESPONSE



DISTORTION

THD at	Level	Frequency
0.0215 %	2.4764 mV	997.00 Hz
OFF	OFF	OFF



Frequency response (-1dB, 24/192) Hz- kHz

Distortion (24bit) 0dB	0.0005%
-60dB	0.02%
Separation (1kHz)	101dB
Noise (IEC A)	-117dB
Dynamic range	119dB
Output	8.7V

LUXMAN DA-250
£1995.95



OUTSTANDING - amongst the best

VERDICT

Luxman's traditional looks, style and sound add up to a superb package. Highly recommended.

FOR

- smooth, refined sound
- versatility
- slim form factor

AGAINST

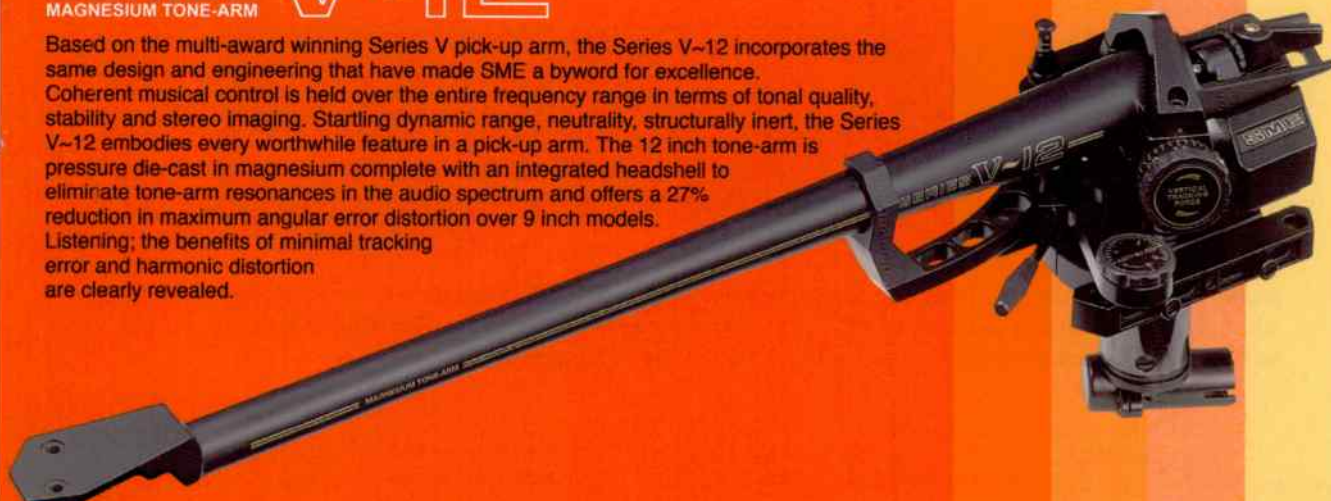
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"Blue Aura have come up with the Blackline V40 – a hybrid valve/transistor amplifier priced at £449 and featuring an in-built DAC, Bluetooth connectivity plus USB and analogue RCA inputs.

It's a deliciously elegant design. Small and svelte at 148mm x 264mm

x 215mm (H/W/D) and weighing in at just 3.5kg it won't demand much space on your rack, shelf or desktop.

But it will draw your eye to it, thanks to the input valves at the front. These consist of two 12AU7/ECC82 tubes plus a 6e2 magic-eye indicator valve to show volume level (more of which later).

Behind sit two small transformers for the signal and power amplifying circuits while internally the V40 design employs a bridged class A/B integrated circuit for the output – which taken together helps explain its small proportions.

The front fascia has two rotary dials for volume and source select, and these controls are replicated on a credit card-sized remote control.

Inputs on the rear consist of a single set of unbalanced RCA, a micro-USB for connection to a computer, 3.5mm mini-jack plus a socket for attaching the (supplied) Bluetooth antenna. There's also a sub-woofer out option plus the speaker connections which accept both spades and banana plugs".

For a chance to win this great prize, just answer the four easy questions at right. Send your entries on a postcard only, by 7th October 2016, to:

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QUESTIONS

[1] What amplifier type is it?
 [a] discrete transistor
 [b] silicon chip
 [c] hybrid
 [d] vacuum

[2] The input valves are -
 [a] 12AU7s
 [b] 300Bs
 [c] KT88s
 [d] 6x33Cs

[3] It's 6e2 eye is -
 [a] blind
 [b] magic
 [c] moop
 [d] stationary

[4] The speaker connections accept -
 [a] credit cards
 [b] abuse
 [c] banana plugs
 [d] optical cables

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Rock The House

Unity Audio's new The Rock MkII loudspeaker brings pro-audio technology to your home system. Jon Myles tries it out.



Unity Audio manufacture active monitor loudspeakers used in some of the world's leading recording studios. Albums by Adele, Ed Sheeran and Sam Smith have all been mixed, tracked or mastered on Unity Audio speakers.

But what works in a studio does not necessarily translate to a perfect sound in a home environment. So what to make of Unity Audio's The Rock MkII - a monitor the company proudly proclaims to be the most brutally honest it can make?

The Rock undeniably shows its pro-audio heritage. They use drive units from German specialist manufacturer ELAC - consisting of a 180mm mid-range/bass unit featuring a 0.2mm aluminum foil that is chemically bonded to a rigid pulp fibre cone. Above it sits a folded ribbon tweeter claimed to reach 50kHz.

These units are mounted on a reinforced plywood cabinet that measures 325mm x 220mm x 290mm (H/W/D) and features a 12mm Corian front panel for added solidity. It's a sealed box unit with no reflex port to boost bass. Unity Audio says this design gives a more accurate low-end with better time domain performance and a gradual 12dB per octave roll off as opposed to the general 24dB roll off on ported designs.

Inside the cabinet is a 100Watt bi-polar amplifier with custom-wound transformers, designed by the renowned Tim de Paravicini.

On the rear panel of the loudspeaker you'll find an input level control, balanced XLR and unbalanced RCA inputs, plus a power input.

All this will cost you around £3495 a pair - which may sound expensive but remember that's amplifier and loudspeakers together. So just add a front end and you have a complete system. In those terms it starts to make sense in terms of value for money.

SOUND QUALITY

The first thing to strike me about the Rock MkII is just how big they sound for what is essentially a small standmount.

Placed on a secure pair of stands and given a gentle toe-in they revealed a wide soundstage. The left to right panning on Pink Floyd's 'Dark



The folded ribbon tweeter comes from German manufacturer ELAC.

'Side Of The Moon' was more pronounced than I have heard on any loudspeaker of this size - actually sounding quite stunning and revealing exactly what went into the recording and mastering.

After that, I couldn't help but turn to The Smiths 'How Soon Is Now' to hear just how accurate the Rock MkIIs are. Johnny Marr's multi-tracked guitar lines are laid bare here with depth and presence to the rhythm section of Andy Joyce and Mike Rourke. The latter's bass is impressively fulsome and propulsive showing the advantages of an infinite baffle cabinet. There's no overhang or boom but an exceptionally clean presentation.

The ELAC ribbon tweeter is also refined. It doesn't flatter bad recordings but brings the best out of good tracks. Listening to Tommy

Smith's jazz classic 'Dialogue Of The Insects' on a 24bit/96kHz file the saxophone was vivid but never veered towards the searing.

And, like most other active loudspeakers, they are speedy and dynamic. It is a different presentation to passive 'speakers but one that makes entire albums fly by in a single listening session with no sense of strain.

With Daft Punk's 'Random Access Memories' (24/96) they grabbed hold of the music from the opening track, right through to the epic drums at the end. Before I knew it the entire album had flown by.

If there's any criticism to be made of the Rocks it's that they will not suit those who crave a warm sound. They are simply not built for that but instead are designed to be as accurate as possible for the price.

For example, playing an MP3 of The Jesus And Mary Chain's 'Just Like Candy' revealed how much dynamic range was lacking in the file. Bass was thumpy while the mid-range was lacking in any smoothness.

Replaying the same track via a 24bit/96kHz download was a different matter. Now the Unity Audios brought out the bass lines, gave a presence to the guitar and allowed the vocals to float above everything with presence.

It's an indication of just how revealing they can be which, after all, is what you'd expect of a studio monitor. As such I'd highly recommend them if you want hear the absolute truth.

CONCLUSION

The new Unity Audio Rock MkIIs are a loudspeaker that will delight anyone who wants to hear the pure sound of their recordings. They are fast and dynamic with impressive bass for their size.

The rear panel has a gain control, balanced XLR and unbalanced RCA inputs, as well as a power switch and socket.



MEASURED PERFORMANCE

In an active loudspeakers it is not uncommon to boost bass through the internal power amplifiers, to extract a bass heavy sound otherwise impossible from a small cabinet.

Our response trace shows Unity Audio have avoided this in the Rock MkII: it runs relatively smoothly down to 50Hz before rolling down fast to limit cone excursion, especially needed when playing LP.

Also, Unity Audio have reduced level just slightly, expecting it to be used close to a rear wall. This is not a bass heavy loudspeaker then, rather it is well damped and accurate. There is no port.

A gated sine-wave impulse response that eliminates room influence, published here also, shows bass rolls down below 50Hz but our published third-octave analysis shows that in a room, with room support it goes low and will reproduce deep bass well, but not emphasise it.

There is significant midband lift from

the aluminium foil fronted, pulp-fibre coned bass/midrange drive unit, of +2dB between 500Hz and 1.5kHz, and this will give the Rock obvious projection or "shout", a common preference in studio monitoring work, often achieved by using a big, dome midrange unit. The Rock will as a result sound more forward and projective, especially with vocals, than most hi-fi speakers, but it will also sound insightful and detailed. Aiding this is lack of a crossover dip around 3kHz and a little treble lift too, of +2dB at 18kHz from the Elac folded ribbon tweeter.

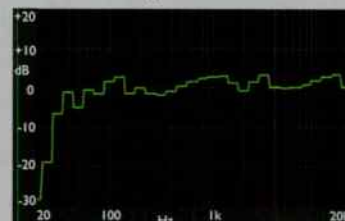
Sensitivity was very high, the loudspeaker needing just 115mV rms (pink noise) to produce a loud 90dB sound pressure level at one metre. This means the Rock can be driven by any source, even a small portable iPod for example, and no preamp is needed, except for source switching. The volume control did not alter frequency response when turned down.

The Rock is neatly and specifically

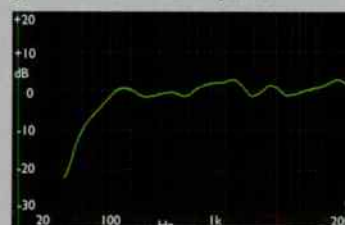
engineered to sound forward, fast and detailed, but it is not bass heavy, being balanced for near-wall use. It will work direct from any source, no preamp needed. **NK**

FREQUENCY RESPONSE

third-octave, pink noise



gated sine wave impulse



UNITY AUDIO THE ROCK MKII £3495



OUTSTANDING - amongst the best

VERDICT

An active monitor that combines punch and speed with an impressive soundstage and bass response.

FOR

- dynamics
- bass
- soundstage

AGAINST:

- doesn't flatter bad recordings

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



QUAD S2 LOUDSPEAKERS

CHOICES OF COLOUR: **BLACK OR MAHOGANY**

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

A pair of QUAD S2 loudspeakers are on their way to **ANDY ANDREWS**, Letter of the Month winner in our September 2016 issue.

Letter of the Month

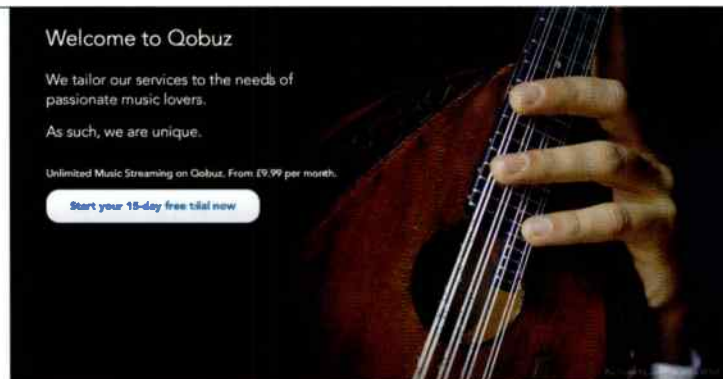
STREAM SENSE

I really enjoyed Noel's response to the September Letter-of-the-Month where he discussed the future for hi-fi and identified CD as a stabilised music medium and vinyl and streaming as developing technologies. I buy a lot of vinyl and have a modest CD collection but I've steered clear of streamers and downloads until now.

Noel's article encouraged me to start exploring downloaded music. But I found it a huge and confusing marketplace where it's hard to tell the marketing-puff from the facts. I decided to try Qobuz as it claims to be best for Classical & Jazz and signed up for its CD quality download service. I'm downloading on a MacBook Pro (2015 model) using the Qobuz desktop and taking an output from the headphone socket straight into a valve pre-amp. (mini-jack to RCA cable).

I've found this very acceptable. It's a good way to identify albums to buy, and a great way to hear new albums which I might choose to hear only once. But I'm sure that what I hear could be improved, my CD player does sound better, and the vinyl better again. I therefore need quite a bit of advice and guidance.

The first question: is Qobuz the



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Interviews, reviews, photos, articles, recommendations. The additional content that we create every day is completely exclusive.

Qobuz offers CD quality streaming – and now 24bit Hi-Res they claim. Either stream direct or download to your own local storage drive, says Jon Myles.

best service for CD quality Classical & Jazz? I've found the interface quite cumbersome and hard to get around. Also, does Qobuz provide the best CD streaming quality? Are there differences between, say the Tidal and Qobuz CD streaming?

Second question: How good is the MacBook Pro DAC running from the

headphone socket? Should I invest in an external DAC? If so, how much, or what should I consider to better the inbuilt MacBook DAC? As a shortlist from the magazine I've wondered about the Audiolab M-DAC(+) or Chord 2Qute, or Naim DAC V1 all under £1,500. How does the USB connection work? What's special about Asynchronous USB? What

does the "Bit perfect" feature of the Naim DACVI give and is it unique to Naim?

I also wonder about the sense, or longevity, of spending too much on a DAC. Buying a high quality (expensive) pre-amp and power amps I can understand but with the DAC technology changing and developing so rapidly does it make sense to spend a lot on something that may be obsolete or superseded in two or three years? Or have I misunderstood this?

And my third question: What about a Streamer? Now this I can't quite get my head around. I read that some streamers now have built-in Spotify & Tidal applications and can be connected directly to an ethernet/wi-fi. But how do you search for what you want on a small screen? Would a streamer be any better at getting the digital source than a MacBook? I listen in a single dedicated music room; it seems that a big feature of Streamers is multi-room capability which is of no value to me, why should I consider a Streamer?

Sorry for all the questions but at the moment I remain "Yours Truly, Confused of Warwick". Noel's article has made me want to explore digital downloads; I've dipped my toe in the water with Qobuz but can't figure out how to learn to swim.

Best Regards,

Edward Martin

Hi Edward. As you have already found there is a great deal of confusion surrounding the whole idea of streaming music. To put the whole issue into context – you can pay a subscription for the likes of Tidal or Qobuz, that both offer CD quality sound files, or get Spotify that doesn't.

The advantage of all these services is you have access to literally millions of files for a monthly fee – a great way to explore new



The Naim NDS streamer used by Jon Myles. It reads files from his Network Attached Storage (NAS) drive.

music.

The downside is that playback quality from a computer can be decidedly less than perfect unless you have optimised your set-up. Computers have a very noisy environment internally and are not designed for hi-fi replay – which is why you are finding CD and vinyl more satisfying.

A dedicated streamer, however, will allow you to store music on your computer or a NAS (Network Attached Storage) device and then replay it via your existing system.

Do not worry about the size of the screens as all have their own dedicated apps that can be downloaded to mobile phones or tablets to make searching for music easy.

My own home system consists of a WD NAS drive, Naim NDS streamer, Chord 2Qute DAC and a Naim Supernait 2 amplifier. I have 16,000 tracks easily accessible and listen to more of them than ever before.

If you want more information on streaming take a look at our guide at <http://www.hi-fiworld.co.uk/index.php/cd-dvd-blu-ray/64-technology-and-tests/756-rediscover-your-music.html?showall=1>. **JM**

Hi Edward. A chord Mojo DAC (£400) would be an obvious choice

of external DAC for the MacBook Pro. It has a better performance than all else, including the MacBook's internal DAC. If you spend more you will inevitably get more, both from Chord and Audiolab DACs. Improved power supplies and selectable digital filters (Audiolab) are main benefits.

NK

SURROUND SOUND

Noel recently noted the declining interest in surround sound. Would its alleged benefits be worth addressing in a Hi-Fi World article, or even a series of discussions concerning surround sound?

Of interest to those of us who bought an Oppo BDP-105D Blu-ray player is not only its ability to deal with surround sound encoded disks but also to turn stereo disks into surround sound.

A Radio 3 talk a couple of years ago broadcast a programme about the benefits of surround sound: beneficial, it was claimed for enhanced enjoyment of traditional orchestral music, not merely experimental works deliberately exploiting the back-front dimension afforded by a surround sound audio system.

Hi-Fi seems to me something of a declining interest: among younger people hi-fi seems no longer part of their zeitgeist as it once was before computers and interactive games took off. Perhaps Hi-Fi World readers might like to urge Radio 3 to broadcast

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With live performances in amazing 4.0 surround sound, it's like being there in person (except you can cough in comfort). Try it now (on a system that can handle 4.0 sound).

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The BBC offer experimental Proms broadcasts in four-channel surround-sound. Go to their website <http://www.bbc.co.uk/taster/projects/proms-surround-sound-2016> for more info.

a series of programmes about high fidelity, including such issues as CD quality, alleged benefits of HD disks and streaming, the benefits of keeping occasional cleaning of plug-and-socket connections, and the increased clarity of washing brand new disks allegedly removing mold release agent.

Jim Thorpe

Hi Jim. Surround-sound is a very interesting subject in abstract. Creating a 'sound field' in the home that is a good representation of one elsewhere, especially of a live situation such as music concert, or a jungle with sounds all round, is something that inevitably interests the BBC – and a lot of work has been done on this, notably through Ambisonics. However, there's no easy way to construct a sound field in the home without numerous loudspeakers and cables – and as you say even two loudspeakers is too much for people nowadays; we're back to the all-in-one system – a modern day radiogram. Old ideas don't die, they just get resurrected in new technologies.

Surround-sound in the form of home cinema, meaning a 5.1 system to accompany a Blu-ray player, is still too intrusive for most people and

link. Qualcomm announced aptX HD earlier this year, and Sony LDAC. We'll be seeing both in wireless headphones and powered loudspeakers.

Also, loudspeakers designed to work hard against a wall would help make stereo – and even surround-sound – more domestically acceptable. Floor space is valuable; there are ways to optimise loudspeakers for wall placement that the hi-fi business needs to spend more time on, instead of fantasising about a box – their box – transcendent in the room. OK, you've still got the mains connection, but even this can be shrunk by using a wall wart supplying low voltage d.c. power through a slim cable.

And let me talk about bass here. It is possible to work with room modes in a powered wall stander to greatly improve bass quality, without resorting to the over-complication of computer room tuning with a listening-position microphone. A simple parametric, low frequency equaliser, perhaps adjustable from a tablet App., is one possibility, then there are switchable filters and / or a manual equaliser. Room matching problems can be eased and bass quality usefully improved with



Onkyo TX-NR656 surround-sound receiver with a full range of Dolby processing functions, including Dolby Atmos height information. Dolby Pro-Logic II and DTS Neo6 convert stereo to surround-sound, as well as decode matrixed surround-sound.

the over complication introduced by Japanese A/V receiver manufacturers makes the user experience difficult. I run such a system and dread pressing the wrong button on the remote, for fear of being dragged into a maze of arcane menu options that demand the user manual – and where did that go? Worse, you can't escape: the manual must be found.

I suspect hi-fi as we know it will return, in updated form using powered loudspeakers working from a high quality Bluetooth

current technologies but at present little effort is put into this.

Loudspeakers divorced from the system electronics are potentially a great convenience when it comes to placement. There's no need to route cables past a door, for example, and have them snaking right around the room, a surprisingly intrusive aspect of surround-sound in real life I find – and a significant drawback.

With power amps in the loudspeakers the system itself can be made compact and positioned

for convenience, to fit in with the domestic environment – rather than vice-versa. Turntables in particular could benefit from a short range wireless connection, allowing easy and convenient placement near to a record collection, isolated from a bouncy floor.

You may not be too impressed by stereo CDs turned into surround-sound (via a matrix decoder). Sometimes it works, more by clearing the front channel of muddle than anything else I find; often it just gives funny noises from the rear. Both Dolby Pro-Logic II and DTS Neo 6 make for interesting listening in this area, but they're only found in AV receivers.

There's still work to do in audio to improve the user experience. The only drawback here is you can't polish the pins of a Bluetooth connection. **NK**

PHONO STAGE CHOICE

You were kind enough to help me previously and I'm back once again looking for advice please. This time its regarding an upgrade I'm thinking about. I'm looking to add a phono stage to my system and have narrowed down a few options. It's not easy to get demos arranged for these, so I'll be buying blind to a certain extent – hence the questions.

I'm unsure whether to go for valves or solid-state and then the question becomes a moving coil phono stage (noisier) or Step Up Transformers feeding a moving magnet phono stage.

I'm also wary of cartridge matching and loading. My music tastes are quite wide and varied from pop and rock to smooth jazz and female vocal. I like a punchy but not overblown bass with clear mid range and treble with good detail.

My system comprises a Michell Gyrodec with an Origin Live Onyx arm containing a Benz Micro Ace SL moving coil cartridge. CD/SACD/DAC is via a Yamaha CD-S2100 and matching Yamaha A-S2100 amp. Other items are a Marantz NA7004 for FM/IDAB/ network duties and Monitor Audio GX200 speakers.

The phono stages I have short-listed are Sonneteer Sedley, Vincent PH-700, Project Phono Box RS & Tube Box DS and Lehmann Audio Black Cube SE II. I've also considered World Designs Phono 3 and PSU kits as I'm fine with soldering, DVMs and schematics. There's the satisfaction of building your own, but they can cost more than the others with the XL upgrades. As you can see, my

budget is around £700.

I'm also replacing the speaker cables. Currently they are QED, but so old I can't remember the name. Any suggestions for around the £12 a metre mark to suit the above? I can't justify the cost of the esoteric types, but appreciate something decent should be used.

Lastly, I have to sing Pro-Ject's praises having recently purchased their VC-S record cleaner. I can't quite believe the difference this has made to my vinyl replay. I've bought a lot of second hand 12in, 45rpm singles and LPs, some looked like they've seen better days, but sound amazing after a clean. There's a difference after cleaning new vinyl too. A veil has definitely been lifted. A bargain when you consider the asking price and perhaps worth a review at some point.

Please let me know your recommendations regarding the phono stages and also others for me to consider that I've missed.

Kind Regards,
Mark Gould

Hi Mark. Best to start at the top and then work down, to see what is being thrown out!

For the best from vinyl, use top quality input transformers, followed by a valve phono stage. This both isolates the input and gives ultimately low input noise, less than most transistor stages. Hiss and hum will be inaudible, even with a very low output MC, providing the input transformers are kept away from mains transformers. Although mu-metal screened, they are still susceptible to hum pick up. Expect an uncanny dark silence and big dynamics from such a set up. This puts you into World Design and Icon Audio territory, or Music First Audio.

Then come the solid-state preamps. Transistors are quieter than valves and super-quiet solid-state preamps are easy enough to design and build, so less expensive than valves and transformers.

All the same, I am no great fan of silicon chip based operational amplifiers because of their constrained sound. As Rob Watts, designer of the Chord DACs confirms, chips have problems, due to the difficulty of fabricating resistors and capacitors onto a silicon wafer – they behave bizarrely. Complex active circuitry is therefore preferred to simple, distortion free, discrete components – and the cracks papered over by using large amounts of negative feedback. That's why chip



Pro-Ject Tube Box DS phono stage that caters for MM and MC cartridges. It has solid-state input for low noise and valve (ECC83) output for a full, atmospheric sound. Affordable too at around £450.

based phono stages commonly sound flat and lifeless.

I would suggest you consider the Pro-Ject stages. They are very well engineered and you get simple good value. Adding line drive valves adds a little to the sound, so Tube Box DS may suit you. **NK**

BLACK HOLE

First, I totally agree with PR when he fights his corner for proper terms for things, such as shopping 'centre' not 'mall' and 'fringe' not 'bangs', to which I will forcefully and happily add 'valves' not 'tubes' (or is that 'toobs?'), only to find in NK's opinion piece about the SL-1200 (at the bottom of the centre column) the word 'centers'! A nasty dose of not-checked Cut And Paste or over-zealous autocorrect methinks? Punishment; being forced to watch the whole of 2001: A Space Odyssey on a 55" TV, sourced from VHS - you'll never moan about the limitations of 16-bit audio again...

Anyway, on to speakers without boxes. This idea of having nothing behind the drivers of a speaker suggests two ways to stop the reflected waves from cancelling out the front-firing stuff; one is a simple pile of soft and fluffy cushions (available in a variety of colours and hues) – more acceptable to the resident of the household who is more interested in appearance compared to sound – and the other is a simple, tame, black hole. This could be mounted in a corner behind the speaker, sealed off from the rest of the room/universe by making the speaker part of the room - as used to be done with folded horn speakers. This sealed off black hole would absorb ALL the rearward energy and, as a special treat, overnight a little 3cm round hole could be opened at the bottom of the speaker, allowing (say) a visiting mouse

(other vermin are available) access to the interesting area behind the speaker (for best results, get a custom black hole that smells of cheese), and thus you will have yourself (at no extra cost) a one-dimensional mouse stretched out to infinity (depending on what theories you believe about what happens at the quantum singularity) - no mess, no sleep-disturbing 'clack' of a mousetrap, and nothing to clear up afterwards as black holes make wonderful Hoovers - coming soon, the Dyson Cygnus X-1!

If funds don't extend to two mini black holes - one for each speaker, of course - how about mounting the speaker in a wall or window, with the magnets out in the outside? Hey presto! One super-large area (i.e. the universe,



Hi-fi can get pretty strange. This is not a fan, it is a rotary subwoofer. Invented by Bruce Thigpen of Eminent Technology, it is able to produce subsonic bass and is used in US movie theaters. How does it work? The fan blades oscillate to produce low sound.

or just the countryside at a pinch) in which to lose all the unwanted rear sounds, although the proximity of neighbours (who aren't deaf) or even local wildlife (cows, sheep, dogs, birds, squirrels, mice (the non-ID type) etc) may interfere with your audio Nirvana.

However, on the horizon (or beyond it) are wormhole cables; mainly optical, but make them out of superconductors and you can use them to conduct electricity perfectly over infinite distances - no need for balanced cables or low-loss super-expensive 99.999999% oxygen-free copper (or whatever) wires, just perfect signal transmission, so long as you can put up with distortions of the spacetime continuum in your living room, frightening the cat etc. These could also be used to travel back in time to the 1960s or 70s and buy classic hi-fi kit at 1960s or 70s prices, enabling you to build up a collection of Garrard 401s and Quad electrostatics to flog to modern-day collectors for vast profit, thus funding the vast expense of buying the wormholes in the first place. Everybody wins! Just don't affect causality by buying something in the 1970s that you originally bought at an auto-jumble just last year before you went back in time - paradoxes do not fit well with modern audio equipment (they either make them go out of alignment or simply vanish (along with the rest of the current universe) into non-existence - as Douglas Adams so wonderfully suggested, this sort of thing may already have happened).

Yours thoughtfully

John Malcolm

Hi John. I admit to using an auto-speller, since it cleans typing transpositions and other mechanicals effectively. But as it is trying to convert center to centre at this very moment, it is not the culprit. The copy goes through numerous spell checkers though, and another one won!

I'm not averse to American spelling, especially when their use of z instead of s is old English practice.

On the correctness of valves versus tubes, it may just be that we should grant precedence to the Americans on this one, as they'll surely be quoting Lee De Forest (amplifying triode, 1907), whilst we shout back Ambrose Fleming (rectifying diode, 1904). I now freely use both terms, suspecting most readers know they're one and the same thing - both thermionic devices, shall we say. Why bother arguing?

One reviewer did mount his

Tannoy Dual-Concentric drive units in an outside wall. Probably kept a few cows happy.

Somehow I think there might be less drastic solutions than pet black holes to consume rear radiation - this is not wife friendly. Likely to consume the sofa too methinks.

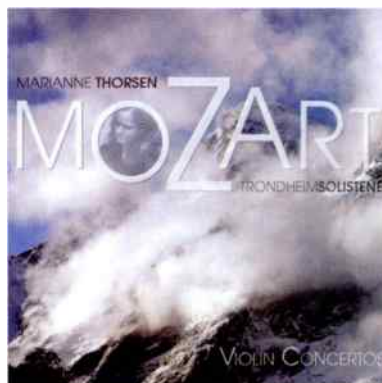
The problem of rear radiation may be countered by a fan blowing at the back of the drive unit (see the Eminent Technology rotary woofer at <http://www.eminent-tech.com/rwbrochure>). Hi-fi can get pretty strange as well.

Have fun with your elongated mouse! **NK**

DESCRIBING SOUND

They all do it. Reviewers I mean. They go to great lengths to describe the precise piece of music that they used to evaluate a particular component, unperturbed by the fact that this will be meaningless to anyone who doesn't share their taste, possibly a significant proportion of readers.

For example, "playing 'The Blood on My Hands' by Mervin Winklehoff and The Ice Buckets, from the album *Sonic Nightmares* (dodgy LP 236543256b), the screeching guitar solo pierced the air all around the speakers while the thumping bass seemed to appear from



We should comment on sound quality in Choral, Massed Choirs, Chamber Music as pictured here, Solo Piano, Concertos, Full Orchestral, Small Scale Jazz, Large Scale Jazz, Popular, Folk and Other, says Mark Douglas.

nowhere to dominate the listening experience".

See what I mean? Absolutely meaningless to anyone other than the 39 individuals that constitute Mr Winklehoff's fan club. The many tens of millions who listen mostly to Mozart, Haydn, Beethoven or Early Music won't have a clue.

It's a similar situation at so called hi-fi shows when the same 'this seasons favourite demo' disc is played ad nauseam at maximum volume on almost every stand until, as a visitor and prospective purchaser, you almost lose the will to live, or decide to take up some other hobby.

But getting back to reviewing, wouldn't it be better to adopt a somewhat more scientific and repeatable approach via a simple classification that all may relate to? For example, dividing comments into a categorisation something like the following: Choral, Massed Choirs, Chamber Music, Solo Piano, Concertos, Full Orchestral, Small Scale Jazz, Large Scale Jazz, Popular, Folk and Other. Such a categorisation, followed persistently will, in time, provide a dependable yardstick which all may relate to and become increasingly familiar with. Consequently, when the reviewer says "it sounds like this with Chamber Music" they will know what he means. Furthermore, such a scheme would cross international boundaries in a way in which Mervin Winklehoff and The Ice Buckets might struggle to achieve. If you felt compelled to do so, you could always publish an annual list of your favourite recordings in each category as a reference.

Perhaps floating such an idea to readers might be worthwhile? Maybe even a little poll on the web site? If there was enthusiasm for such a scheme, it would help to further differentiate Hi-Fi World from the competition. Its either that, or I have to go out and buy a copy of *Sonic Nightmares* and every other example of what, to my ears, is quite strange music, every time I read a review.

Best regards,

Mark Douglas

Hi Mark. The comments that relate to a particular piece of music are meant to illustrate a point. So if, say, an amplifier sounds bright, then cymbals in Winklehoff's piece (you should leave that cheese alone) will "jump from the speakers", "sound lacerative", "seem vivid", "spit" and what have you. It is all a bit difficult to translate back into one's own idiom, I admit.

As a reviewer I try to give both a reductionist, generalised description of sound balance and then use musical examples, because the latter are more popular with readers. I believe readers find a well written subjective experience entertaining in its own right; I know I do. That's why

this technique is used. The trouble is, when written with insufficient detail or just plain badly, because of the author's poor descriptive ability, then this important part of a review ceases to have merit or value and becomes plain irritating – as it has to you.

On your numerous categories, I have to observe that if an amplifier say, distorts, then it distorts all music irrespective. In which case ploughing through numerous categories and making the same observation in each is going to be both time wasting, paper wasting and tedious to read. And remember that Rock music also has endless categories: ever heard of Garage? We'd be writing a book in the end.

More practical to cover Rock and Classical and try and convey basic properties within a few representative and politically benign internal music categories (not Punk!), even if that does mean not directly appealing to all those that prefer just one category or genre. **NK**

SOUND OF CD

I appreciate that CD is now technically obsolete but, like many people, I have quite a lot of them and I would like to get the best sound out of them that I can. My old Rotel RCD 951 was quite well thought of in its day and replacing its internal clock with a Net Audio Rock Clock seriously improved its sound. However I had no idea how it compared with the latest players, so I recently visited a local hi-fi shop to listen to two well-reviewed current players: the Arcam



"The Marantz was surprisingly different: it seemed to have lower colouration, quieter background and a softer, smoother treble; on a well-recorded CD it achieved almost analogue reproduction" says Alasdair Beal.

CDS27 and the Marantz SA8005.

The big surprise was that although published specifications and review test measurements for these players are almost identical, the sounds they produced were completely different. The Arcam was similar in character to the Rotel, but rather better. However the Marantz was surprisingly different: it seemed to have lower colouration, quieter background and a softer,

smoother treble; on a well-recorded CD it achieved almost analogue reproduction of string tone, clarinet and trumpet.

I preferred the sound of the Marantz and it also has a useful USB-B socket which can play anything from my computer (including BBC i-Player), so I bought it and the Rotel is looking for a new home. The good news is therefore that my CDs have become more enjoyable to listen to and the sound quality from them has moved closer to vinyl. However I am left with a mystery: how can two well-engineered CD players which measure so similarly in laboratory tests sound so different when reproducing music? Does anyone know an explanation?

Yours sincerely,
Alasdair Beal

Hi Alasdair. There are inevitably differences in internal componentry, the UK designed Arcam using a Burr Brown (Texas Instruments) PCM1794 DAC chip whilst the Japanese Marantz uses a Crystal Semiconductor CS4398. Marantz also have their own design H-DAM output circuits.

Measurements do not totally define sound quality, although some pertinent ones such as Dynamic Range strongly hint at it.

It's a pity you didn't get to

hear the Oppo BDP-105D which is completely different again, due to its ESS 9018 Sabre32 series DAC. Thanks for your observations, however, which I am sure many will find useful. **NK**

REGA ONTO TECHNICS

Having just read your article on the Timestep EVOke SL-1200GAE turntable I'm prompted to ask if you know of any



A Rega RB300 looking good on a Sound Supports baseplate for the Technics SL-1210 Mk2 Direct Drive turntable.

manufacturer that markets a conversion plate to match a Technoarm A to a Technics SL1210 Mk 2 turntable. Any advice would be welcome.

Many Thanks
Ashley Garbett

Hi Ashley. You have many choices here, but Audiomod (www.audiomod.co.uk) and Origin Live (www.originlive.com) are both UK firms of repute and Sound Supports have some tasty looking milled aluminium plates on their site. Very purposeful. Fitting a Rega arm to a Technics SL-1210 Mk2 Direct Drive turntable is a good match sonically and in price terms. **NK**

IN LOVE WITH LEAK

I have been busy since I retired. Have mastered soldering, some amplifier mods and interconnect making. My systems are Leak TL 12plus x2, Tisbury Passive, Leak 2060 loudspeakers. All Leak equipment has been fully restored. The turntable is a Thorens TD 150 MK1 with Shure V15 and Jeico stylus. An IFI phono stage finishes it off.

All mains cables are shielded and MK plugs fitted, the wire being solid core copper. The loudspeaker cable uses CAT 5 wire x3 plated. Interconnects consist of Satellite cable adapted.

The sound produced by these mods is out of all proportion to the cost. The interconnects bettered my Van Den Huls by a fair margin. A rather clever fellow on a forum on the internet Mr Hubert Jan suggested a few things that were amazing. A Panasonic SL-S120 personal CD player from the nineties would sound better than a hi-end player. At £20 on Ebay I gave it a go. It has its own line out.

OK, so how did it sound I hear you ask? Amazing, warm, full bodied, simply amazing sound staging, and very analogue. The secret? You tell me. It has an output of 0.6v and no op amps,



One of John Oates two systems, with Leak 2075 loudspeakers and Leak Varislope preamplifier.

which may be the answer. It honestly blows away my current player. The second mod is to remove the ECC83 driver. This in turn removed feedback and reduces sensitivity to 300mV or so I'm told. It sounds smooth, clean and if I'm honest, superb.

Last mod. Well you know the Varislope preamp? The Record Out goes direct to the volume pot. Yes passive operation. I linked out the Phono 1 and 2 and used the switch to enable direct operation, or normal operation. I move the Record In to input of balance control via the 3 way switch, the centre switch goes to input of volume pot and end of switch goes to centre of balance switch. Again it sounds amazing in direct mode. I could write an article!

The point is that my two systems are now amazing. I use a switching box on my direct input to give me 4 inputs.

Pity you don't do kits anymore. I would have enjoyed building the phono preamp. Thanks for a fantastic magazine

John Oates

Sounds like you have been having fun in your retirement John. I especially like your Leaks, all of which I have used in the past and greatly enjoyed. The pictures are a nice reminder of happy listening. **NK**

THE SOUND OF DNM

I retired a couple of years ago and, inspired by your features on classic equipment, decided to replace my competent all-Audiolab 8200 system with something rather more inspiring and up-market, which would really appeal to me and keep me satisfied in the long term, proof against any future glowing reviews.

I had already reluctantly decided that I would have to replace the vinyl and let the LP12 go – I had lost the remote control you see (!). For months I pestered friends and dealers for ideas

and auditions, and eventually got myself fixed up, thanks to Audio T, Analogue Seduction and especially Sevenoaks Sound & Vision.

Deciding on a high-end amplifier proved to be no problem, and I quickly sourced one of the incredibly musical amps which the specialist blog sites rave about, namely the phenomenal DNM Series 3. There is no doubt in my mind that these weird and minimalist little boxes are in a class of their own, and that unsung genius Denis Morecroft got it completely right with his painstaking designs. I also changed over all my expensive but mushy sounding multi-strand cables to his solid core wires, and instantly got sharply improved detail and soundstage.

The CD player was more of a problem. I liked much from the obvious brands like Linn, Naim and Cyrus, but ultimately discounted them for being way too expensive to justify their incremental improvements in sound quality. I finally settled on the giant killer of recent years, the euphonic Rega Isis, directly comparable but at a fraction of the price.

My question now is, with only 23 Watts of power available, what efficient speakers should I be looking at to replace my beloved Linn Keilidhs? Admittedly, twenty three of Denis Morecroft's remarkable Watts probably equate to a hundred of anybody else's, and I'm aware of the law that says a doubling of power only results in a 10% increase in volume (or something), but having got one of the best amplifiers in the world I now feel the need to modernise the Linns. I want Pace, Rhythm and Timing (PRAT) as well as the deep bass slam which the Rega gives me.

I have no idea where to start looking (Quadral Chromium 8s? - HFW 3116, Heco Direkts?) and I don't want to be shown something which busy dealers simply happen to have on display. I need full range floorstanders, preferably bi-amped and infinite baffle, which will do justice to what is on tap, but which my amps can drive properly. My straight walled room with solid floor is about 4m x 5m, and my budget is around £3,000.

I'd be grateful if you can point me in the right direction.

Many thanks,
Andrew Wardle Sandown

Hi Andrew. Providing you don't want to play Lady GaGa's Bad

Romance at stadium levels you will find 23 Watts go quite a long way when using a modern, sensitive floor stander, most of which now manage 88-90dB Sound Pressure Level (at 1m) from just one Watt – and that is loud.

I'll get straight to the point: in retrospect we now feel that Quadral's Chromium Style 8 loudspeaker (89dB SPL) is one of the best floor standers ever to grace our portals. It was superbly smooth and accurate, very revealing and with lovely treble from a well integrated ribbon tweeter. The only observation I would make is that it's deeply "right" but may seem mild initially, especially in characterful boom-and-ting company during a dealer demo. For reviewing purposes however, this is a loudspeaker I would use with confidence. I suggest you give it a serious audition, as it is well within your budget and will suit your room and equipment.

An alternative is the Castle Avon 5 (88dB SPL) that again will suit your room. It isn't quite as svelte as the Quadral but it has unusually good low end bass quality and, again, a ribbon tweeter. **NK**



"Quadral's Chromium Style 8 loudspeaker is one of the best floor standers ever to grace our portals" says Noel Keywood.

A question of balance

They're only £200, but Pioneer's SE-MHR5s are well-connected.

Pioneer was one of the world's biggest hi-fi manufacturers (if not the biggest), listing numerous 'cans' among the extensive product ranges that spanned mass-market hi-fi's golden years. But in today's crowded market, what do their £200 SE-MHR5s offer?

A fully-enclosed design for maximum rejection of outside noise (great for tube journeys – but not cycling) they look attractive, albeit in a 'me-too' sort of way, having brushed-aluminium details, prominent branding and – in front of the 45 Ohm, 40mm moving-coil drivers – memory-foam earpads covered in soft faux-leather. You also get a soft carrying case. The signal cable is detachable – it 'locks' to the headphone to prevent falling out. There's a unique reason for this feature, apart from easy upgrade or replacement.

It allows the SE-MHR5s to be upgraded to balanced connections – as supported by the latest high-end portables (ironically, Pioneer's XDP-100R – reviewed enthusiastically last month – isn't among them). To the best of my knowledge, they're currently the most affordable 'phones to support it.

Advantages claimed for balanced-headphone connections include improved drive, the elimination of crosstalk and a 'faster' sound. To this end, Pioneer includes a balanced cable terminated in the necessary 4-pole 2.5mm plug. If you have a headphone amplifier with a 4-pin XLR, you'll need an adaptor. But those with conventional gear need not worry. A standard (unbalanced) cable with a 3-pole 3.5mm plug – albeit bereft of the remote control and mike so beloved of smartphone

owners – is also supplied. At 1.2m in length, though, these cables are rather short for my liking. I used the headphones in unbalanced drive, as most users will.

I found the SE-MHR5s to be rather uncomfortable over extended listening periods. You can loosen the headband, but musical intimacy and low-end response can suffer slightly. In contrast, I can wear cans like Onkyo's ES-HF300s and the Oppo PM3s for hours without any ill-effect.

But for all this, the SE-MHR5s offer a commendable performance. Some have claimed that they are hampered by bloated bass and exaggerated treble. Not if you're using suitable gear, set up correctly – certainly if my experiences are anything to go by (a Cowon D20 portable and, for indoor use, a Chord Hugo TT fed digitally by a Cambridge CXN streamer).

A funky modern recording, Paloma Faith's *Can't Rely on You* (CD rip), was perfectly-proportioned. Bass went deep, yet there was no looseness or overblown tendencies. Treble, meanwhile, proved to be crisp and clean – and there's a great sense of rhythm too.

Also worthy of superlatives is imaging. A CD rip of Bernstein conducting the Vienna Philharmonic, for a performance of Sibelius' *Second Symphony*, demonstrated a fine grip of instrument placement. That, together with an even tonal balance, makes for a natural sound.

The SE-MHR5s' imaging properties also laid bare some very odd studio mixing and panning (for

example the early-eighties fretless bass-infused output of Gary Numan – tracks like *Music for Chameleons* and albums like *Dance*).

Pioneer's specs are rather modest – a sensitivity of 102dB/mW, for example. Yet these cans delivered a useful output from the D20, which is also a rather puny player in terms of headphone drive. On some occasions, I actually had to turn down its volume; I've never had to do that before! Maybe the enclosed design is of benefit here.

As far as my ears are concerned, there's only one caveat. The SE-MHR5s are not the most analytical of headphones I've come across; in complex multi-layered recordings (among them *Tears For Fears' Sowing the Seeds of Love* and *ELO's Out of the Blue*), they lost some of the inner details that I'm used to hearing with the PM3s – which, admittedly, are more expensive units. But that aside, there's much to recommend the SE-MHR5s.



PIONEER SE-MHR5 £200



EXCELLENT - extremely capable.

VERDICT

Tonally-balanced, easy to drive and enjoyable to listen to – but resolution and long-term comfort could be improved.

FOR

- detachable cable and balanced connectivity
- pacy presentation
- good acoustic isolation

AGAINST

- finer details remain buried in the mix
- can be a little uncomfortable
- lack of remote

Pioneer
+44 (0)208 836 3524
www.pioneer-audiovisual.co.uk

Striking the right Chord

Chord's new Shawline range brings the company's Tuned ARAY technology into a new price range. Jon Myles plugs them in and loves the sound.

The Wiltshire-based Chord Company certainly made an impact with the launch of their

Tuned ARAY cables interconnect and digital cables. Developed by their renowned designer Nigel Finn they used a unique geometry and superior materials to bring out the spatial elements in music while retaining the timing and essential rhythmic vibrancy.

Listening to the first iteration of this technology I was supremely impressed with its clarity, openness and, most of all, level of detail on offer. One problem, however, was the cost – the Tuned ARAY first appearing in the high-end Sarum interconnects.

However, the development is now starting to trickle down throughout the Chord range and has been implemented in its new Shawline series. Analogue and digital interconnects are available as well as a dedicated loudspeaker cable. The latter features silver-plated conductors, 16 AWG multi-strand silver-plated conductors allied to a PTFE insulation.

All the leads have been designed to work together to give a signature sound which means deploying them as a complete loom is the ideal way



Chord Shawline Analogue Cable

to go - which is exactly what I did.

Taken individually the cables cost £200 for a 1 metre analogue RCA or digital interconnect while the speaker leads come in at £30 per metre with factory-fitted gold-plated banana or spade terminations provided for £100. For the analogue interconnect DIN, RCA and XLR terminations are all available.

One point to remember is that Chord always stresses that its cables are directional – with small arrows indicating the correct line of installation – so bear this in mind when you put them into your system.

SOUND QUALITY

As a range the new Shawlines are not overly expensive. But taken as a package they do represent an investment that has to be seen as value for money to justify the

expenditure.

Happily, they do just this. First of all, plugging the loudspeaker cables into a combination of Naim amplification and a pair of Spendor A3 loudspeakers brought a tempo and clarity to the sound which similar cables at this price struggle to match.

Kylie Minogue's vocals on her duet with Nick Cave during 'Where The Wild Roses Grow' positively shimmered – especially as the 'speaker cable brought out elements of the sound that others can sometimes block such as subtle intonations in phrasing and the slight catch in the throat between lines.

Adding the analogue and digital interconnects, though, served to

reinforce the sense of extra clarity. Designer Nigel Finn is a musician as well as a cable expert and this comes through with both the leads.

Using the analogue interconnects between an Oppo BDP-105D with the Naim and Spondors shone a brighter light on the Nick Cave track than before. What's impressive is how the sound opens up, becoming more expansive with greater atmosphere.

Switching to Aaron Copland's 'Fanfare For The Common Man' the interconnects allowed the force of the bass drum to power into the room. There was a sense that the leads are not restricting the natural flow of the music but simply relaying the signal, which is what all good interconnects should do.

On the late David Bowie's 'Panic In Detroit' Mick Ronson's guitar has all the edgy vibrancy you could wish for but the whole mix is decidedly open, so Linda Lewis's backing vocals never descend too low or have a hint of sibilance.

The same presentation was evident in the digital interconnect. One of the advantages of the Tuned ARAY configuration when it first emerged was its ability to introduce a more organic nature into digital replay chains.



Chord Shawline Digital Cable

I used this new Shawline cable between a variety of different components and once again it had a lovely, musical flow to its sound. Acoustic instruments have a realistic timbre while there's a dynamism to fast-paced tracks.

If there's one caveat to bear in mind it's that the Shawlines don't quite have the outright dynamic range of Chord's more expensive cables such as the Sarum range, which work supremely well in high-end systems. But then again they do



not cost anywhere near as much – which is the whole point of the new Shawline range.

CONCLUSION

These new Chord Shawline cables are impressive performers. They major on detail and timing allowing you to hear just what individual components are doing without adding anything of their own character. If you have a good system and want to give it a boost these may just be the most cost-effective way to do that.



Chord Shawline Speaker Cable

CHORD SHAWLINE SPEAKER CABLE, ANALOGUE AND DIGITAL INTERCONNECTS

ANALOGUE RCA 1M £200 ADDITIONAL METRES £80

DIGITAL RCA 1M £200 ADDITIONAL METRES £80

SPEAKER £30/M UNTERMINATED FACTORY BANANA/SPADE TERMINATIONS 8 PLUGS ONE PAIR £100



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT
An interconnect and loudspeaker cable loom that relays music without adding any colouration and at an affordable price. Highly recommended.

FOR
- timing
- openness
- lack of colouration

AGAINST
- nothing at the price

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World Radio History

Pure Class



UK company Entotem has upgraded its groundbreaking one-box Plato system with a better DAC and Class A amplification. It makes an already impressive product even better, says Jon Myles.

We were impressed with the first product from Derby-based company Entotem, the Plato music server. Its list of facilities marked it out as something of a Swiss Army Knife of home hi-fi, incorporating a music server alongside networking capability, an MM/MC phono stage, 24bit/192kHz DAC and a 45 Watt per channel amplifier – as well as an ADC (analogue-to-digital convertor) to rip vinyl to its 2TB of hard disk storage.

If that wasn't enough it could also store and play back high-resolution video to a TV. No surprise, then, that it was named as one of our products of the year in the Hi-Fi World 2015 Awards. But Entotem have been steadily working on an improved version of the Plato – enter the new Class A Plato with some significant upgrades.

They are not obvious from the outside as the new model retains

the same form factor - a one-box unit measuring 130mm x 370mm x 300mm (H/W/D) with nicely curved edges and a 5" TFT LCD touch-panel front screen for control and displaying album art.

Inside, however, there have been some major changes. The previous Burr-Brown DAC has been replaced by the latest generation ESS Sabre 32 module which provides greater

signal is sampled digitally so Plato can continuously modify and scale the output transistor biasing.

Also new is Apple iPhone and iPad control software for free download to go alongside the existing Android offering - although all have gone through significant revisions which make them feel a great deal more snappier and responsive.

"I was immediately struck by how much depth this one-box unit can extract from music files"

dynamic range (see Measured Performance) while amplification is now mainly Class A - something almost unheard of in this sort of product and price range.

To achieve this the size of the base plate has been increased to aid heat dispersion while the input

From these you can access the various connections — optical and coaxial in/outs, line level and MM/MC phono, HDMI, ethernet network and pre-outs — as well as control the volume. As it's DLNA-equipped the Plato will also look up other uPnP devices on your network so it can

play their content — although it does need a wired connection.

One other change is that the previous Neutrik loudspeaker sockets have been changed for standard 4mm sockets, making connection easier.

The Plato Class A, though, is still a complex component and a thorough read of the 78 page instruction manual is recommended to understand all its features. Once done, however, it is easy to operate whether from the front fascia touch panel or the Android or iOS app. Entotem, to their credit, also have a series of handy 'how to' guides on their website at www.platoentertainment.com.



The 5" TFT LCD touch-panel front screen gives instant access to all your stored music files.



A free downloadable app for Apple iOS and Android devices allows the Plato to be controlled from tablets or smartphones.

The price of all this technology comes in at £3995 which, considering its capabilities, is not all that expensive. Well, as long as it sounds good...

SOUND QUALITY

The original Entotem Plato was an impressive performer but the new Class A variant takes it on to a new level.

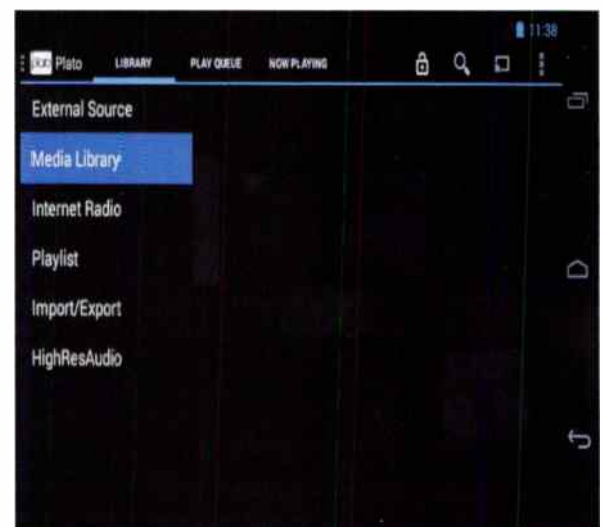
Most importantly its sound is a lot smoother and detailed with a welcome lack of harshness and a vibrancy that only comes with a well-developed power supply.

Plugged into a variety of loudspeakers including Focal Sopra No 1s, Wharfedale Reva 2s and even a pair of Martin Logan Renaissances there was never a hint of stress in the Plato.

To put this in context, the Class A Plato will work with loudspeakers well in excess of its price range but also bring a great performance out of more budget models.

Playing Led Zeppelin's 'When The Levee Breaks' via a 24bit/92kHz file transferred to the unit's hard drive from its USB port and I was immediately struck at just how much depth this one-box unit can extract from music files.

John Bonham's drums were as seismically slamming as they should



Drop-down menus give access to the full range of features available.



Full album details including track names and length can be instantly displayed by the Plato.

be but the separation between that sheer force, Jimmy Page's guitar and Robert Plant's harmonica in the opening sequence took me aback with its clarity. Here the Entotem had the rare ability to cut through a dense mix and allow you to hear individual instruments without losing any dynamism.

Moving on to the subtler shadings of Olivier Messiaen's 'Quartet For The End Of Time'

ortofon

accuracy in sound



Q

uintet

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

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

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



Distributed by Henley Designs Ltd.

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(24/96) the Plato showed it was able to replay acoustic instruments with lifelike timbre. Here the sound of bow on string from the violins was vividly portrayed, anchored firmly in space between the loudspeakers.

Also impressive was the way the Plato managed to handle dynamic contrasts. Playing The Pixies 'Wave Of Mutilation' compilation the shift between the quiet and loud elements on 'Debaser' were handled seamlessly. Black Francis's barked vocals and the searing lead guitar of Joey Santiago emerged from a low noise floor to give the track immense power.

Switching from hard disk-based replay to the MM/MC input made a range of options available. The Plato's control app lets you select input impedance as well as gain and — if desired — bring in a rumble filter.

But again it is the sound that impresses. This a smooth and controlled phonostage with fulsome detail. On Kate Bush's 'Aerial' the vocals shimmered and floated, sending a tingle down my spine. It is



The rear panel contains an extensive range of analogue and digital connections, enabling the Plato to form the heart of any audio system.

exactly how you want the album to sound.

Ripping this album to the Plato's internal storage and replaying both revealed some differences. At a push I'd say the vinyl replay was slightly warmer and lusher - but really there wasn't much in it.

And the ability to have your entire LP collection digitised alongside high-definition downloads and any other music you have is a real bonus, plus ability to recognise the music

being played and retrieve cover artwork from an on-line database — eerie!

CONCLUSION

The new Entotem Class A Plato is one of the best one-box systems you can buy. On-board storage (2Tb), great MM/MC phonostage, Sabre DAC plus Class A-biased amplification. Just add some loudspeakers and your set-up is complete. The ability to rip vinyl to the hard disk is also a fabulous feature.

MEASURED PERFORMANCE

The updated sliding Class A power amplifier of the new Plato produced 55 Watts into an 8 Ohm load and exactly double, 110 Watts into 4 Ohms, so the internal power supply is highly regulated; few amplifiers have such a 'stiff' supply.

Distortion levels were very low in the midband (0.005%) and at high frequencies (0.02%) as before; there is no sign of crossover products in our distortion analysis, the sound will be clean and lacking any sign of harshness. Frequency response was very wide as before, stretching from below 2Hz up to 80kHz (-1dB).

Phono stage equalisation was accurate, resulting in flat frequency response, the optional warp filter acting sharply below 20Hz. Phono stage overload levels have been raised, MM offering 50mV at the +36.2 gain setting, whilst MC had 7mV overload at its +60dB gain setting — both giving plenty of headroom.

Noise was again very low and top quality, low output MC cartridges can be used, without hiss being audible. The MM/MC phono stage is very well engineered, up with the best.

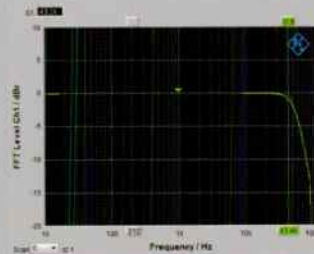
The S/PDIF electrical digital input accepts up to 192kHz sample rate, but the optical input managed 176.4kHz maximum as before, usually down to optical receiver limitations.

With 24bit digital, distortion at -

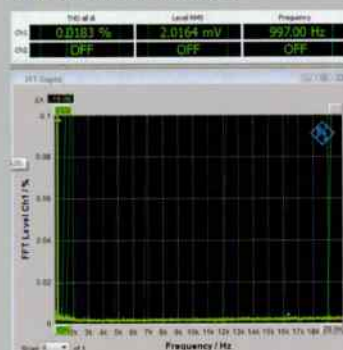
60dB from the new ESS 9018 Sabre32 series DAC measured a very low 0.02%. EIAJ Dynamic Range has risen to a high 122dB, up with the very best, pushing the Plato to the forefront in this important respect.

Frequency response at 192kHz sample rate extended to 43kHz before rolling away slowly up to 96kHz, about

FREQUENCY RESPONSE 192k



DISTORTION (24bit)



as expected using slow, but well damped filtering.

The Plato is now an even more complex and ambitious product than before. Earlier phono stage overload limitations have been removed and the new ESS Sabre32 DAC has propelled it into the realms of the best. The new sliding Class A amplifier returns better results too. In all then — a great measured performance. This player is a dense and sophisticated piece of design work. NK

Power	55watts
Line In Frequency response	2Hz-71kHz
Separation	95dB
Noise	-114dB
Distortion	0.02%
Sensitivity	800mV

Digital In (24/192) Frequency response	2Hz-41kHz
Distortion (-60dB)	0.02%
Dynamic Range (EIAJ)	122dB

Phono in Frequency response	5Hz-20kHz
Separation	68dB
Noise (e.i.n.)	0.08/0.22µV
Distortion	0.05%
Sensitivity (MM/MC)	5/0.7mV
Overload (MM/MC)	70/2mV

ENTOTEM CLASS A PLATO £3995



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT
A class-leading product that includes amplification, DAC, storage and an MM/MC phono-stage in one box for a bargain price.

FOR
- class A amplification
- Sabre DAC
- ease of use
- ability to digitise vinyl

AGAINST
- nothing

Entotem
+44 (0) 1332 291972
www.entotem.com

WORLD STANDARDS

Your guide to the best products we've heard that are currently on sale in the UK...

TURNTABLES

AVID INGENUUM £800
Great bass response and upper midrange detail allied to clarity makes this a must-hear at its price-point.



CLEARAUDIO INNOVATION £6400
Expensive, but offers great results from a finely honed and beautifully finished belt drive turntable, with servo control from the platter to keep a grip on tempo like few others. Can be fitted with a Clearaudio tangential arm, or any conventional design. Awesome.



INSPIRE MONARCH £4,350
A rebuilt from the ground up Technics Direct Drive, having blistering pace and dynamics allied with smoothness, sophistication and purity of tone. A true reference.



LINN LP12SE £3,600
The UK's most iconic turntable, the legendary Sondek goes from strength to strength. New Keel sub-chassis and Radical DC motor add precision and grip to one of the world's most musical disc spinners. Expensive though.

MICHELL GYRO DEC £1700
Wonderful styling coupled with great build and finish make this turntable a delight for friends and family. It has an attractive clear acrylic dust cover, and you can mount just about any arm. A current design standard.



PRO-JECT ESSENTIAL DIGITAL £300
A budget turntable that turns in a great analogue performance, but also has a hi-res digital output. Send 24/96 across your lounge via optical cable to a DAC and get great audio quality. Or record LP to your laptop.



REGA RP3 £550
The first of the super-quality Regas, little compromised by price and featuring Rega's outstanding RB303 tonearm, suitable for MM and MC cartridges. A standard at the price point.

TIMESTEP EVO £2100
The famous Technics SL-1210 MkII Direct Drive but with improved plinth, isolation, main bearing and power supply, plus an SME arm (add £1500). DD convenience, rock steady pitch and fab sound at a great price. Our in-house reference.



TONEARMS

ORIGIN LIVE ENCOUNTER MK3C £1,745
Origin Live combines carbon fibre and ebony to marvellous effect in its new 12-inch arm. Creamy and rich in presentation, the Encounter delves deep into the mix for a satisfying listen.

HADCOCK GH-242 EXPORT £810
Consummately musical, lyrical sounding tonearm, but needs the right turntable.

ORIGIN LIVE ONYX £450
Easy, smooth, creamy nature that reminds you why you're listening to vinyl in the first place. Essential audition at the price.



REGA RB303 £300
A one piece tapered casting makes this arm's structure almost unrivalled. Great dynamics and superb imaging, for MM and MC. Reference quality for peanuts.

SME 312S £1,600
Twelve inch magnesium alloy tapered arm tube plus SME V bearings. An insightful yet smooth and relaxed sound. Superlative build completes the package. Our Editor's steed.



SME 309 £1500
A one-piece tapered 9in arm finished like a camera and sick to use. Superlative SME quality and sound at affordable price.

SME V £3000
Offers rapid fire timing and a sense of precision, plus rock solid dynamics. Top dollar for deep pockets.

CARTRIDGES

AUDIO TECHNICA AT-OC9 MLIII MC £420
A fine sounding MC with strong bass and super fine treble from a great stylus – yet inexpensive.



AUDIO TECHNICA AT-F3/III MC £150
Great value entry level moving coil with detail and grip you just can't get from similarly priced moving magnets.

BENZ MICRO ACE SL MC £595
Smooth, lucid and full-bodied, award-winning, hand-made cartridge from Switzerland.

BENZ MICRO WOOD SL MC E945
Highly finessed Swiss moving coil that plays music with riflebolt precision.

DENON DL-103 £180
A popular and much loved budget MC with big bass, smooth treble and deep sound stage. Fantastic value.



LYRA TITAN I MC £3,500
Breathtaking speed and dynamics from LP, helped by diamond coated, boron rod cantilever.



ORTOFON 2M MONO SE MM £80
A mono cartridge purposed for The Beatles in Mono microgroove LPs. Fitted with a top quality Shibata tip. Fab for the four.



ORTOFON 2M BLACK MM £400
As good as it gets from MM. Fabulous detail and insight from a Shibata stylus, good bass and excellent tracking.

ORTOFON CADENZA BRONZE MC £1,400
A mid-price MC with a slightly livelier presentation than the super smooth Cadenza Black. High-end sound at midband price – great value.



ORTOFON CADENZA BLACK MC £1,800
Ultra smooth and dimensional moving coil with bass and punch aplenty. Lovely stylus.

ORTOFON A95 MC £3,750
Fast and extremely detailed, this is an MC cartridge that sets standards.

REGA CARBON MM £35
Budget price for a competent cartridge with a fairly unflappable nature. Ideal for beginners.



GOLORING 1012GX MM £250
A glorious sounding cartridge with solid bass and strong dynamic punch, plus excellent treble from its Fritz Geiger stylus. Fun and affordable.



SHURE M97XE £80
Big warm sound, but great tracking and bullet proof stylus protection from damped guard. A survivor.

VAN DEN HUL DDT-II SPECIAL MC £995
Long-established cartridge from Holland with an open and dynamic sound.

PHONO PREAMPS
CAMBRIDGE AUDIO 651P £200
Clean, concise sound from MM and MC cartridges at a very low price. A real bargain.

ICON AUDIO PS3 MKII £1,200
All valve MM phono stage with MC transformer option, graced by big, spacious and relaxed sound.



IFI IPHONO £350
Multi EQ phonostage from British manufacturer that punches well above its weight. Substantial bass and open midband.



LEEMA ACOUSTICS ELEMENTS ULTRA £1,199
Smooth and detailed sound with the ability to accommodate most modern cartridges. Exceptional value for money.



PRO-JECT TUBE BOX DS £425
Compact MM and MC phonostage with valve output circuit and a big sound.



QUAO QC24P £995
MM and MC, oodles of gain, a volume control – and valves! Looks superb and sounds even better: smooth, atmospheric and big bass.

TIMESTEP T-01MC £995
New, minimalist phonostage that sonically punches well above its weight.

PREAMPLIFIERS

ICON AUDIO LA-4 MKIII £1,300
Uses early 6SN7 triodes for liquid sound. Has plenty of gain and a remote control into the bargain.



MF AUDIO CLASSIC SILVER £4,500
One of the best preamplifiers we've heard at any price, this transformer-coupled marvel does very little wrong. It's powerful, clean and open, yet delicate. Its sound is unmatched at or near the price.

MING OA MD7-SE £1,520
A valve preamplifier with an open, effortless sound and a big soundstage. It has plenty of gain so will accept any source and drive any power amp. A real beauty.



INTEGRATED AMPLIFIERS

ARIAND PRO845SE £1,499
Pure single-ended valve magic. Low-powered but immediately gorgeous, easy-going yet forcefully dynamic at the same time.



AUDIO RESEARCH VSI60 £3,500
Power house sound with enormous pace and punch from traditional U.S. muscle master Audio Research. Breathtaking, but expensive.



CAMBRIDGE AUDIO AZUR 651A £350
Dual-mono construction and meaty toroidal power supply combine to produce a solid and sharp sound with sonics far beyond its price point.

CREEK EVOLUTION 100A £1,500
Superb build and smooth confident sound make this powerful amplifier a benchmark.



CYRUS 80AC £1,400
Trademark shoebox-sized Cyrus integrated now offering 88Watts per channel, plus DAC. Svelte delivery from a dainty case that fits in anywhere – and isn't Class D!

EXPOSURE 1010 £495
Entry-level integrated from Exposure has excellent upper mid-performance with an almost valve-like sound.



ICON AUDIO STEREO 60 MKIII £1,700
Excellent tube integrated with plenty of power and an expansive soundstage, plus KT150 tube option and bias meter for easy adjustment.



NAIM NAIT 5SI £925
Naim's fabled entry-level integrated amplifier is updated to si status. Demos Naim's superbly muscular sound at entry level.

SUGOEN A21SE £2,480
Class A amp with fantastic sound quality producing hard, sculpted images, deep detail and tight bass. Just don't expect disco-like sound levels!



POWER AMPLIFIERS

AUDIO RESEARCH VSI75 £7,498
Powerful, fast valve sound that makes everything else look weak at times. Needs careful matching but well worth the effort.

AUDIO RESEARCH VS115 £5,000
Oodles of power with enormous punch. Rafael Todes said it provided "shock and awe" while retaining incredible smoothness and texture.

ICON AUDIO MB845 MKII £5,500
With 120W from big 845 valves right down to low frequencies, this power amplifier has massive dynamics and bass swing, yet is easy on the ear.



ICON AUDIO MB81 £10,000
Big Russian transmitter valves deliver 200W from these massive monoblock amplifiers. Frightening in every sense.

MCINTOSH MC-152 £4,995
Stunningly insightful sound with enormous bass punch from a uniquely designed transistor amp. Amazing audio, a league up, if expensive.



QUAO ELITE QMP MONOBLOCKS £2400 PR
The proverbial iron fist in a velvet glove. Plenty of power but delivered with an assured and confident nature. Smooth on top and easy on the ear but can rock out when needed.

QUAO II-EIGHTY MONOBLOCKS £6,000 PR
Powerful and expansive sound from modern design monoblocks that also look lovely. Superb – used by us as a reference.



LOUDSPEAKER FLOORSTANDER

B&W 803 03 £12,500
B&W's updated statement floorstanders deliver depth and definition with breathtaking speed and authority, aided by a diamond coated tweeter. Expensive – but enormously impressive.

CASTLE AVON V £1,600
A big floorstander at a modest price that suits the average room. Refined ribbon treble and deep bass give it a great delivery.



EMINENT TECHNOLOGY LFT-8B £2,500
Excellent U.S. planar magnetic loudspeaker at bargain price. Utterly superb - a must hear.

EPOS K2 £1,000
A fun sound that is tidy all round and very engaging, with solid bass. Music as you hope it to be.

FOCAL ARIA 926 £1,400
Simple, clean, neutral sound – easy going but well engineered and affordable.

MARTIN LOGAN SUMMIT X £16,698
Matches Martin Logan's XStat electrostatic panel to a powerful subwoofer to provide extended, powerful bass. Dramatic sonic purity. Awesome – all but unmatched.



MARTIN LOGAN ELECTROMOTION £2,500
Martin Logan's budget baby XStat hybrid electrostatic. Fits into any lounge to give electrostatic levels of clarity and imaging.



QUAORAL CHROMIUM STYLE 8 £1,700
A supremely smooth yet open sounding loudspeaker. Clean and detailed treble from a fine ribbon tweeter. Accurate yet informative and enjoyable. Pure class.

QUAORAL ORKAN VIII AKTIVS £6,200
Active loudspeaker with tight, powerful bass, perfect accuracy and detailed treble from a ribbon tweeter.



Q ACOUSTICS 2050I £480
A large floorstander at a budget price. Offers high sensitivity and big sound and has very few flaws for the price.

SPENDOR SP100 R2 £6,495
Retro looks but a sound that's hard to match. Spendor's 12" bass unit provides massive low-end grunt with a room-filling sound.



SPENDOR A3 £1,300
Fine little floorstander with a smooth, natural midband and even tonal balance. Ideal for smaller rooms.

TANNOY DEFINITION OC10 TI £6,000
Enormous power with great projection. Glorious subsonics too. Need little power to go very loud and have superb finish into the bargain.



TANNOY KENSINGTON £9,950
Big but not overpowering, punchy modern sound from classic cabinetry. Need little power to go very loud and suit a traditional home, or castle.



LOUDSPEAKERS STANDMOUNT

ACOUSTIC ENERGY NEO 1 V2 £225
Civilised sounding speaker with fast and tuneful bass.

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



ELAC BS243 £1,000
More transparent and spacious than they've a right to be at this price, these refined mid-price standmounters represent top value.



EMINENT TECHNOLOGY LFT-16A £1,200
U.S. planar magnetic bookshelf loudspeaker with unrivalled mid-band and treble. Hear it before all else.

WHARFEDALE DIAMOND 220 £200
Builds on the success of previous Diamond ranges with better bass, more detail and a greater sense of scale.



KEF LS50 £800
Supremely musical mini-monitors which sound much bigger than they look.



MARTIN LOGAN MOTION 35 £1,300
Folded Air-Motion tweeter gives a taste of Martin Logan's electrostatic sound in a standmount. Different from the standard mini-monitor and all the better for it.



PMC TWENTY.21 £1,575
Transmission line loaded standmount with a big box sound from a compact cabinet. Punches well above its weight.



Q ACOUSTICS 2020i £165
Great little bargain-priced stand-mounts with a friendly, fun yet surprisingly refined sound. Hard to better for a pair of starter loudspeakers.

WHARFEDALE DENTON £500
A beguiling mixture of retro looks with modern, high-technology drive units. The Denton has an easy-going, big-hearted sound with a touch of trad warmth that should appeal to many.



HEADPHONE AMPLIFIERS

CREEK OBH1 £150
Designed specifically for low to medium impedance (30 Ohm – 300 Ohm) headphones the little Creek has a marvelously well-judged sound.

CHORD MOJO £399
Class leading portable DAC and headphone amp with ability beyond all else. Big, open spacious sound.



EPIPHANY EHP-02 £99
PP3 battery-powered portable gives great sound quality at an almost giveaway price. Happy with the output from an iPod or CD player, the little epiphany is a true bargain.



ICON AUDIO HP8 MKII £650
The HP8 MKII valve-based headphone amplifier brings the spacious sound of valves to headphones. And it matches 'em all.



FIDELITY AUDIO HPA 100 £350
Great little headphone amplifier with a lively yet refined and open sound.

MUSIC FIRST PHONE BOX £276
Brings a big stage, plenty of detail and rich, deep colours to the sonic spectrum.



OPPO HA-2 £250
Remarkable performance and sound from ESS Sabre32 DAC in a slim portable package.



CD PLAYERS

AUDIOLAB 8200CDQ £949
Inspired CD player and DAC with price-performance ratio like no-other. Capable of matching designs costing much more.



CANOR CD2+ £3,100
Musically coherent and tuneful valve-driven CD player from Slovakia. Lovely liquid sound.



CAMBRIDGE AUDIO AZUR 651C £410
Snappy modern presentation from this budget CD player. Cracking audiophile entry point for any digital fan.

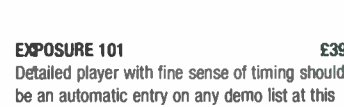
CHORD RED REFERENCE MKIII £16,000
A unique and massive engineering exercise that could well be the best CD player available. Chord's Pulse Array DAC technology produces a musical experience like few others. A true reference player.



ESOTERIC K-03 £9,495
Superb high-end silver disc spinner that is beyond criticism. Devoid of its own character but has a flawless presentation.



EXPOSURE 101 £395
Detailed player with fine sense of timing should be an automatic entry on any demo list at this price.



ELECTROCOMPANIET EMP-1/S £4,650
Epic in scale, lavish in tone and exuberant in its musicality - this is a memorable SACD spinner. Quirky in operation and modest in finish, though.



OPPO BDP-105D £1200
Universal player and DAC that makes CD and Blu-ray (+DVD) sound deep, spacious and full bodied. Reference quality that's affordable.



REGA APOLLO-R £550
Rega comes up with a fine CD player again. Tremendous detail and an easy, unforced sound at all times. Few bells and whistles but made up for by its superb sonic ability.

ROKSAN KANDY K2 £900
A charmingly musical performer at the price - this is a surprisingly sophisticated CD player for the money.



TUNERS

CAMBRIDGE AUDIO AZUR 651T £299
Value-packed AM/FM/DAB and DAB+ ready tuner. Precise and detailed with excellent resolution of spoken word.



CREEK DESTINY 2 £550
Creek's tuner expertise shines through in the Destiny 2. This AM/FM receiver is wonderfully three-dimensional and smooth.



MAGNUM DYNALAB MD-90T £1,900
Exceptionally able, but commensurately priced, audiophile tuner that cannot fail to charm.



DACS

AUDIOLAB M-DAC £600
Excellent sound from ESS Sabre32 DAC and impressive flexibility with a unique range of filter options make this a stand-out product. Low price is the icing on the cake.



AUDIOLAB Q-DAC £250
Stripped-down version of Audiolab's M-DAC loses some features but retains much of the sound, making it a veritable bargain.

ANTELOPE ZODIAC GOLD/VOLTIKUS £3,095
DAC/preamp/power supply combination majors on detail but has a remarkable un-digital sound. One of the best at its price.



CHORD 2QUTE HD £990
Superb build quality and exceptional sound from this compact unit. Boasts the ability to handle DSD direct via USB and has an exceptional soundstage. One of the best DACs you can buy.



DCS DEBUSSY £8,000
DCS's bespoke 'Ring DAC' circuit gives a beautifully-fluid, almost analogue sound that encourages long listening sessions. Not cheap but worth every penny.

NORTHERN FIDELITY DAC £650
Packed full of features, including Bluetooth and USB, this ESS Sabre32 equipped DAC offers crisp, insightful sound at low price.



METRUM OCTAVE £729
Unique two-box digital-to-analogue converter with great sound at a great price. Cuts upper treble, though.

NAIM DAC £2,400
Superb high-end digital converter with a probing, punchy and forensically-detailed sound.



TEAC UD-501 £699
Feature-packed DAC with benefit of DSD playback. Superb sound means little to touch it at the price.



RESONESSENCE INVICTA MIRUS £4,499
One of the most highly spec'd DACs available, with a smooth yet enthralling presentation. Few approach it.



NETWORK PLAYERS

CHORD DSX100 £7,500
Chord's proprietary DAC circuit shines in their top-of-the-range streamer. Hear-through clarity with a sound rich in detail, dynamics and soundstage.



CAMBRIDGE AUDIO NP30 £399
Budget offering from Cambridge offers a great introduction to network streaming.

CYRUS STREAM X £1,400
Gorgeous sound quality even from compressed digital music. New control app makes everyday operation a doddle.



ENTOTEM PLATO £2999.00
A network player with amplifier that does it all, including turn LP to hi-resolution digital, and add cover artwork from the 'net.



NAIM NDX £2,995
Clean, incisive and very detailed sound with Naim's traditional pace and timing make this one of the best network music players around.

NAIM ND5XS £2,175
Great sound quality with traditional Naim heft. A wonderful DAC with full 24/192 handling. Only the display could be better.

NAIM NAC-N172 XS £1,650
A pre-amp/DAC/streamer package provides a taught, rock-solid presentation with a tonally rich midband and a superior sense of rhythm.



PRO-JECT STREAM BOX RS £1,095
Unusual valve-based streamer/preamp with variety of inputs and a lovely liquid sound. Not the most detailed but compensates with sheer musical verve.

QUAD PLATINUM DMP £2,500
Combined CD/network player has all the usual Quad elements but with added zest and detail that brings life to everything you care to play.



DIGITAL SOURCES
ASTELL&KERN AK100 MKII £569
Portable high-definition digital player with superb sound quality. Punchy and fast.



FIIO X3 £150
Fabulous value player with nice easy sound and full range of abilities. Small and light. For newbies.

LOT00 PAW GOLD £1,500
Reference quality sound; it's like carrying your hi-fi in your pocket. Equivalently large too, but stunning headphone quality.



NAIM HDX £4,405
Interesting one-box network-enabled hard-disk music system that gives superb sonics together with impressive ease of use.

NAIM UNITILITE £1,995
A 50W amplifier with traditional Naim heft, a CD player and vhf/fm radio, plus network input and Bluetooth make this a great all-in-one.



PORTABLE SPEAKERS
BAYAN SOUNDBOOK £149.99
Superb design and great sound make for one of the best portable Bluetooth speaker/radios on the market. Not the cheapest – but worth every penny.



IRIVER IBA-50 £69
Big, warm sound with plenty of volume and clean at high levels. Muscular sound compared to many rivals.

CABLES
BLACK RHODIUM TWIST £71/3M
Twisted to fight off radio frequency, the Black Rhodium speaker cable is easy on the ear with a fine sense of clarity and focus. A remarkable performer at the price.



MAINS CABLES R US NO.27 £95
Offers a spighty pace with a precise nature. Fast performance enhance frequencies and beautifully etched detail.



CHORD SIGNATURE REFERENCE £900
Majors on timing, detail and openness. Capable of getting the best from most systems and a recommended upgrade.



TELLURIUM Q BLACK 280/3M £900
A deep, dark, velvety performer that's nevertheless highly musical, it represents excellent value as mid-price cables go.

TELLURIUM Q SILVER DIAMOND £804/M
An open, natural and transparent sound that is difficult to beat, from these great loudspeaker cables.



HEADPHONES
AUDEZE LCD-3 £1,725
A planar magnetic 'phone that offers monitor quality. Strong sound with silky, dark quality that others struggle to match.



B&W P3 £170
Beautifully presented headphones from the loudspeaker specialists. Feed them a good quality source signal and they reward with excellent sound.

JAYS V-JAYS £49
Wonderful little budget over-ear portable 'phones with a clean, clear sound to beat the best of the rest at the price.



NOBLE K10 INC. FITTING £1,279
Custom fit in-ear phones with 10 drivers deliver a sound that is out of this world. Personal and perfect.



OPPO PM-1 £950
Planar magnetic phones with a warm, easy but big bodied sound that draws you in. Need a lot of drive, but deliver superb bass.



SENNHEISER HD700 £599
Tremendously fast with a strong, focussed, lower-frequency range and a firm bass punch.



YAMAHA HPH-MT220 £150
Purposeful for indoor monitoring yet light and comfortable enough to be used on the move. Excellent sound quality marred only by a slight warmth to vocals.

Audiodesksysteme PRO Vinyl Cleaner



- The new PRO version** of this world renowned ultrasonic LP cleaner
 - Improved mechanical designs:** better drive motor, ceramic bearing pump and additional drying process
 - Low energy ultrasonic generator** for maximum cleaning efficiency
 - Contactless cleaning** that removes more dirt than conventional suction methods
 - Ultra clean LPs** produce a larger soundstage, have more detail, and reduce stylus wear
 - New colour options** available in addition to standard grey: black, white and red
- Please visit our website for further details

info@audioconsultants.co.uk
4 Zephyr House Calleva Park Aldermaston Berkshire RG7 8JN UK
AC/95

Nottingham Analogue Hyperspace



- Massive steel platter** with a unique stainless steel bearing design which minimises friction
 - Sintered carbon ceramic** top plate reduces noise fed back to the cartridge
 - Low torque Swiss motor** plus a loose fit belt reduces the noise floor
 - Fast transients** and exceptional dynamics provide a very rhythmic drive to the sound
 - Unipivot carbon tone arm** reduces colouration and improves transparency
- Hyperspace £2930 Ace Space 12-inch arm shown £1030

info@audioconsultants.co.uk
4 Zephyr House Calleva Park Aldermaston Berkshire RG7 8JN UK
AC/98

Top Gear

Gear4's new Black line aims to take on the likes of Sonos for multi-room streaming. Jon Myles listens in.



Gear4 has a reputation for making well-built, solid value-for-money components. They may not be the highest of hi-fi but they do the job extremely well at their price.

With its new Black line, however, the company is looking to up the ante and take on the likes of Sonos in the area of multi-room streaming. There's two products at present – the portable Stream 1 and the more substantial Stream 3 on review here.

Measuring 13cm x 27.5cm x 14cm (H/W/D) it packs in a pair of mid/bass units plus a tweeter while at the rear a substantial vertical reflex port adds bass extension.

Its most important feature, though, is connectivity. There's a built-in router so you can connect a number of Stream 3s together as well

as Bluetooth and Wi-Fi capability.

Control buttons are on the top but the free Gear4 Stream app (Apple and Android) is a simpler solution. Download this and the Gear4 will pull in all music files on your home network and give you access to all the controls.

Set-up is also fairly simple as the buttons on the rear of the unit allow pairing within a few minutes of unpacking the unit.

The System 3 also costs just £129.99 meaning you could easily set-up a multi-room system covering four areas for less than £600.

SOUND QUALITY

For its size and price the Stream 3 has a nicely balanced sound. Starting off with a slice of Charles Mingus I was immediately struck with how firm the bass sounded and the tempo it was relayed with. It is not deep or thumping but nicely rounded.

A rear vertical reflex port helps add bass extension to the Gear4 Stream 3's bass extension while below are buttons for pairing to home networks or other Gear4 loudspeakers.

The midband is also quite smooth and well-judged, giving clarinets and violins resonance and detail. Playing a selection of Allegri String Quartet tracks I was impressed by how much detail it was able to extract.

It also provides nice stereo separation. Loudspeakers this size will never reproduce the same experience of a full-sized system but using the Gear4 in a medium-sized room revealed it had enough power to provide decent sound levels.

Push it very hard with dense mixes and it will start to sound congested but keep it within its limits and there's an even quality to the sound which never failed to appeal.

Playing Bruce Springsteen's 'Born To Run' from Bluetooth via an iPhone 6s Plus there was a toe-tapping quality to its presentation with excellent air to Clarence Clemons saxophone.

CONCLUSION

The Gear4 Black Stream 3 is an excellent addition to the growing ranks of multi-room devices. At £129.99 for each unit this is one of the most cost-effective ways of bringing music to every area of your house.



**GEAR4 BLACK
STREAM 1 £129.99**



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the best**

VALUE - keenly priced

VERDICT

A single box streamer that, while compact, delivers big sound with an even balance. The free app also makes control simple.

FOR

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- multi-room capability
- ease of set-up
- price

AGAINST

- congested sound at high volume

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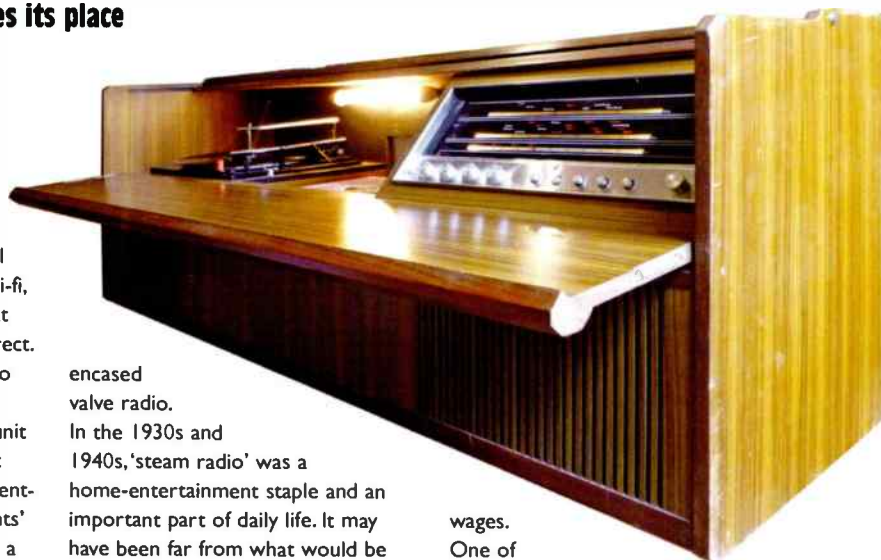
SONIC - TRANSFIGURATION - USHER - VAN DEN HUL - VELA AUDIO

Gram glam

Martin Pipe services an old Ferguson stereogram – and examines its place in audio history.

In this month's Olde Worlde, we look at a radiogram, specifically a 1972-vintage Ferguson 3361 stereogram. Why? It's not hi-fi, you might argue. And in that assertion you'd be absolutely correct. But Olde Worlde is all about audio nostalgia, and putting the gear in some kind of context. A modest unit like this, possibly once taking joint pride of place alongside a newly-rented colour television set in a parents' lounge, undoubtedly started many a Hi-Fi World reader's journey into the pursuit of musical excellence.

One can only guess what LPs might have graced the platter of its Garrard 2025TC autochanger back in the day. Mum and Dad would



encased valve radio. In the 1930s and 1940s, 'steam radio' was a home-entertainment staple and an important part of daily life. It may have been far from what would be later known as 'high fidelity', but that unique sound – mellow, and lacking in 'top' – was considered 'the norm'. When time came to purchase their own audio system, that's the sound they wanted. Indeed, it could be heard even in some supposedly hi-fi separates (speakers, mostly) well into the 1970s.

As a product category, the radiogram – which, as its name suggests, couples a radio to a gramophone – has some history of note. In the depression-hit 1930s, it was an item very much as aspirational as the car. Even a modest radiogram could sell for twenty guineas, which equated to several months' average

wages. One of those enormous art-deco cabinets in your living room was symbolic of opulence and taste. You were no longer dictated by the musical choices of the BBC.

A world of 78rpm shellac discs, catering for tastes ranging from popular tunes to opera, was now open to listeners. And they could be played at the time of your choosing. If one of these fragile records broke, maybe due to the action of the changing mechanism, you were in trouble. The introduction of the more durable vinyl LP in the mid-1950s, that wouldn't shatter if hit or dropped it, propelled the radiogram into the modern era. Now the

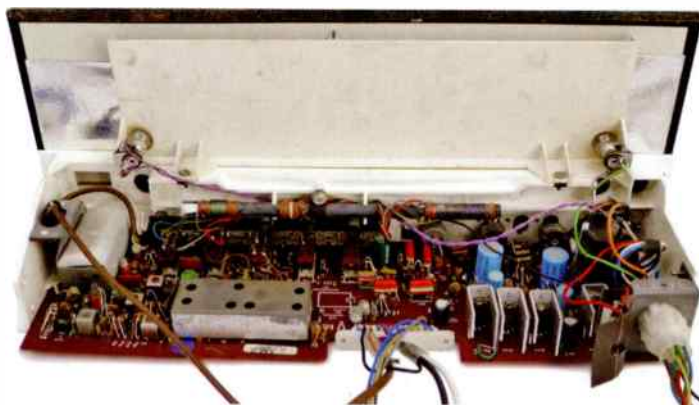
A single 5" x 7" full-range elliptical drive unit is provided for each stereo channel. Easily improved, albeit at the expense of authenticity.



probably have enjoyed their Max Bygraves, Pat Boone, Mantovani and Bobby Darin albums.

But when they were attending cheese-and-wine parties, the 3361 – and, for that matter, similar units up and down the country – were subjected to a radical change in musical taste. Those light classics and middle-of-the road fare would give way to Pink Floyd, the Stones, The Who and other teenage faves. The listener marvelled at the sophistication of these albums, and wondered if they could be better-reproduced. And so began the hi-fi bug...

Mum and Dad were used to the comfy, warm and plummy sound of their own parent's wood or Bakelite-



This tuner-amplifier represents the electronics side of the Ferguson 3361 stereogram. Built from silicon transistors, it has a low-powered stereo amplifier and a radio section capable of tuning into MW, LW and VHF/FM stations.



The 3361's receiver board in the stereogram cabinet. The wiring, mains transformer and right-hand speaker are visible.

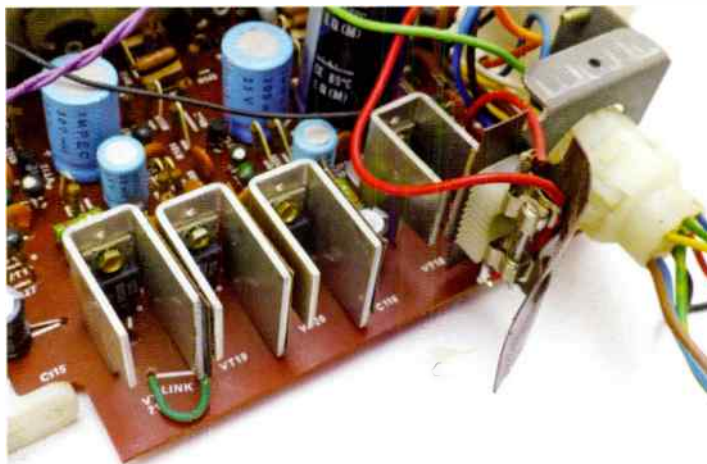
whole family could be entrusted to play music, rather than break it! The radiogram took off.

Radiograms persisted into the early 1970s. Cabinet styles changed from vertical consoles to sideboard-type affairs, suitcase-enclosed portable models were introduced, valves gave way to transistors, turntables began to accommodate LPs, EPs and 7in singles, and the industry 'went stereo', two speakers being required. The horizontal sideboard-like cabinet was essential in a stereogram, as it provided the necessary spacing between speakers. Interestingly, early radiograms were equipped with primitive moving-coil cartridges: the piezo-electric effect, which underpinned the ceramic cartridge fitted to radiograms that were to follow, was still being investigated in laboratories.

The Ferguson 3361 featured here was probably the last generation of

radiograms, as the audio market was rapidly changing. This particular unit, which indeed looks like an innocent sideboard when its front section is retracted, was overhauled by myself for a third party. Its Garrard 2025TC shares space in that wonderfully-contemporary veneered-chipboard console with a 5 watt-per-channel receiver and 5"x8" elliptical speakers. The changer, which is isolated from the cabinet via three springs, is very much of its time. Four speeds are offered, the stepped motor-pulley being coupled via idler to the inside rim of the platter. It can play the upper faces of as many as eight 7in., 10in. or 12in. discs – no mixture, one after the other.

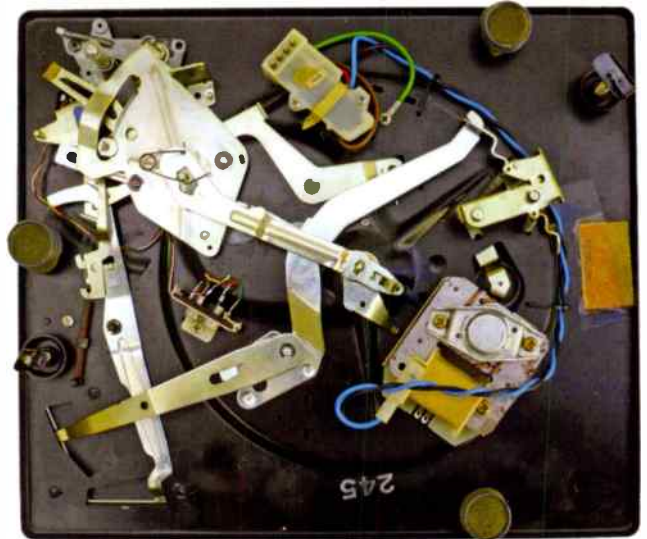
You load them on the step of the long spindle, and swing the overarm into place. Another arm senses the size of the record, so that the tonearm – here, fitted with a Garrard KS40T stereo ceramic cartridge and



These power transistors are the output devices of a simple Class B stereo amplifier that delivers approximately five watts to each 16 Ohm speaker. Modest by today's standards, but the 3361 can go surprisingly loud.

'flip-over' stylus – commences playing at the appropriate position. When the currently-playing record finishes, the arm lifts and temporarily clears the platter. The spindle step retracts, allowing the next disc to slip down the shaft onto the last one – not the last word in record care, it has to be said!

The arm then moves to the start of the record, and the whole



Before electronics enabled all kinds of functionality to be implemented, automation was achieved by mechanical means. The 2025TC employed cams and levers, indirectly powered by the drive motor.



Here the Garrard 2025TC changer has been removed from the 3361 for servicing, and is now undergoing final tests. In this picture, records (in this case, 7" pop singles) are loaded for sequential playback. All records played in this mode have to be of the same size and speed – mixtures aren't possible. The 2025TC's 'manual' mode is of course much kinder to records.

procedure repeats until the 'stack' finishes – a process that culminates in the tonearm moving to its rest position and the motor shutting off. A 'manual' mode, used in conjunction with a cueing lever, is also provided by the 2025TC. These units are mechanically-complex, but are



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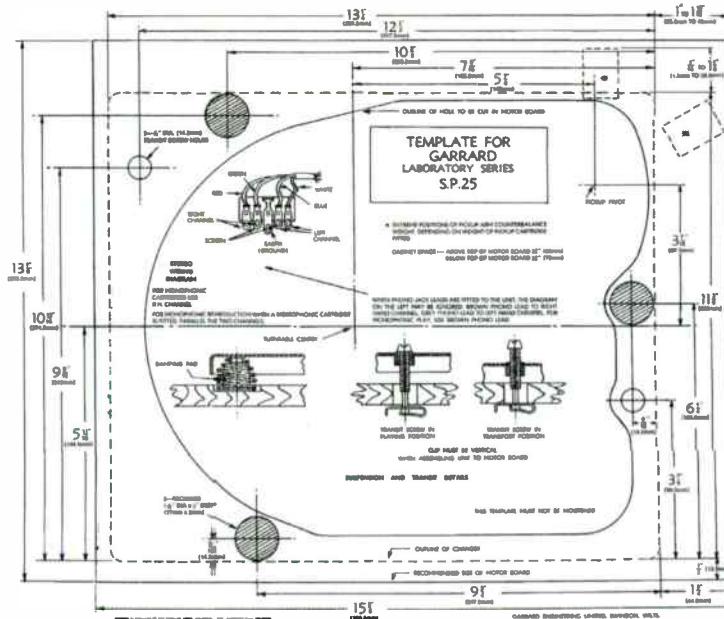
HI-FI WORLD
VERDICT ●●●●●



surprisingly-reliable; as with most Garrards of this era, though, dried grease can cause problems (as it did with this specimen).

The sound quality is typical of a stereogram, with a mellow character and a warm low-end (which can be tamed slightly with the bass control). Thanks to the ceramic cartridge and small speakers, low-frequency rumble isn't a significant problem. There's a fair amount of harshness and masking of musical detail during busy passages, but on the whole the sound proved to be somewhat better than I expected.

That said, I got terrible wow with one autochange session – here, the record being played was actually slipping on the one beneath! The mono FM radio was more than acceptable, and a 5-pin tape DIN socket can be fed from a solid-state music player (I made a lead up for the unit's owner). Thanks to the size of the unit, a reasonable stereo image is



This is the motor-board cutting template for a Garrard SP25 (here, a Mk2). It is very similar to that of the 2025TC, and so it should be an easy (and reversible) replacement. The SP25 is capable of markedly higher performance than the 2025TC.

someone modifying a 2025TC to take a magnetic cartridge but personally I don't feel the hassle is worthwhile – especially as used SP25s are so cheap (£30 or so).

The 2025TC has a pair of chassis phono outputs, on which you'll find the signals from its ceramic cartridge – that tracks at 10g or so! If you upgrade to a SP25 and magnetic cartridge, the corresponding phono plugs from the Ferguson receiver will connect directly to your new preamp's output. You can arrange for the preamp to be active only when the stereogram is powered up (take its mains feed from the primary of the mains transformer).

In our 3361, there was no multiplex decoder for the tuner – although there are spaces on the receiver circuit board for the circuitry to be added. This is because stereo FM broadcasting had not fully 'rolled out' across the UK at the time the unit was built; there's no point in paying for stereo radio when it might not be in your area for a number of years!

The speakers are 16 Ohm impedance and driven by amplifiers (silicon power transistors) but you could tap the output from the volume control and use that to feed external power amps (like those cheap Class-D kits sold online).

The full-range elliptical speakers could be replaced by more up-to-date units, possibly using crossovers or capacitors to enable tweeters to be added. The mounting bolts are embedded in the cabinet. Another

idea could be to fit a small pair of bookshelf-type speakers inside the unit and arrange their cabinets so that their baffles face towards the front of the radiogram.

In all, then, a lot of potential for the experimenter with time on his hands. The simplest upgrade doesn't require disassembly or the 'butchering'



The receiver of the Ferguson 3361 has a late 1960s/early 1970s look. It's easy to use – bass, treble, balance, volume and tuning knobs – plus selectors for tape, gram, VHF/FM, MW and LW.

that some might consider sacrilege – although servicing is a good idea if the unit hasn't been used in years.

All you need is that lead, which enables more modern sources to be connected. And a solid-state player, loaded with a playlist of the era's music, is surely a 21st-century substitute for that autochanger?

At one time radiograms were the most popular way to listen to music in the home. Times and tastes may have changed but they still have much to offer, including visual nostalgia of course! Many of us will have used these contraptions as teenagers – and enjoyed the music they offered, whilst wishing for better.

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As well as being an exceptionally fine performer, the Ferguson 'Futurama' has an attractive, futuristic look. It combines VHF/FM, MW and LW with built-in tuner with a 4 speed auto-tuner and has 'single-eye' tuning and 'PUSH-TO-PLAY' facilities. Provision is included for easy adaptation for playing stereophonic records. Ask your Ferguson dealer for a demonstration. **£69.00** (incl. tax paid).

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A radiogram was, until the advent of hi-fi, the best way of listening to music outside of the concert hall.

conveyed by the speakers.

For the ambitious, upgrades are a possibility. That changer could be replaced with a Garrard SP25 – the template is identical – which will be much kinder to your records. The SP25 (a MkIII won't look out of place!) will take a magnetic cartridge; a cheap RIAA phono preamp will boost and equalise the lower-level signals. This can be bought as a bare circuit board or module on eBay. An entry-level cartridge with spherical stylus, such as Audio Technica's AT91/BL, should suffice. I have heard of

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Focal Point

Focal's designers have pushed the boat out with their new Sopra N°1 standmount. Jon Myles says it was worth the effort.



With more than 30 years experience in manufacturing loudspeakers, French company Focal is rightly rather proud of its heritage and reputation for innovative design.

Unlike many other manufacturers, the company retains complete control of the design and assembly of the majority of its products from its base in St Etienne - from the 'speaker drivers to the cabinets themselves.

At the top of its extensive range sits the behemoth that is the Grande Utopia EM - a four-way loudspeaker that stands more than six feet tall, weighs 572lbs and will set you back some £145000. However, Focal has a series of less expensive but premium design models - the latest being the new Sopra series. It features two floorstanders, a centre channel for A/V use and the Sopra No1 standmount on review here.

As standmount goes, it's a

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The Focal's specially-constructed tweeter chamber vents out of the rear of the cabinet via a mesh grille while a slot-loading port helps bass extension.

fairly large design measuring 425mm x 279mm x 396mm (H/W/D) and weighing just shy of 42lbs. It comes complete with dedicated stands which the 'speakers can either sit on or be bolted to, while finishes include lacquered white, black, red or orange, as well as black and walnut wood veneer.

The price is £6599 which is still a decent amount of money for a standmount. But take a close look at some of the R&D and technological innovation that has gone into the Sopra range and you begin to see where the money has been spent.

For a start the unit's 25mm inverted dome beryllium tweeter is housed in a special patented chamber which Focal has dubbed Infinite Horn Loading. In effect the rear of the tweeter is loaded by a small cavity that is connected to the exterior of the enclosure by a horn. Inside is a damping material so soundwaves from the rear of the tweeter are gradually absorbed which Focal says reduces resistance and helps cut distortion by up to 30 per cent.

The 165mm bass/mid driver

is Focal's well-tryed W composite construction that features two sheets of woven glass tissue sandwiched onto a structural foam core. But it also features two new proprietary techniques aimed at enhancing performance. First is a new circuit using two neodymium magnets and a specially-positioned Faraday ring to improve linearity and so reduce distortion.

Secondly, in an effort to improve midrange definition Focal employs what it terms a Tuned Mass Damper - essentially two tubular rings on the cone's suspension which oscillate in opposite to the resonance frequency and so helps prevent deformation of the drive unit. The company says the technology was derived from the engineering techniques used in

other manufacturers.

The supplied stands are also well thought-out, featuring a single steel column with top plate and a glass base with substantial spikes which are easily adjustable from the top to make levelling easy. They are also fully retractable which helps when repositioning the loudspeakers. It may be a small detail but shows the level of care that has gone into the overall design.

SOUND QUALITY

Focal recommend at least a 20 hour run-in period for the Sopras so I duly left them on for a few days before critical listening began. Since Focal merged with Britain's Naim five years ago, the two operations have been working closely together

"The opening drum roll and horns of Aaron Copland's 'Fanfare For The Common Man' flooded into the room with all the power you could wish for and just begging for the volume to be turned up.

earthquake-resistant skyscrapers and the suspension on high-performance racing cars - it increases definition and detail.

The cabinet itself is built mainly from MDF with a 69mm front piece and gently curving sides to help eliminate internal standing waves. A rectangular slot port loads the bass unit while above this sits a single pair of gold-plated binding posts. Also at the rear is a substantial metal grille at the very top of the cabinet which is the opening for the aforementioned tweeter cavity.

Overall it's a striking-looking loudspeaker (especially in the bright red of our review sample) which makes more of a visual statement than many of the bland rectangular boxes offered by some

so it seemed natural to pair the Sopras with some Salisbury-sourced amplification in the shape of a NAP 200DR, sources including an Oppo BDP-105D universal disc player and an Astell&Kern AK120 for high-



Focal's beryllium tweeter is both fast and detailed with a good sense of dynamics.

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Information

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

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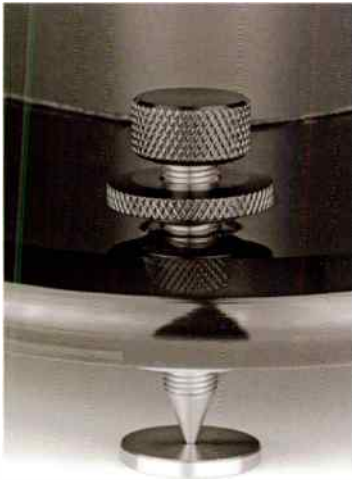
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NEWS

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The included stands feature fully retractable spikes which makes levelling the loudspeakers an easy task.

resolution replay.

Set up firing straight down the room it was immediately obvious the new Sopras are a dynamically engaging loudspeaker. Starting out with Massive Attack's bass-heavy 'Angel' the low end was punched out with tremendous authority. This can be a testing track for even large standmounts but the Focals kept a firm grip on the lower registers with no evidence of bloom. That

beryllium tweeter is also extremely fast, suffusing music with strong detail. It's not quite as airy as a ribbon design, but nor is it hard or edgy - instead providing a nicely extended, believable treble.

One of the great advantages of a good standmount is the way they project music into the room and the Sopras really do excel here. The opening drum roll and horns of Aaron Copland's 'Fanfare For The Common Man' flooded into the room with all the power you could wish for, begging for the volume to be turned up. Refreshingly, even with the sound set to neighbour-bothering levels the Focals showed no sign of strain and actually seemed to grow in size the higher the volume went. While Focal say the Sopras are ideally suited for rooms of up to 270 sq ft I'd say they would have no difficulty driving much larger spaces with the right amplification.

But they are not all about power. The midband is extremely smooth and open which brings a very tactile feel to acoustic instruments. On Antonio Forcione and Sabina Sciubba's 'Meet Me In London' album (24bit/192kHz) the gentle, almost laidback guitar patterns were beautifully realised, with a beguiling delicacy to the sound.

The Focals also amply revealed the extra definition provided by the high-resolution version compared to the standard CD. There's more air around the guitar notes while Sciubba's voice sounded crisper, with greater intonation to her phrasing.

This is, actually, what a really well thought-out loudspeaker can do - presenting music in a way that brings out the best of the performer's efforts.

It's the sort of sound that draws you into the music and finds you playing albums in their entirety instead of choosing individual tracks. And that is the beauty of the Sopra No1s. Other loudspeakers might sound initially more exciting but the Focals have such a natural, even balance that it is impossible not to be drawn into their overall presentation.

CONCLUSION

There's a lot of technology at work in the new Focal Sopra No1s - but it is all put to good use. They are dynamic sounding but at the same time exceptionally clean and open with a great sense of timing.

Yes, £6599 is a reasonable amount of money for a standmount but in terms of design, standard of construction and, most importantly, musical performance the Focals justify their price. Definitely worth seeking out.

MEASURED PERFORMANCE

The Sopra No1 has a super smooth frequency response, due to lack of local minor structural resonances and this equates to low colouration in practice. The loudspeaker is likely to be almost colour free.

The Sopra No1 is very accurate in tonal balance, although the tweeter does trend upward slightly so the top end of the Sopra may well come over as a little obvious. There is no resonant peaking below 20kHz, so subjectively no spit or thin-ness.

The low end is also remarkably flat, bass output running smoothly down to 40Hz, allowing the Sopra to deliver strong deep bass. However, ignoring floor reflection in our analysis, it is academically flat, with no roll off to compensate for rear wall enhancement, and no lift to add weight.

The port is resonant, peaking sharply at 50Hz (red trace); it doesn't apply broad acoustic damping to the cone as many modern designs do, so the Sopra

No1 will likely have some bounce to its bass. Since the port is a low +4dB up on the bass unit at 80Hz in SPL terms, and mouth area is small, it doesn't contribute much acoustic power, so is not especially influential to bass quality.

Sensitivity was high at 88dB sound pressure level from one nominal Watt (2.8V) of input, so Sopra No1 does not need high power to go loud - 60 Watts is plenty enough. It will work from low power Class A amplifiers, valve or transistor.

Impedance measured 6.6 Ohms overall with pink noise and our impedance curve shows a classic characteristic with narrow port damping (the dip) at 50Hz. The Sopra No1 is lightly bass damped.

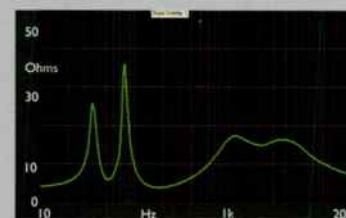
The Sopra No1 is an academic statement of conventional cone-driver loudspeaker engineering and impressive in measurement. Bass damping is limited, but otherwise the loudspeaker looks good. NK

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



FOCAL SOPRA N°1 £6599



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FOR

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AGAINST:

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THE SPENCER DAVIS GROUP

Taking Out Time: Complete Recordings 1967-1969 RPM

A superb three disc collection, presented in a clamshell box plus booklet covering the band's complete collection, for the first time, including the 1967 and 1968 singles, the film soundtrack tracks from 'Here We Go Round The Mulberry Bush', the 'With Their New Face On' album, the US only LP 'Funky' and the theme to the TV show 'Magpie'!

In terms of overall mastering, the CDs feature compression on the single Time Seller, which results in excessive gain and a shining light upon bass which is crisp and precise. You also hear sibilance on vocal crescendos plus a slightly clinical edge on the upper mids.

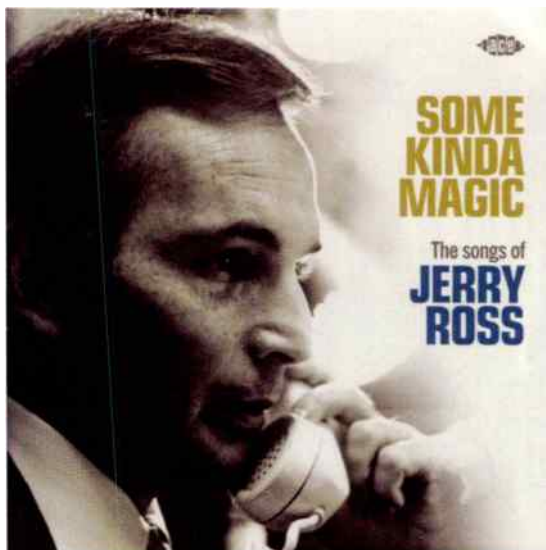
By the time we get to the albums 'With Their New Face On' and the later album 'Funky', the mastering is more manageable in terms of possible listening fatigue. The compression is still there but not as extreme as the previous

single cut. Piano remains a touch brittle while the vocal delivery can be a little sharp at times but treble is far more consistent with improved reverb tails plus a midrange that offers new space to improve listenability.

Turning to the BBC sessions on the final disc, these live performances are notable for their extra space and air.

Apart from the immediacy of the live performance, that injects a welcome adrenaline-created edge from the performers, the mastering actually improves on the studio mastering of the previous recordings.

On many of these recordings, the good old BBC reins in peak limiting and compression to keep possible wayward frequencies under control to present a far more audiophile-like presentation. There are exceptions, it has to be said but on the whole this section of the box set is the most rewarding sonically.



SOME KIND MAGIC

The Songs of Jerry Ross Ace

His career spanned several decades and he was responsible for some of the most well-crafted pop songs of the sixties, there are twenty-four here. Before that, he was an announcer on Dick Clark's American Bandstand, was a promoter for a record distributor, opened his own record promo office, signed his own artists, recorded with them, started his own label and wrote many excellent songs. This guy knew everyone else's job.

In terms of mastering, you have to differentiate between the Ace re-mastering and the original intention. Ace has done a wonderful job in terms of presenting the music to your ears in its best possible light and this is to be appreciated. Nevertheless, this CD is packed with pop songs of the period which means that, despite this welcoming, broad soundstage, each of the elements within that

soundstage are packed, compacted, squeezed and shoehorned into several small spaces. These were songs meant for the transistor radio and the Dansette player after all, and many, including Dee Dee Warwick's splendid 'I'm Gonna Make You Love Me' and the driving, slightly floaty Bobby Hebb track, 'Love Love Love', are constructed to do just that. In fact, the modern Ace re-mastering, on a good quality hi-fi chain, almost deconstructs this compressed arrangement, allowing you to hear how these tracks were put together.

Other tracks, such as Candy & The Kisses' 'The 81' are broader in their scope, with a richer backing and a softer, textural array of backing singers, while Chubby Checker's 'You Better Believe it Baby' offers a fascinating jigsaw of effects. Fascinating in terms of music history and for the technical audiophile, this is a cracking disc of top-notch music cuts.

Remember The Rolling Stones version of 'You Better Move On'? How about The Beatles' version of the song 'Anna (Go To Him)'? Both were written by this man. His song-writing ability was peerless. But so was his performances. It was because of his cover of the Denis Linde song, 'Burning Love' that the ditty was picked up and turned into a smash hit by Elvis Presley.

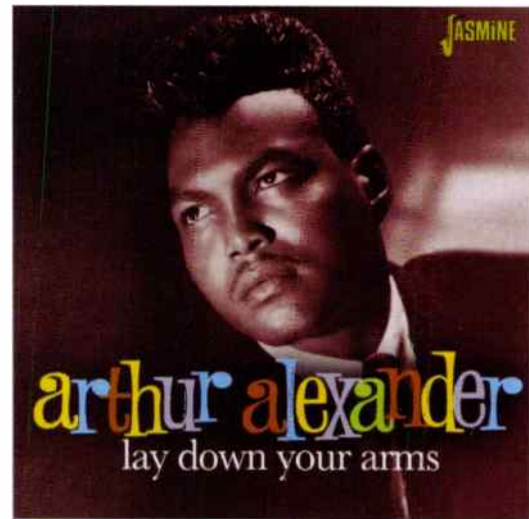
This twenty-seven track CD covers Alexander's career and, in mastering terms, there is plenty going on here that will intrigue the purist. The first track, Sally Sue Brown, for example, is drenched in reverb which affects the Alexander delivery in terms of bloom and smudging, giving the song a slightly ethereal feel while there is a touch of distortion as his crescendos hit the red zone – as does the next track, 'The Girl That Radiates That Charm'. There's a real primitive feel to both of these songs which

was finally explained within the liner notes. Apparently, both tracks were recorded, '...on the ancient 2-track machine in Spar Music studio, owned by a hunchback beatnik called Tom Stafford.'

There must have been something about this studio, though, because talents such as Dan Penn and Spooner Oldham recorded there too.

The following tracks are like chalk and cheese, as the quality of the studio equipment improved immeasurably, opening up the songs, revealing more about the instruments and the emotive nuance of Alexander. Songs such as 'A Shot of Rhythm' and 'Blues Where Have You Been' add a measure of reverb and compression on the vocal, but also a wider stereo image plus more bass response that adds a much needed rhythmic foundation.

A fascinating journey on a single disc from a man who was a country soul pioneer.



ARTHUR ALEXANDER

Lay Down Your Arms
Jasmine

The third installment in the boxed retrospective of the Marvin Gaye recorded commercial catalogue. The albums included are: 'What's Going On' (1971), 'Trouble Man' (1972), 'Let's Get It On' (1973), 'Diana & Marvin' (1973), 'I Want You' (1976), the double-LP 'Here, My Dear' (1978) and 'In Our Lifetime' (1981). In addition, four of the albums from the box set – 'Let's Get It On', 'Diana & Marvin', 'Here, My Dear' and 'In Our Lifetime' – are made available for the first time in several years.

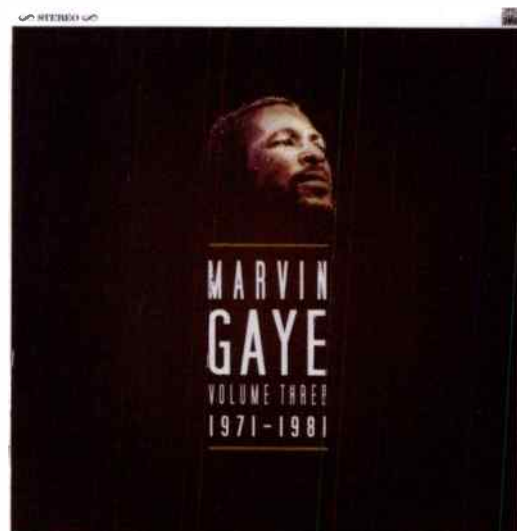
In terms of the mastering quality from this box set, the sound quality is decent but is nothing special. That is, the mastering is rather lean in sound, taking the music to the edge and verging on the strident...but not quite. Hence, both of the tracks 'What's Going On' and 'What's Happening Brother', from the album 'What's Going On' (1971) are cool in their

presentation. That said, they remain listenable and do not threaten to cause listening fatigue.

This mastering template is not necessarily a result of the original production because the same issues are also present on the later album 'In Our Lifetime' from 1981. Hence, the cymbal splash resident on the track 'Heavy Love Affair' sends the treble into a distorted, compressed 'phht' which hampers musical enjoyment a tad.

I am being picky because this box set is not only welcome and offers value for money but also combines an excellent presentation with a host of classic and hard to find music, in one handy container.

Also look out for Volume Two from this series that covers 1966-1970 and a special 10" vinyl EP, featuring the original 7" mono single versions of 'What's Going On' and 'God Is Love' on one side and two modern variations on the flip.



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World Radio History

"endless facilities of little use, and so many no one could ever remember how to cope with them"



Noel Keywood

Owners manuals: I spend so many hours of my life with head buried in them, trying to interpret what they are attempting to tell me. So much so, that I am beginning to realise that owners manuals are a big issue, one that affects whether I can operate something or not – if the latter it becomes worthless to me.

A reviewer like myself must read the manual to fully understand a product in order to fairly assess it. But when I buy a non-hi-fi product I often hardly bother to read the manual – and with cameras in particular it doesn't matter how many times I read it, I can't for the life of me remember what all the buttons do!

And that is the beginning of the issue here. If the machine is so complicated it cannot be understood, is it just too complicated? I would say it is.

This observation applies in particular to AV receivers and brings me into very peculiar territory little talked about. Why do the Japanese manufacturers who specialise in these complex beasts continue to load them with more features than any one normal person can handle, and why can't they write a manual that unravels and explains their complexity, such that a buyer can use and enjoy the thing? They may even buy again if a good experience results. But equally not bother if it is a bad one, through misunderstanding either of what the product can do or how to use it.

So the owners manual, necessary or even essential with a complex product like an AV receiver, becomes a gateway to enjoyment of the product, justifying all the money, skill and time put into developing it, or an effective block on all this and lost future sales, even failure of

an industry. Which is what I would suggest is happening to AV, partly because of daunting complexity and poor documentation.

I'm not trying to crucify AV here, which I have quite some respect for. What increasingly concerns me is gratuitous complexity, poor documentation and a bad consumer experience as a result, that frustrates our ability to use and enjoy such systems. Surround-sound can only be reproduced through a modern 'home cinema' 5.1 AV receiver, all of which follow a pattern that is easy enough to understand in essence, but not when laden with endless options that aren't especially important, but complicate the user experience so damagingly.

It is possible to engineer an understandable and easy to use surround sound system, but not the way it is done at present – and nothing is going to change whilst there is myopia over the issue of complexity and the need for users to be able to understand, use and enjoy what they are buying.

The Luxman L-590AX MkII receiver we reviewed in the June 2016 issue is an interesting example of operational simplicity. We said it was reminiscent of the great 1970s Japanese receiver – this chalks up 'nostalgia'. But there may be more. Those great receivers were not only beautifully built, visually engaging and delivered fine sound – they were also easy to use. There was no barrier to their enjoyment. Usage was self-evident, in the way that turning a volume control clockwise to increase volume is self-evident. That was a simple but important property that is lost in modern receivers.

Now we have gratuitous complexity, meaning endless facilities of little use, and so many no one could ever remember how to cope with them. It looks good in the list

of facilities set out in the product brochure, but is self-defeating in real life usage. Because you can't expect owners to read a 120 page handbook full of menus and settings relating to these facilities and remember them all.

It's not that people can't remember such things, so much as that in a complex world with so many complex products there isn't the time available to do so. Or the mental capacity: think of the burgeoning need for passwords. No problem with one or two, but nowadays we're all obliged to remember unrememberable quantities of them. Impossible.

There are enough Dolby systems to baffle the most ardent AV enthusiast – and that includes me – then there are all the DTS equivalents. Add in the hall modes, THX certification and the inevitable sound processing schemes that an on-board computer (DSP) makes possible and you have daunting complexity.

And what are all those funny faces doing in a typical Japanese owners manual? Er-yes. These manuals are also written within a cultural context, one other cultures may not associate with. The faces are Manga comic doodlings that mean little to a non-Japanese eye. In other words they are culturally specific and not the best idea when penning instructions for non-Japanese. I suspect the manuals are produced in production line fashion by outside agencies. Arcam's AV handbooks don't follow the style and are easier to read and understand as a result.

The owners manual then is important to our ability to use a product – or be defeated by its complexity. I suspect we all find them daunting and that is the problem. This is an important part of product ownership that needs far, far more attention paid to it. ●

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"The 1960s wasn't all about The Beatles, The Stones and the rest of the glitzy, glamorous poster boys"



Paul Rigby

One of the reasons that the music of the 1960s remains of interest to fans is because it achieved a perfect balance. That is, it evolved to a point that the people making it became revered figures as Renaissance poets and artists were of their time.

Similarly, the music itself had evolved to become inventive and experimental, whilst also achieving a wide diversity. It reflected society, commented upon society and pulled against the politics of the times. Hence, it was also dangerous, poignant and relevant.

More than that, the pace of creative evolution increased to an almost blinding pace. Genres were invented, exploited and spat back out again in no time. Yet, through all of this and maybe because of this, the musicians themselves remained accessible. It was no real big deal to sit on a bench at a music festival and find yourself flanked by Jimi Hendrix and Donovan. The corporate nature of today's music had yet to get its nasty fingers on the artists themselves.

Not every artist out in the music firmament was a blinding success, however. On the broad scale of success and failure, there were plenty of variations in between. This, alone, made the 'scene' interesting. It's why the '60s remains fascinating for music archaeologists who enjoy finding 'lost' albums and, even, 'lost' groups. Such was the creative maelstrom of the period.

The Move, a consummately British band, had a fascinating part to play in the '60s, but their music ventures continued to ripple out into the decades that followed.

Some say that The Move was the best British group never to really make it in the USA with the rest of

the British Invasion outfits such as The Beatles, The Rolling Stones, The Who, etc.

It may be because of this that the band tends to be ignored, to a large extent, by music history. Take a closer look, though, and you will see much that demands your attention, even now.

Roy Wood (yes, he of that perennial Christmas song, 'I Wish It Could Be Christmas Everyday' and other chart topping hits with his later band, Wizzard. Remember 'See My Baby Jive'?) was the fulcrum of The Move, infusing his songs with a sense of humour and catchy Beatles-type song ditties.

Even the name of the band was a bit of a joke. All five members of The Move were established in their own Birmingham-based bands, so all had to 'move' from there to the new outfit. Brummy wit, y'see.

The resultant band was an action-oriented lot. They fled to London and, like The Who, were also prone to destroying things on stage. Not guitars, like Townshend but... televisions. They were even sued by the then Prime Minister, Harold Wilson, because of one unfortunate incident showing an image of the glorious leader in a state of undress on stage. They were very mod in their outlook, even though their songs were more pop oriented than The Who.

Those singles were classics of their time too: 'Night of Fear', 'I Can Hear the Grass Grow', 'Flowers in the Rain' (the first song to be played on the newly minted BBC Radio 1) and 'Fire Brigade'.

Soon after, they topped the UK charts with 'Blackberry Way' – and then the band evolved in a significant manner. Lead singer, Carl Wayne, left, Roy Wood took over the vocals and the band became even more interesting, partly because a certain

Jeff Lynne joined, who proceeded to influence the Move's direction with the power of his own musical visions.

In fact, with later LPs, such as 'Look On', the band would ape other great song writing teams with a counterpoint. Wood provided songs of the dark and the serious while Lynne provided songs of pop and light.

The group hardly toured in the USA and, like The Beatles, tended to live in the studio after Jeff Lynne joined the fray. From this point on, the band's output became more serious, denser, complicated and prog-like.

The emergence of The Electric Light Orchestra was only a small step away.

I present the case of The Move to you because – as most of you will already know – the sixties wasn't all about The Beatles, The Stones and the rest of the glitzy, glamorous poster boys, feted in the USA and hailed by the media.

There was plenty of superb music produced in the period which continues to be ignored – or mentioned rarely. I encourage you to search for it, monitor my vinyl and CD news and reviews and take a chance on an unknown name now and again (or preview this stuff on YouTube – www.youtube.com)

You can revisit The Move's first three LPs on vinyl via Music on Vinyl (www.musiconvinyl.com) which has reissued 'Move' (1968), 'Shazam' (1970) and 'Looking On' (1970), whilst Cherry Red (www.cherryred.co.uk) has released two CD packs on 'Move' and 'Shazam'. Cherry Red adds extra discs of mono and stereo albums version plus BBC sessions galore.

Keep searching, keep looking – you never know what you might find. ●



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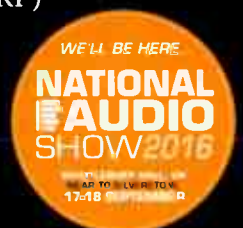
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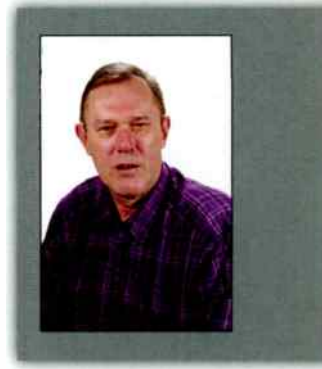
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World Radio History



“There are plenty of people who say they can hear a difference between WAV and FLAC”



Jon Myles

For most people the CD versus vinyl sound quality debate has been largely put to bed – the latter emerging as winner. But with more and more people downloading high-resolution material on computers and network attached storage (NAS) devices a new debate has reared its head - WAV or FLAC?

Both formats have their supporters and most people pick one or the other as the storage medium of choice. FLAC (Free Lossless Audio Codec), for example, is preferred by many because it takes up less storage space – typically 50 per cent of the original files size – and supports metadata tagging and album cover art.

WAV – Waveform Audio File Format – is uncompressed. While it takes up more space on a disk, it is championed by many because it doesn't need to be 'unpacked' by the processor inside your streamer which, they say, can introduce distortion.

Also, as both hard disk and flash drive computer storage sizes have increased and costs come down there's no longer such a pressing need for compressed files, which was the driving force behind the FLAC codec in the first place.

Some manufacturers, such as Naim, even go so far as to recommend WAV files for their range of products.

But is there any evidence for an actual difference in sound quality? I've always said "no" because once a FLAC file is decompressed it should be an exact copy of the original in every respect.

However, a recent investigation by researchers Dr Charles Zelig and Jay Clawson begs to differ and seeks to show there is a clear and demonstrable disparity between the two formats, WAV having the upper hand in absolute quality terms.

If you want to read the full article it's available at http://www.enjoythemusic.com/magazine/viewpoint/0716/Why_Do_WAV_And_FLAC_Files_Sound_Different.htm.

Suffice to say, this article is rather technical but the authors claim to have discovered that the likes of compression rates, metadata and large cover art files can all lead to degradation in the sound of a FLAC file compared to its WAV equivalent. What's more, successive conversions between WAV and FLAC formats only serve to exacerbate the problem.

They say: "We have found at least five different factors that can explain why the lossless FLAC compression format degrades the sound quality of previously uncompressed WAV files. These independently configured factors may act together and can result in a disturbingly large loss of sound quality. While the metadata effect and its audible losses can be minimised or reversed, the FLAC compression and decompression effects appear to be permanent unless replaced by clean metadata that has never been exposed to prior conversions.

The mechanism for the sound quality damage of all five factors used for FLAC results from their interaction with computer/server replay processes. The effects of this extra loading on computer operations, although apparently small, must act to degrade the computer-processed data then sent to an external DAC.

As discussed by others in the field, these negative contributions are thought to involve several forms of jitter, also power supply fluctuations, and RFI (electronic noise interference) which ultimately compromise the optimal functioning of the digital and analogue sections of the DAC".

It's a contentious claim and has already drawn criticism in various online forums, including that of Audio Science Review: one poster offered a \$5000 reward if the authors could prove their findings beyond doubt.

Having said that, though, there are plenty of people out there who claim they can hear a difference between WAV and FLAC, saying the former has a richer, smoother sound with the latter coming over as slightly sharper.

It's a bit like the cable debate where some sceptics will never accept there's any appreciable difference between varying makes, while most of us can clearly hear that there is.

So to satisfy my curiosity I decided to do my own blind test using three different versions of the same 24bit/96kHz music file, one WAV, one FLAC with cover art, and one without. Both FLAC files were encoded at the lowest compression rate for maximum quality.

Guess what? After a day's listening, switching between the files and despite what level of replay equipment or loudspeakers I was using, I could discern no significant difference between the two formats. Nor could a number of friends who also listened in from time to time. To all our ears they sounded identical in every respect.

That's not to invalidate the new research nor to deny the arguments of those who say they can notice a difference. They may be right. But if you want to decide for yourself then I'd recommend conducting a similar experiment so you can make up your own mind. I'd be interested to hear what you find.

For me, at least, I'll be sticking to FLAC for the time being, happy in the knowledge that it's providing bit-perfect replay, has easy metadata and album art tagging and takes up less space on my NAS drive. ●

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"The Proms underline that quadraphonic sound has merit"



Martin Pipe

The Proms are under way, and I have been enjoying the online 4-channel 'surround' simulcasts. They definitely add depth and ambience to concerts, and demonstrate that quadraphonic sound has merit.

As was made clear during my recent *Olde Worlde* series, quadraphonic failed in the 1970s thanks to a range of factors that included confused marketing, incompatible standards, the expense of equipment and software, the limitations of the era's technology and the poor performance of the key matrix-encoded formats.

But the Proms surround broadcasts are digital (16bit/48kHz) and fully-discrete. In other words, you don't get any of the leakage that plagued those early systems. Yes, lossy compression is involved (the 4.0 stream is encoded with the 320kbps AAC-LC codec), but the result is still surprisingly musical with (usually) negligible artifacting.

Caveats? As an 'experimental' service (yes, after several years!) the playback stream can suddenly cease. On the player window, a 'the content doesn't seem to be working' message is then displayed. This occurred on three occasions during the Gershwin Prom on August 13th (luckily, the Prom was also carried by BBC 2 – the HD version of which had a 5.1 sound track). The only way around this problem is to periodically-refresh your browser and reload the player.

But for me the biggest boo-boo is an inability to deal with time shifting. If you can be at home every evening, then fine. The real world doesn't work like that, of course. The Gershwin Prom was one of the few not to suffer in this regard, as it was also on TV. Broadcasts like this can be time shifted with any HD-

capable PVR, like a Sky+ HD box and subsequently enjoyed at your convenience.

As reported last month, the BBC claim that budgetary constraints make an iPlayer-type facility for Proms surround-streams highly-unlikely for now. The BBC couldn't even tell me whether it could afford the few gigabytes that would be needed to losslessly-archive each 4.0 mix for posterity – if not future broadcast.

But if you have a Linux PC (I run Xubuntu) then a get-around is at your disposal. ALSA (Advanced Linux Sound Architecture), which adds audio and MIDI support to Linux, has 'virtual soundcard' functionality. The four decoded PCM channels of the BBC player can be 'routed' to a recording package like Audacity, where they can be recorded. You'll need to set up Audacity for 4-channel recording (specify 'ALSA' rather than your PC's audio-hardware as the source, and the number of channels as '4'). Note that your computer needs a surround-capable soundcard (most are).

Even better news is that Audacity has a recording-timer; set it to start one minute into a Prom and finish five minutes after the scheduled end. Any excess can subsequently be 'trimmed'. Prime the player, and it will automatically start streaming just before the performance begins. Audacity will then capture the Prom. It can then be saved to your hard-drive when you return.

Audacity doesn't cater for multichannel playback, even though you might have been able to monitor the Prom in surround with your PC's audio outputs. So how can you play it? After any editing, the four channels can be exported as individual WAV files in the appropriate format. You could encode these as multichannel FLAC or DTS-

audio files depending on your playback gear and what software you have. DTS-CDs are easy, as they'll be compatible with most home-cinema systems (audio must here be exported from Audacity in 16bit/44.1kHz form, as that's what DTS-CD encoders expect).

But what if you're going away? The above set-up only covers one Prom; Audacity's timer only supports one event. I'm sure that, given suitable time, you could write scripts to circumvent such limitations. But I've instead plumped for the easily installable means of remotely-controlling your PC from another computer (or smart device) using an industry-standard known as 'VNC' (virtual network computing). This is what technical-support people use to take control of your PC if you're having trouble.

The Linux package I've installed is XI VNC Server, while the client I'm using on an Android smartphone is VNC Viewer. Both are free. Such an arrangement will work on your local network; to break free of this, you must configure your router (forward port 6500) and set up a dynamic DNS account (companies like No-IP offer a limited but nevertheless useful service for free). The latter is essential; you'll get a domain name that will get around the problem of dynamically-allocated (i.e. changeable) IP addresses – as offered by the average Internet service provider. Log in, and you'll see a desktop identical to what you'll see on your computer monitor.

Using your 'client' device you'll be able to save timed recordings, set a new timer schedule and reset the surround-player – just as you would be able to do at home. Warning: I'd also recommend setting a password, to reduce the risk of hackers also being able to take charge of your computer! ●

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, pacey 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 OR8E 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.

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.

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 £15.65
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 arm tube 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-8208X 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-500 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 rigeur 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!

QUAO 22 1958 £25
The partner to the much vaunted Quad II mono-blocks - cloudy and vague sound means it's for acrophiles only.

LOUDSPEAKERS

WHARFEOALE DIAMONO 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...



SPENOOR A5 2009 £1,695
Multi-talented floorstanders with generous scale and punch and Spondor'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&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.

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

QUAO 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 8010 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 8010 in many ways.

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

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

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



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

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

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



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

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



QUAO 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...

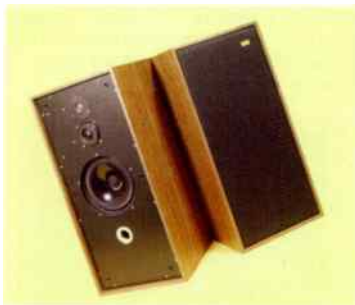
YAMAHA NS1000 1977 £532
High tech Beryllium midband and tweeter domes and brutish 12" woofers in massive sealed mirror image cabs equals stunning transients, speed and wallop allied to superb transparency and ultra low distortion. Partner carefully!



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.

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.



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.

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.

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.



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

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.

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.

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.

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.

vinyl section

contents

OCTOBER 2016

www.hi-fiworld.co.uk**McINTOSH MT5 TURNTABLE 13**

Noel Keywood luxuriates in the green glow from a top turntable, the McIntosh MT5.

AUDIO TECHNICA AT-LP5 83

Noel Keywood admires a budget Direct Drive turntable that also allows you to digitise your vinyl.

DIGITAL RECORDING 87

How to convert your vinyl to digital files. Noel Keywood explains all.

PETER GABRIEL ON VINYL 91

Paul Rigby gets the inside information on the remasters of Peter Gabriel's classic solo albums.

news



MUSIC ON VINYL

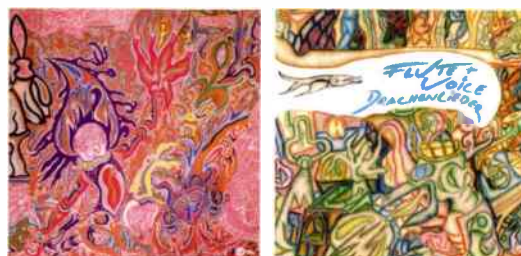
A new batch from MOV (www.musiconvinyl.com) includes rap artist, Pete Rock & C.L. Smooth's 's 1992 debut 'Mecca And The Soul Brother': high on critical acclaim...low on initial sales.

From 2003 and Swedish outfit The Sounds' 'Living in America'. They pretend that they're Blondie but this debut features excellent songs, even though they all sound like singles instead of an album project.

Folkie group Pentangle's 5-song masterpiece, 'Cruel Sister' (1970), a layered LP that is rich in detail while offering varying degrees of light and shade.

Progressive jazz rock men, Colosseum's 1969 debut *Those Who Are About To Die Salute You* offers sparkling instrumental prowess and notable songs. More cohesive LPs would follow but this LP served as a good start.

Finally, look out for The Derek Trucks Band's 'Joyful Noise' double album (2002), a guitar experiment featuring varied genres (fusion jazz, latin and more). Edgy and unique with plenty of slide guitar.

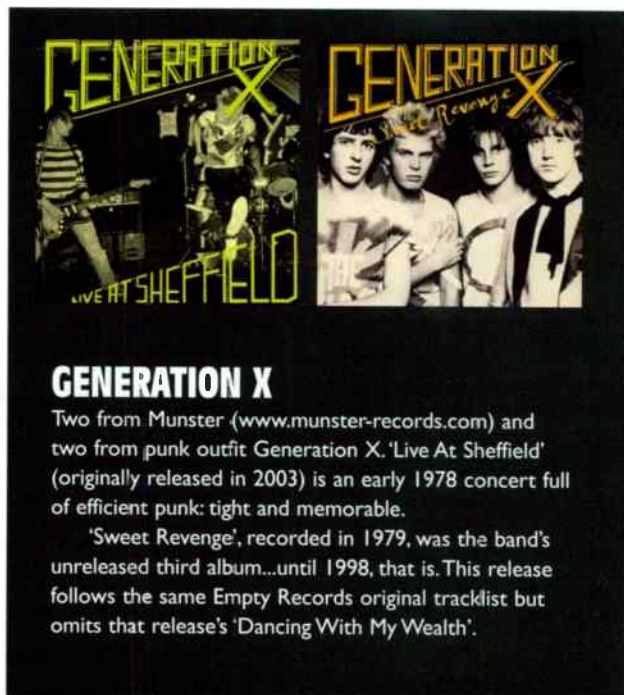


URBAN SAX AND FLUTE & VOICE

From reissue specialists, Wah Wah (www.wah-wahsupersonic.com) come two batches of reissues.

The first is 'Drachenlieder' plus 'Imaginations of Light + Halo Rabbit', the latter a double album, from Flute & Voice both combine folk and world music with acoustic styles to the fore. 'Imagination of Light' (1970) was followed by 'Halo Rabbit' (1973) and both offer peaceful, relaxed, melodic music that is wholly emotional. 'Drachenlieder' adds to the complexity in terms of song writing and arrangements. Ideal for folk-krautrock fans.

The second grouping is via Gilbert Artman's uncompromising Urban Sax. 'Urban Sax 1' (1977), 'Urban Sax 2' (1978), 'Fraction Sue Le Temps' (1986) and 'Spiral' (1991) are avant-garde collectives and a highly visual one at that (their concerts are almost 'installations', in themselves) combining complex arrangements and, at times, almost operatic vocal backing. The music is both flowing and almost ethereal, with circular tones and voices. Fans of Terry Riley and Steve Reich should investigate.



GENERATION X

Two from Munster (www.munster-records.com) and two from punk outfit Generation X. 'Live At Sheffield' (originally released in 2003) is an early 1978 concert full of efficient punk: tight and memorable.

'Sweet Revenge', recorded in 1979, was the band's unreleased third album...until 1998, that is. This release follows the same Empty Records original tracklist but omits that release's 'Dancing With My Wealth'.



MOBILE FIDELITY

From the US-based audiophile label (www.mofi.com) comes four LPs. 'One From The Heart' (1982) is a Francis Ford Coppola soundtrack featuring Tom Waits and Crystal Gayle: a beautiful collaboration and essential for fans of both.

Jefferson Airplane's 'Volunteers' (1969) spouts revolutionary rhetoric and with guest star Jerry Garcia mixes psychedelia with political rock.

Also look out for The Cars' brilliant 'Heartbeat City' (1984) featuring 'Drive' and 'You Might Think' plus Miles Davis' equally brilliant jazz rock fusion of 'On The Corner' (1972) with a big dose of street funk. Weird and wonderful.



4 FROM 4AD

Four albums from two bands. The first is the highly anticipated debut from Belly - 'Star' (1993). This was ex-Throwing Muses member Tanya Donelly's evolution as a songwriter. Full of dream pop flavours, intriguing lyrics and great hooks. Also look out for three from Dead Can Dance, mixing folk with ambient pop. Comprising the self-titled 1984 second album (forbidding and Cure-like), 'Spleen and Ideal' (1985; hauntingly European) and 1993's 'Into the Labyrinth' (detailed and lush). Contact www.4ad.com.



...AND FINALLY

Three from Emerson, Lake & Palmer: the 1970 self-titled debut, 1971's 'Tarkus' and 1972's 'Pictures at an Exhibition' (www.emersonlakepalmer.com). Newly remastered from 24bit/96kHz sources and the original tapes.

Ziggy Marley (Tugg Gong; www.tuffgongworldwide.com) is back with a better than average LP. Self-titled, it has a DIY, bedroom-made feel about it. 'Come Play With Me' is a new label (www.cpwm.co) and 7" single club, showcasing music talent from the Leeds area. Three split singles thus far released include music from Esper Scout, Zozo, Harkin, Cinerama, Fizzy Blood and Officers.

Mendrugos's new release, 'More Amor' (Fire; www.firerecords.com), described as "rustic psychedelia" or a sort of Spanish indie cool with folkish wrappings.

Dark Funeral's new release, 'Where Shadows Forever Reign' (Century Media) offers foreboding black metal from Sweden, full of buzzsaw riffs and blastbeats. The line-up has changed a lot but the music hasn't since the '90s.

Simple Minds 'New Gold Dream' (Virgin; 1982): for those who missed or could not afford the half-speed Abbey Road master launched of late, this is the standard pressing.

New from pop/rock outfit, Jinwoo (www.facebook.com/jinnwoo) and 'Strangers Bring Me No Light'. Acoustically driven and slightly REM, that delights in masking diction with a nasally crafted delivery.

Fraser Anderson's 'Under the Cover of Lightness' (www.membran.net) has a gentle, floaty, at ease demeanour. Very cool, a little David Gray, in flavour, in fact.

And finally, words of wisdom (?) from beat author William S. Burroughs and 'Let Me Hang You' (Ernst Jenning; ernstjenning.com) supported by luminaries such as Bill Frisell, King Khan, Wayne Horvitz and more. A reworking of the 1995 LP in which Burroughs read parts of his novel Naked Lunch, to a musical backing. Inventive and perverse, funny, dirty and sweaty.





Direct Value

A Direct Drive turntable with arm and cartridge for just £330? That's Audio Technica's AT-LP5. Noel Keywood gives it a spin.

With the global recognition Technics' Direct Drive turntable has received over the last forty years as a top way to play LP, you may well look at Audio Technica's Direct Drive AT-LP5, look at its low, low price of £330 and wonder if it could match up. At a fraction of the price can this turntable really offer Direct Drive quality? I'll tell you.

The AT-LP5 is an all-in-one package. It comprises a two speed (33rpm, 45rpm) turntable, accompanied by a removable headshell arm carrying an Audio Technica AT95EX budget moving magnet (MM) cartridge, pre-fitted. There's a hinged dust cover that can be removed if desired.

Everything about this design is conventional, built to a pattern that was perfected way back in

LP's heyday, the 1970s. Except that the rear panel has a digital USB B 'printer' output, one you can connect straight into your computer, meaning there's an analogue-to-digital convertor on-board, plus USB transmitter – an idea with limitations I found, more of which later.

To provide a digital output an equalising preamplifier must be fitted, so Audio Technica have installed an internal phono stage. It can be



Look – no belt! A low speed d.c. servo motor drives the platter spindle direct, eliminating need for a drive mechanism.

switched in to provide a high-level analogue line output to any amplifier, or switched out to feed an external phono stage direct – neat because this enables upgrade.

So whilst the AT-LP5 doesn't have the visual pizzazz of a Technics, nor its £2700 price tag, it has better connectivity. Looking good then.

But I'm reminded of the impressive little Pro-Ject Essential II Digital (October 15) that also has a digital output, an even lower price (£310) and some arguable advantages.

All this complicates the picture because basic starter turntables were



Audio Technica's AT-95EX cartridge comes attached to their own webbed headshell that is very stiff as a result. This aided midband clarity.

always judged by their upgradability and installing a fixed-spec digital section can both complicate and hinder this. More of which later of course!

Where today's belt drives have become concoctions of bits that must be carefully assembled and adjusted, the AT-LP5 is relatively simple to put together. There's no belt of course, nor a separate motor pod, no manual speed change and no bias weight dangling from a bit of fishing line. Even the tracking weight

is calibrated, as they were in the past. The light, cast alloy platter is simply placed over the motor spindle, where it is held by a taper.

The arm accepts a standard bayonet fixing headshell, supplied separately with cartridge in place. This is plugged in, the counterweight slipped over the rear of the arm and 2gms tracking force applied after the usual simple balancing procedure.

There is no suspension system so the unit must be placed on a stable surface to avoid floor bounce and also kept away from loudspeakers to avoid acoustic feedback.

Weighing 18.5kgs it is not overly heavy but it inevitably needs a deep shelf of 14in or more to allow space for the dust cover rear overhang when open, and also space above for the dust cover to open unhindered. The shelf must be level too, because the feet are not height adjustable.

Audio Technica supply a phono lead with earth line, a USB lead and a CD with the free Audacity music editor – also available on-line as a free download. Newbies won't find it easy to use and Mac people may want to try GarageBand. I regularly use Audacity on a Mac and well know its awkward user interface – but also its power.

Using the AT-LP5 is as simple as LP gets. Turn the rotary switch at left from Off to 33 or 45 and the platter comes up to speed almost immediately. Place LP over centre spindle then manually lower the arm – and that's it.

So, what are the compromises? How can Audio Technica provide Direct Drive for £330 where it now costs £2700 from Technics for their new SL-1200GAE?

The AT-LP5 is basic in appearance and finish and the motor is independent, not built into the platter as with the Technics. It's a lot simpler in construction and easier to build cheaply. All the same, under measurement the motor performed well, managing better than most belt

drives, if not up to Technics standards. So it justifies the reputation of Direct Drive for running at correct speed, and also at steady speed with no wavering.

The AT-95EX cartridge is an uber-budget MM cartridge, albeit a decent one that tracks well enough not to damage records. The arm is respectable, measurement showed, and able to take a better cartridge. It has a good set of bearings free from play and the AT-HS10 headshell is both light and stiff, strengthened by side webs – important for clean midband and treble, since headshell vibration produces muddle. All in all then, what you get is good, but cost cut to the bone.

USB runs through software protocol stacks where interconnected devices must speak to each other, even if it is only to establish streaming. Our Audioblab M-DAC+ with USB A input would not see it, but it was fine with a MacBook Pro running Audacity.

This is different to the S/PDIF optical digital output of the Pro-Ject Essential II Digital that will stream to any DAC or any computer, providing there is an optical input – and there's the rub. Computers, especially budget PCs, commonly lack an optical input, or any S/PDIF input, but always have USB – which is the only benefit of USB in this role. Taken alongside the fact that the ADC in the LP5 is Neolithic, offering 16bit/44.1/48kHz sample rate, you have to see USB as a convenience offering here, rather than a high-quality link, as in the Essential II Digital that offers superior 24/96 resolution.

If you want better digital quality then a Furutech preamp like the GT40a is a solution, the internal

A gimbal bearing arm, anti-skate adjustment dial and calibrated counterweight are fitted. Note also the lift/lower lever and arm fixing screws.



phono stage of the AT-LP5 being switched out. Or you can hook up a better external analogue phono stage.

The AT-LP5 comes with limitations then, as we might expect from its low price, but they can be overcome through upgrade. To realise its potential, it is best fitted with a better cartridge (e.g. Goldring 1012GX) straight away.

SOUND QUALITY

Initially, I fed the turntable's analogue Line output into a Creek Evolution 100A amplifier driving Wharfedale Reva 2 loudspeakers. Spinning the well-balanced 'Brothers In Arms' from Dire Straits showed the AT-LP5 comes over as dry in basic delivery, mainly due to a light-ish bass balance, yet with a nice sense of clarity across the midband and a small amount of emphasis to upper treble. Although low-end wasn't heavy, it was well controlled, making for clear bass lines on this album.

The basic sound balance was set by the AT95EX cartridge – and it is not especially warm or full-bodied. The '95 is relatively accurate in frequency response terms, coming over as clear and forthright and quite cool in character. This was fine with good condition LPs but less so with older worn ones where noise became more obvious. Happily, there's no top-end spit – a common problem with budget MMs. The elliptical stylus wasn't as insightful and explicit as better profiles (Shibata, Fritz Geiger). But as the similar AT95E costs £30 at most you can see where it is positioned. I quickly swapped this unit for a Goldring 1012GX and was immediately met by an altogether more svelte delivery, with deeper insight and less haziness.

Settling in with the 1012GX I could hear the assured sense of pitch in particular with synthesised beats such as those on The Scissor Sisters first album. The timing of intros such as that of 'Take Your Mama' were metronomic and sparkingly concise in progress.

By the time I had swapped the 1012GX for our Ortofon 2M Black (£450), then switched to using an Icon Audio PS3 valve phono stage hooked up to Quad QMP monoblocks driving Martin Logan Renaissance loudspeakers it was apparent that the AT-LP5 has a light hue to its sound but is clean and spry in its sonic demeanour.

It is a tidy package that can be taken quite a long way through a whole variety of upgrades. Even the



The signal output panel features both analogue and digital via USB – all but unique for a turntable. A small slide switch chooses between the internal phono stage or direct cartridge connection. USB is unaffected by this selection.

arm may be removable, since three conspicuous fixing screws seem to be holding it down and a Rega would be an obvious way to go here.

CONCLUSION

The AT-LP5 does offer Direct Drive quality, if in budget cut down form. It was pitch stable and concise in its event timing, where equivalently priced belt drives are usually vague.

However, there's more to the sound of a turntable than speed

stability and here the AT-LP5 was a well worked-out but still a budget-constrained design. All the same, it does a good basic job of playing LP in sound quality terms, is easy to set up and also to use – more so than most rivals. Perhaps better is that in good old analogue tradition, it is easily upgradable – a better cartridge taking priority. For £330 it is an extraordinary package in terms of value and a great place to start if you are new to LP.

MEASURED PERFORMANCE

The AT-LP5 was accurately adjusted to rotate at exactly 33.3rpm, holding speed over a long period of 15 minutes with no sign of drifting off speed. The total, weighted DIN Wow&Flutter figure was 0.1%, a very good result, better than most belt drives. Our speed variation analysis shows some basic rate variation at 0.55Hz (33rpm) which is usually attributable to bearing eccentricity.

The arm had a main arm tube

mode at 225Hz, as expected from an aluminium arm tube, but the headshell was relatively quiet, free of resonances.

The AT95EX cartridge tracks well, managing a +15dB test track on CBS STR-112 test disc with ease, but it mistracked the highest +18dB cut. Frequency response was reasonably flat, some some upper midband generator loss (-2dB) softening the balance just slightly.

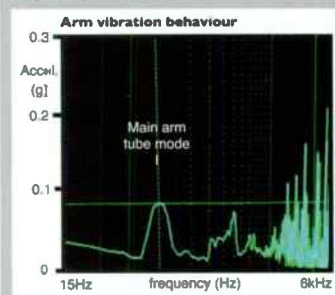
The phono stage had a gain of x60 but an output overload ceiling of just 300mV. Consequently, input overload was just 5mV. As a result it was producing 5% distortion on a +15dB tracking test. Frequency response was flat and a warp filter has been included.

The (16bit) USB output delivers peak digital (0dB) from 15mV input, 6dB below the 35mV a high output MM cartridge like the Ortofon 2M Red can produce, so digital overload may be heard with other cartridges, but only on occasion. Noise measured -67dB IEC A weighted, poor. Since 24bit ADCs are now common and inexpensive, Audio Technica's USB digital output is unimpressive.

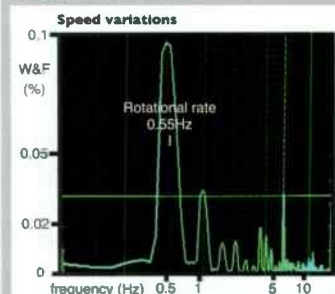
The internal phono stage and digital converter were mediocre and should be seen as basic starter parts, upgraded as soon as possible. Otherwise, the AT-LP5 measured well, especially for the price.

NK

ARM VIBRATION



WOW & FLUTTER



AUDIO TECHNICA AT-LP5 £330



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Fine budget turntable package that is a great LP starter pack, easy to set up and use - and with very pitch-stable sound.

FOR

- low price
- stable speed
- digital output

AGAINST

- mediocre digital quality
- poor MM cartridge
- premature phono overload

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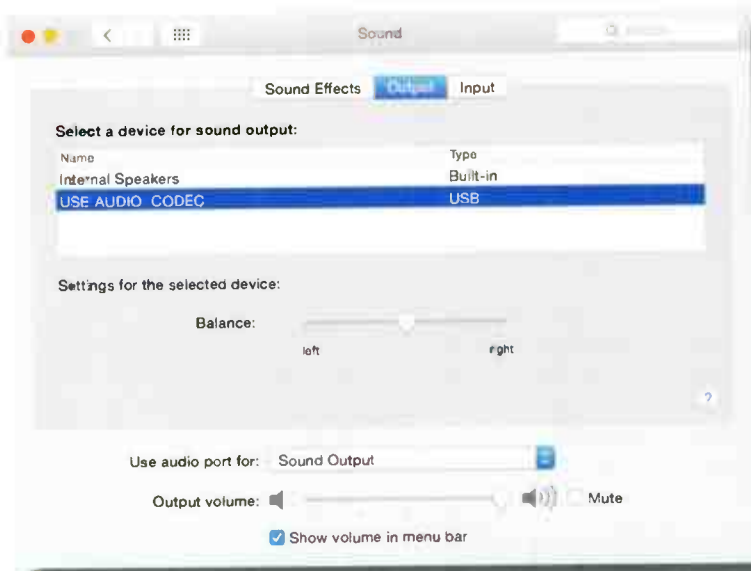
Information

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

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Digital vinyl

Noel Keywood explains how a turntable such as the Audio Technica AT-LP5 can be used to digitise your vinyl collection for use on other devices.



The Sound panel in Mac Preferences. It's here you must select an external digital source such as the Audio Technica AT-LP5 turntable.

Once upon a time, to make an audio recording you pressed a red button and adjusted audio level by twiddling a knob; it couldn't have been easier.

Nowadays we have digital and it couldn't be more difficult. To make a digital audio recording is, initially at least, challenging. But the good news is you don't have to pay to endure it; free software is available. I'll give a simple outline here of how it is done, in case you may want to buy a 'digital turntable' like the Audio Technica AT-LP5 to record LP, perhaps for use on a portable player.

To make a digital audio recording on a computer you need audio editing software and this was – and still is – complex and expensive. But a free editor known as Audacity comes with the AT-LP5 and it works



This is the AudioMIDI sound panel of a Mac, buried in a Utilities folder in the Applications folder. Go here to set digital options such as bit depth and sample rate.

very well. Audio Technica supply it on a CD but you can download it from www.audacityteam.org. I use Audacity a lot and well know the practical difficulties behind using it, as well as the potential complexity, but it does work very well. Here is a quick and simple 'get you going' guide, to turn a mountain into a molehill.

You can run Audacity on Windows, Mac and Linux, which covers most stationary computers. It's an easy download and not demanding upon computer resources, unlike video. I use version 2.1.1 for Mac, running on El Capitan, which isn't problematic in itself but it won't work unless the computer is set up and this can be the difficult bit for newbies. I will look at Mac and Windows here.

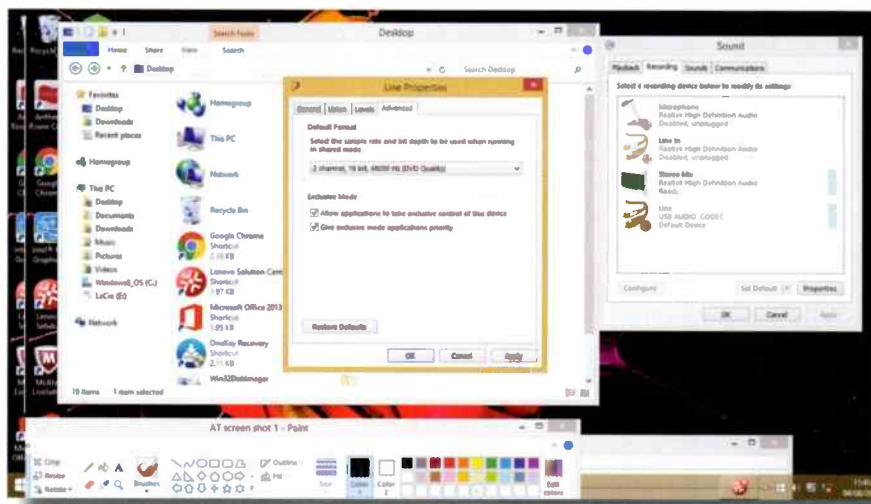
When you start Audacity it will bring up a screen showing resources, but inevitably the guidance on offer is dense, complex and extensive.

It is wise to at least check out the various content categories, brushing over such matters as 32 bit floating point arithmetic for example. There are two sections on recording from USB turntables, a short guide and a long and more thorough one, both worth reading, but they still don't cover computer issues – then it's on to the forums and this is time consuming.

The basic beginners problem is getting the computer to see the turntable and then Audacity to see it too. This through route must be established or you will just get

silence.

With Mac the route is complicated by the need to adjust two separate sound panels, one hidden (and a tad weird). The primary panel is Sound in System Preferences (the dark grey icon with



Here is the Properties sub-section available in Sound within Control Panels of a PC, running Windows 8. It is here you select bit depth and sample rate.

a gearwheel). Select Input at top then select the USB device input that with the AT-LP5 on a Mac appears as USB Audio Codec.

Then you need to find the 'Audio MIDI Setup' control panel, buried way down in a Utilities folder at the bottom of the file list in the Applications folder. If you're running a dual-boot system with two OSes as I do, ensure you go to the active Application folder. The input is selected in Audio MIDI Setup too – and note also that sample rate and bit depth are usually selectable options according to info received from the connected device about its capabilities.

There are some catch-you-outs with the awkward Audio MIDI Setup control panel. One is disappearance

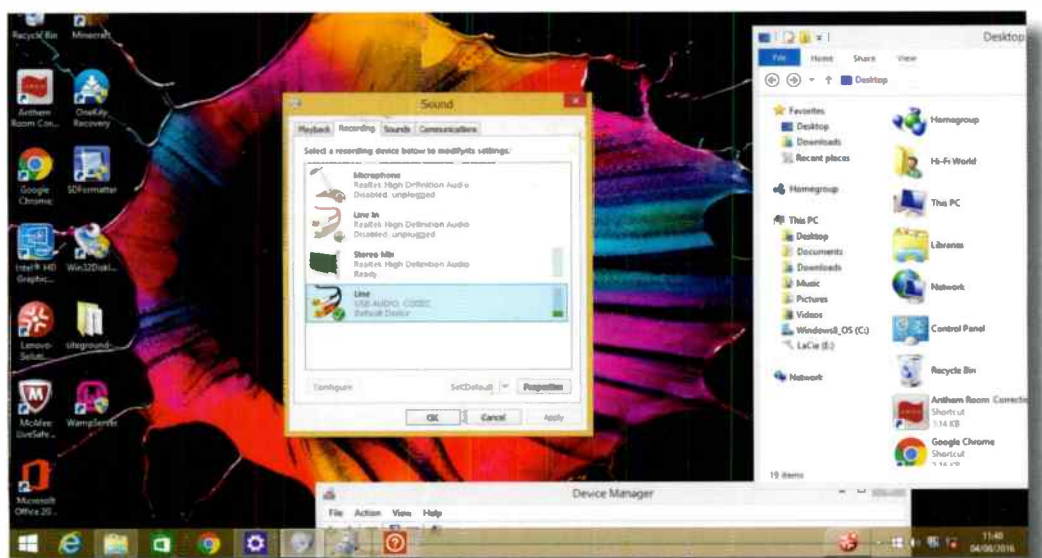
of any window for it. If this happens ensure Audio MIDI Setup is active by it being flagged at top left next to the Apple symbol in the control bar, then go to Window and select Show Audio devices. If it isn't active double click on its icon in the Utilities folder.

You may also see MIDI Studio and no audio devices, and here again you must select audio devices in the drop-down menu. Normally, an external source is selected by default when plugged in, but you often still need to set resolutions in Audio MIDI Setup.

With Windows 7 and 8 you must find Sound in Control Panels then activate the Line USB Codec – see our screen shot. It should then have a green tick against it and also, with arm on record, a small, vertical bar-graph level display should have segments lighting green. If this display doesn't show an audio signal as

illuminated green bars the computer isn't seeing the input. It's usually best to take a look at device manager to sort out this sort of thing on a PC, since construction and audio signal path varies between manufacturers, unlike Macs that follow a fixed pattern.

Having done all that you may think it's enough – but it isn't! You must now select the input in Audacity as well. Again, it may have default selected or it may not, according to whether Martians live in Mars – or something. If Audacity sees the input device it will appear in the Recording Device window that has a small microphone symbol identifier at its left. You may have to press the drop-down button at right to see it. Now Audacity will be able



Here's is Sound with-in Control Panels of a PC, running Windows 8 in this case. Note the green tick against a phono lead icon, indicating its selection. At right is a signal level bar display that will light green when working.

to make a recording for you, so on to procedural basics.

If you place arm on LP so it is playing then press the Pause button at far left, followed by the Record button (dull red circle), the record level indicator (small horizontal bars at top centre of the window) will

– deliberately because it is another entire chapter. Some basics I must cover though.

First is the issue of Stereo or Mono, that I see concerns Audacity in their instructions. Default is stereo and this gives you two horizontally arranged channels of audio signal, one

Then there is the issue of set up. You can see Project Rate and Bit Depth as on-screen drop-downs but I prefer to go to Audacity's Preferences menu, select Quality and pre-set sample rate, bit depth and quality there. This fixes your recording conditions.

Once you have captured audio as a digital file you can do just about anything with it, including alter tonal balance, edit bits in or out, etc. Audio tools allow various measurements to be made as well. Get the hang of this and you are away into the world of audio editing.

To get audio out of Audacity you must Export it to an external file – and a wide variety of formats are available, including FLAC.

Listening to LP via digital is a little peculiar. You get the ticks and pops, plus LP quality that's different from all else.

Unfortunately, it is stained by digital hardness from the analogue-to-digital convertor (ADC). A high-res. 24/96 recording from Project's Essential II Digital sounds pretty darn good, but don't expect too much from an old 16/44.1kHz ADC such as that in the AT-LP5, because CD's 16bit code produces unpleasant quantisation noise, erasing the analogue-ness of LP, imposing a hard tin can quality.

Making digital recordings isn't simple, but it has its advantages. Once you get the hang of it you can archive your LPs, even listen to them from your mobile telephone and play the LPs less often - lengthening their life. It isn't so easy any more but there are appreciable benefits.



The Pro-Ject Essential II Digital turntable has a high resolution on-board that sends 24/96 PCM via an S/PDIF digital optical output. This suits high quality DACs, but less so PCs that commonly lack such an input.

light green, showing varying audio level.

If it doesn't ensure the level control beneath it, also identified with a microphone symbol, is not set to zero. Adjust level so that peaks do not exceed 0dB (red).

You are now ready to go, even though at this point I have said nothing about set up in Audacity

above the other, whizzing across the screen as recording progresses.

If you get one bar you are recording mono: see the instructions for changing to stereo as there are many different reasons and options here. Be aware that some digital players will not play true single-channel mono files; always record in stereo.

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Gabriel on LP

The market for vinyl-based music is booming but also changing fast. Paul Rigby talks to Alchemy Studios co-owner and mastering engineer Matt Colton about the changing face of vinyl and his latest Peter Gabriel luxury vinyl project.

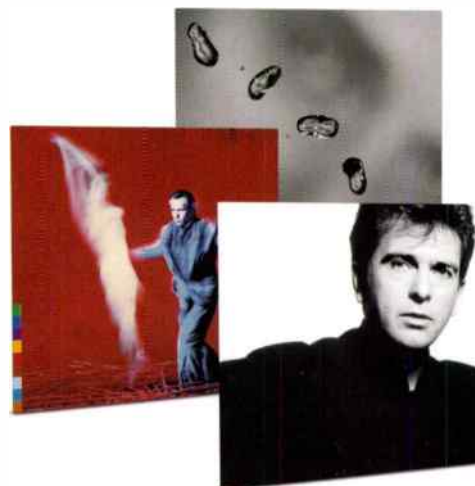


I've just received the latest batch of albums in the Peter Gabriel release campaign, following the issue of his first four solo albums as twin-LP vinyl packages. The latest batch includes the LPs 'So' (1986), 'Us' (1992) and 'Up' (2002). Noticeably, apart from the 180gm platters, the albums have all been half-speed remastered and cut to lacquers at 45rpm. Actually, the 'Us' and 'Up' albums are released across three heavyweight 180gm LPs with music

on five sides and an etching on the sixth.

Released as limited editions, the packages are individually numbered and include download cards with a choice of digital downloads (i.e. 24bit/96kHz or 16bit/44.1kHz).

The vinyl was cut by Matt Colton at Alchemy Mastering, mastered by Tony Cousins at Metropolis and overseen by Peter's main sound engineer Richard Chappell. I chatted with Matt Colton and wondered about the sheer feature-laden



Matt Colton at Alchemy Mastering.

luxury of the things. After all, we have two or three slabs of vinyl in a substantial gatefold here. The fact that each runs at 45rpm (a technique that has, apparently, "really taken off in the USA," according to Colton) increases the amount of discs present which increases the production costs, while mastering anything at half speed multiplies the standard mastering prices by a factor of two. Expensive.

For the Gabriel fan to fully 'tool up' you're looking, in relative terms, at a heap of cash to buy these three new releases, plus the original four LPs. Nevertheless, there is a ready market for carefully constructed vinyl

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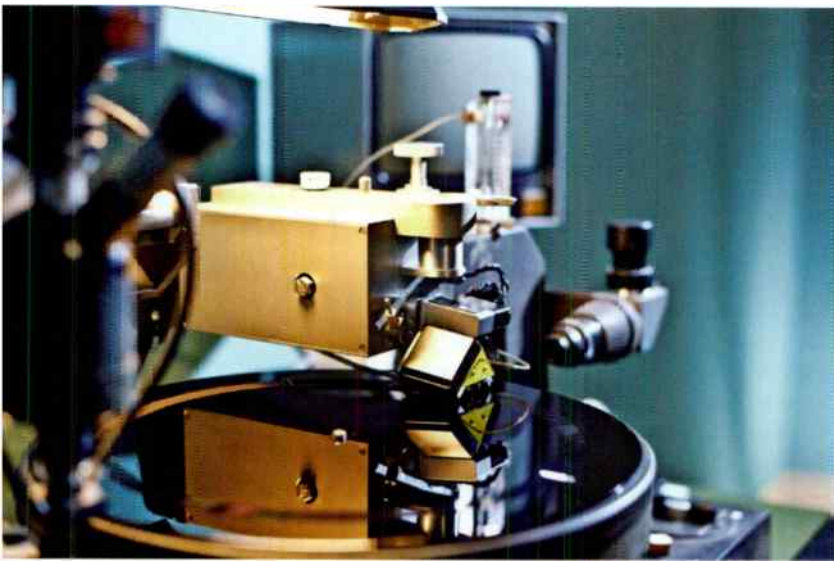
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Apart from the 180gm discs, the albums have all been half-speed remastered and cut to lacquers at 45rpm on a lathe like this.

packages – for numerous reasons, Colton confirmed to me.

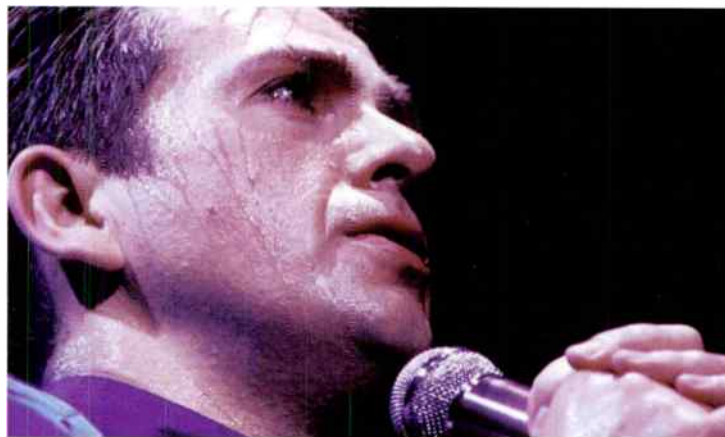
Firstly, people like to actually possess music. Downloads are not physical and don't provide that feeling of ownership, whilst streaming is like tuning into a radio. CDs, despite their physicality, also do not satisfy, witness the wide-ranging piracy of CDs in the nineties and noughties, largely by youngsters who looked upon the small silver discs with derision, the same youngsters who are now flocking to vinyl.

Vinyl also represents a piece of their favourite artist. It's a sort of badge effect, if you will. Hence, people who previously bought 20 CD albums in a single year, for example, are happy to buy, say, five expensive vinyl albums instead because of the extra perceived value. Users think, "Well, if Peter Gabriel respects this format enough to give it obvious care and attention...then so will I".

"It's more of a treasure" said Colton. "Ultimately, you just need to look at the sales figures, albeit from a very low base – vinyl sales are going up".

With the current popularity in vinyl, though, comes other issues. "It's taking longer and longer to press records" said Colton. "Ten years ago, we could supply product in two to four weeks from an order. Now? You've done well if you get finished stock in three months. Add any one of many other delays that the vinyl production process is prone to and your vinyl is appearing after four, five or even six months.

There are a lot of people looking at how to improve capacity, though. Several outfits have built new,



Peter Gabriel sound-tested the new cut at his favourite hi-fi shop. "It has been heart warming to see the return of vinyl" he said.

prototype pressing machines, but I have yet to hear sample pressings from them. GZ, a pressing plant in the Czech Republic, has built new machines based on their existing models though, which are pressing contemporary records while reconditioning is prevalent. Generally, there is more money in the vinyl production industry now than there ever was, so they can now afford to reinvest in their equipment and make modifications to increase throughput. Ten years ago, there was no demand to do that and, even if there was, there wasn't the cash".

So how did Peter Gabriel become involved in the half-speed and 45rpm process? "Richard Chappell, Peter's

longstanding head of engineering, approached me and said: 'This is what we want to do'. Richard and I talked it though. We then did a sound test on Peter's album '3', at double half speed/45rpm. Richard and Peter went off to a hi-fi shop that they knew, listened to the acetate after closing time and A-B tested the new acetate with the new cut and were very happy with the new version".

As for Peter Gabriel himself? "It has been heart-warming to see the return of vinyl" he said. "Even though I loved being free of its limitations in the digital world, there is still a warmth and presence to vinyl that somehow makes it a more natural human companion. It is great to see a new generation learning the secrets of the grooves".

THE BOTTOM LINE?

The sound quality of the three new Peter Gabriel releases? In a word... beautiful. Compared to the original pressings, the 45rpm speed provides an improved transient response while the half-speed mastering allows the instruments to provide a greater tonal realism. High-frequency response is better too, enhancing accuracy of the stereo image.

But that's not all, Colton spent a long time removing any chance of sibilance – a long, drawn out, painstaking process but definitely worth it because, during playback, there was no offensive distortion from the Gabriel delivery, especially during crescendos. These are the best vinyl versions of the albums currently available on the market.



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Don't be fooled into believing that classic music or classic cuts can only 'be' if they have topped the charts or received gold or platinum standard sales awards. Sometimes classic music has only been heard by one man and his dog. It's not about the audience, it's about the music.

Sometimes, though, it's not even that. Sometimes the classic nature of the music isn't formed around a single LP or artist but, instead, around a movement. Often, music from short-lived yet intensely creative music periods, shines brightly for a time before fading. The music itself is often of a fragmented nature and, because the artists involved are largely initially unknown apart from fans based within their immediate vicinity, it's easy to lose such music down cultural cracks.

This collection (contact www.vinyl-on-demand.com) does the valuable job of gathering together one such group, from Australia, taking underground punk and post-punk music from that country and displaying it with a gloriously produced box set. The music here was sourced from originally released tapes/cassettes or vinyl between the late seventies and early to mid eighties.

Opening this box set is a bit like discovering an unopened wooden chest lying dusty in the attic and finding a series of seemingly unconnected items that, nevertheless, reflect a time and a place and way of thinking.

Influenced by the punk rock movement occurring at the time in the UK, bands from Sydney, Brisbane and Melbourne formed their own groups with names such as The Triffids, Thought Criminals, The Scientists and the Celibate Rifles becoming known as The Inner City Sound while DIY fanzines, art spaces and record labels popped up all over the place. Labels such as 2 Tapes, Fringe Benefit, Never Never Land and Lymph Products were frantically active during this period. A selection of this work appears on the seven LPs packed into this box along with a large-format, forty-eight page book.

What you've got here, concentrated within this box set, is a movement which resembles the UK in terms of its intense creativity and

self-belief. Australia, despite its sheer physical size, remains an island nation and, despite the spaces within the country, offers only around twenty-four million people as a population. It's this small populous that helped to ferment and concentrate these new and innovative ideas.

This box set doesn't feature hundreds of Sex Pistol rip-offs, though. There is genuine innovation, exploration and diversity. There is the deliciously contrasting sounds of early synth and organic guitar along with sparse vocals from Negative Reaction. 'Land of Surrender' (1981) is a somewhat morose and languid track that is beautifully balanced in terms of tone and melody.

Xero's 'Strangers, Immigrants & Bandits' is almost free-form in its dependency on a strict rhythm and musical form, wandering from Siouxsie Sioux-like vocalisations to European folk to jerky punk rock. It's never boring because you're never too sure what will appear next.

Rhino Rhino RH+ is dramatically different from the above as they move more towards synth-based content and rhythms in 'Mr Hat' (1980). Their arrangements are more experimental and combine with contemporary sampling from other media.

The exploration continues with Severed Heads and 'Traumat' along with 'Nightsong' and 'Car Advertisement' from around 1980 and 1981.

The experimentation didn't stop there. From 1984 is The Horse He's Sick and 'Don't Know Where You Came From' which utilises looped tape samples in an almost William Burroughs-type production using sampled music and speech to form new and diverse rhythms that clash and merge in unexpected ways.

Each one of these bands remain largely unknown to the majority, their songs are only familiar to a niche fanbase while the original sources are so rare as to be almost impossible to find: many albums were limited to a hundred or more cassettes, for example. Yet, brought together as a unified movement, this underground swathe of musical treats can now be enjoyed for what it is: pure, edgy, raw, primitive, trail-blazing energy. Plug yourself in.

PR



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