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HI-FI WORLD



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OUR VERDICT



Chord Shawline Analogue
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THE
CHORDTM
COMPANY

EDITOR

Noel Keywood
e-mail: editorial@hi-fiworld.co.uk

DESIGN EDITOR

Faiza Chunara
tel: +44 (0) 20 8206 6018
e-mail: adproduction@hi-fiworld.co.uk

PRODUCTION EDITOR

David Noble
tel: +44 (0) 20 8206 6019
e-mail: classifieds@hi-fiworld.co.uk

SALES MANAGER

Louise Pallrey
mob: +44 (0) 7917 047 548
e-mail: louise@hi-fiworld.co.uk

ADVERTISING EXECUTIVE

Joanna Holmes
mob: +44 (0) 7958 602347
e-mail: joanna@hi-fiworld.co.uk

PUBLISHER

Noel Keywood
e-mail: publisher@hi-fiworld.co.uk

FREE READERS CLASSIFIEDS

tel: +44 (0) 20 8 206 6019
e-mail: classifieds@hi-fiworld.co.uk

SUBSCRIPTIONS

tel: +44 (0) 1442 820 580
fax: +44 (0) 1442 827 912
e-mail: hi-fiworld@webscribe.co.uk

PHOTOGRAPHY

David Noble
tel: +44 (0) 20 8206 6019

WRITERS

Paul Rigby, Jon Myles, Martin Pipe.



To the frustration of many, Apple have developed a brutal resolve to banish wires. Wireless headphones are the next big thing. Following closely behind are wireless loudspeakers, which by their nature possess on-board power amplifiers, are mains connected and full of electronics. There's no getting away from where this is taking us, including on-board sensing of room acoustics and auto-tuning systems that strive to counteract issues like room boom. Wharfedale's new Active Diamond

loudspeakers, reviewed by Jon Myles on p11, give a glimpse of the future here – at a price most can afford. OK, they don't have computer room sensing as used in AV receivers, but they do have switched bass adjustment. They also represent a hi-fi package at a low price. Unusual and the future I believe – which is why they are in the top slot this month.

Tucked away on p61 you will find an astonishing – and for me disappointing – review by Paul Rigby of Mobile Fidelity's release of Carlos Santana's LP, Abraxas. Re-mastered to the highest standards and pressed onto top quality vinyl, as I read Paul's review I edged toward the computer to place an order. Damn – sold out before I could even engage first gear! The world now acts in unison with icons like this, overwhelming demand making the \$100 asking price inconsequential. The LP is not only back but taking on the form of a raging bull. No wonder they can't press them fast enough.

That's why we have a dedicated vinyl section and – this month – two fascinating products. What amazing value the Dual MTR-75 automatic turntable turned out to be; fine performance at just £250 and great sound, as you can find out on p83. At the other end of the spectrum lies a new high-end moving coil cartridge, with ruby cantilever no less – and utterly refined sound, full insight on p92.

And at last we have managed to fully measure and review a product fitted with the new (2016) ESS ES9028Pro DAC chip, the Benchmark DAC3 HGC that Martin Pipe looks at in detail on p19.

The world of high fidelity edges forward inexorably as this issue illustrates. I hope you enjoy it.

Noel Keywood
Editor



hi-fi world

Audio Web Publishing
Studio 204,
Buspace Studio,
Conlan Street,
London W10 5AP
www.hi-fiworld.co.uk

verdicts

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

ELECTRONIC MAGAZINE

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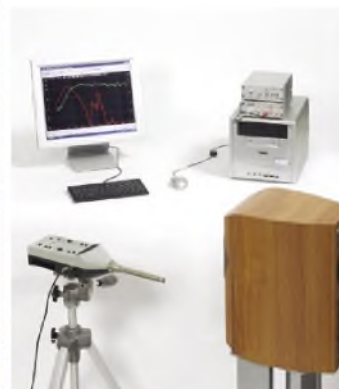
testing (see www.hi-fiworld.co.uk for full explanations of all our tests)

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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Our Agents in Malaysia Millennium Hi-Fi & AV Simon Chang Showroom & office, 500-1-3 First Floor Wisma Indah (Shen Court), Jalan Tun Razak 50400 Kuala Lumpur, Malaysia
Tel: 603 9283 8171 Fax: 603 9281 3762 e-mail: info@millennium-audio.com

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email:news@hi-fiworld.co.uk

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UPDATED REGA BRIO INTEGRATED AMPLIFIER

Rega's 50W Brio integrated amplifier has a new case to house improved circuits and parts. It now sits in a fully aluminium two-part case. A headphone socket has been specially designed to avoid interference with the audio circuits when not in use. The PCB layout has been upgraded to handle higher specifications for all critical parts.

A second power supply has been added to provide further isolation between output stage and the driver stage/line and phono amplifiers.

Higher specification MUSES operational amplifiers have been used in the line and phono amplifier.

Spanning 345 x 215 x 78mm, the new Brio weighs in at 5.1kg. Price is £598. To learn more visit www.rega.co.uk



SONUS FABER SPEAKERS: THE COLLECTION...IN THREE PARTS

Italian loudspeaker specialist Sonus Faber has released a new range - the Homage Tradition that includes the Amati, Guarneri and Serafino. New variations on current technology includes the Stealth Utraflex which has evolved from the Stealth Reflex, an external port on the back panel, in extruded aluminium, controls air flow through a duct.

The Guarneri and Serafino include Silent Spikes – coaxial metal/elastomer/metal spikes which replace the usual Z.V.T. system. Amati keeps the classic design.

The lute shape of the cabinets is used to reduce resonances while the Guarneri features carbon fibre in a monocoque. Finishes are walnut red with black aluminium accents and leather or Wenge wood with maple inlays, brushed aluminium in Titanium finish and brown leather.

The two-way Guarneri includes a H28 XTR-04 28mm tweeter, W15 XTR-04 150mm mid/woofer with a cross-over employing Paracross topology. The 3.5 way Serafino uses the same tweeter, M15 XTR-04 150mm mid and two 180mm W18XTR-08 woofers. The Amati 2.5 way design also uses the same tweeter, mid and two woofers but sized at 220mm.

The Amati Tradition is €20,500, Serafino Tradition €15,000 and the Guarneri Tradition €11,700.

ONKYO A/V ENHANCEMENTS

Smart enhancements make Onkyo's entry-level TX-SR373 5.1-Channel A/V receiver an even more competent hub for creating a cinema-like surround-sound.

The TX-SR373 features lossless DTS-HD Master Audio and Dolby TrueHD multichannel decoding with discrete analog amplification producing 135 Watts per channel (6 Ohms) as well as Bluetooth wireless technology. A selection of listening modes includes Direct Mode for high-quality sources such as SACD over HDMI, or CD via pairs of digital or analogue audio inputs.

The Onkyo also includes AccuEQ Room Calibration technology, which sets speaker distances according to listening position, adjusts output, selects crossover for the subwoofer, and performs audio equalisation.

The Onkyo TX-NR373 is on sale now priced at £299.

For full details visit www.uk.onkyo.com



CHORD ELECTRONICS ADDS USB INPUT

Chord Electronics has added a high-resolution USB Type-B input to its Blu MkII upscaling CD transport. The USB input takes the place of the optical output seen on the prototype at CES and has been implemented following dealer demand for Blu MkII's upscaling technology to be available on a wider range of digital devices.

The USB Type-B input is compatible with DSD and PCM data, with DSD upsampled to PCM using proprietary filtering. The converted DSD data can then be output to Chord's partnering DAVE DAC/preamp at 705.6kHz, using its galvanically isolated twin BNC outputs.

The Blu MkII also features auto-switching inputs with CD prioritised followed by USB and finally, S/PDIF. Price is £7,995

To learn more telephone 01622 721444 or click www.chordelectronics.co.uk

BRYSTON BCD-3 CD PLAYER HITS UK

The BCD-3 is the latest in a range of Bryston digital products featuring the BDA-3 DAC and the fully discrete Bryston Class A analogue output stage and independent analogue and digital power supplies.

Supporting Redbook standard for CD and CD-R disc formats and backed by AKM 4490 384, 32bit DACs which are synchronised to the transport with a single master clock, users have the choice of balanced XLR or unbalanced RCA stereo outputs as well as transformer-coupled SPDIF/AES digital outputs.

The front panel, available in black and silver, has been designed to match the style of Bryston's Cubed Series amplifiers. Price is £3,700. To learn more, click www.pmc-speakers.com.



TOBIAN SOUNDSYSTEMS MONITOR 18FH FULL RANGE HORNS

A pair of two-way coaxial full-range horn-speakers with an option to fit an ultra low bass mid/bass unit.

This pair of Swiss models offers two variants: the 457mm (ultra low bass) or the 304mm mid/bass-corned version.

With a 38mm High Compression Driver and an efficiency of 101dB, the rear of the units include 4mm Banana WBT Nextgen plugs.

Spanning 148 x 68 x 56 cm and weighing in at 88kg, you'll need to order and then wait for these speakers to arrive. Give it ten weeks. There is a lifetime warranty, though. Price is TBA.

Click on tobian-soundsystems.com/en for more information.



U-JAYS WIRELESS FROM SWEDEN

Jays AB is now shipping its u-JAYS wireless headphones with sound isolation.

The new wireless headphones have more than twenty-five hours listening on a single charge, complete with sound isolation.

The touch controls allow the user to take calls and swipe through their favourite songs at the same time.

It also features a touch lock that secures the controls without unintentional interruption.

Price for these 40mm dynamic headphones is €179.

To learn more click www.jaysheadphones.com/products/u-jays-wireless/

MONITOR AUDIO SOUNDBAR AND SUBWOOFER

The ASB-10 active soundbar system is equipped with proprietary driver/amp pairings, integrated Dolby Digital processing and Bluetooth aptX streaming. It features a compact 90 x 94mm cross section and spans just under a metre in length. It arrives in a moulded polymer cabinet with black grille cloth and brushed aluminium end trims.

Inside is an array of four Monitor Audio 76mm C-CAM bass drivers and twin 25mm tweeters. The ASB-10's proprietary drive-unit configuration is powered by four integral DSP-trimmed amplifiers.

Monitor Audio has also developed the optional WS-10 active sub-woofer powered by a 120W amplifier.

The new ASB-10 retails at £399 and the optional WS-10 subwoofer is £299.

Click www.monitoraudio.com for more information.

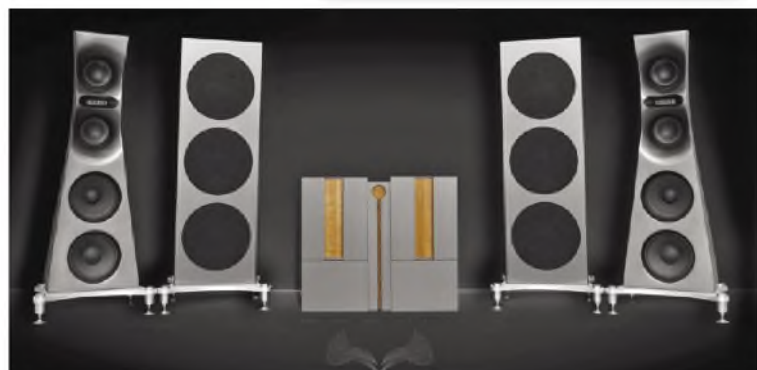


ARAMIS ACOUSTIC HERMOSA ACTIVE SPEAKER SYSTEM

The Hermosa speaker system comprises a pair of speakers, a pair of woofer towers, a pair of solid aluminium amplifier enclosures containing eight pieces of ncore-based D-class monoblock amplifiers, and eight switch-mode power supplies from Hypex. The driver total is a ribbon tweeter, two 203mm midrange cones, two 305mm woofers and three 457mm woofers.

The midrange and treble cables feature pure silver wiring but pure gold is an option. For the woofers, you'll find pure OFC copper wire inside.

Call +36 30 591 8266 or click www.aramisacoustic.com for more information.



MARK LEVINSON No 519

The No 519 has the ability to play virtually any digital audio format. It provides a full complement of wired and wireless digital audio inputs from USB asynchronous streaming and mass storage, ethernet, balanced, optical, coaxial, Wi-Fi, aptX Bluetooth and an integrated slot-loading CD player. In addition, the No 519 includes headphone connectivity and integrated digital volume control allowing it to serve as a fully integrated digital music source.

To learn more, call 01423 358845 or click on www.karma-av.co.uk



DALI'S SPEKTOR RANGE

Dali has announced its new Spektor speaker range, a four-strong series. Highlights include a dome tweeter that sees a heritage link from the higher-end Dali speaker series. The tweeter is based on an ultra-lightweight woven fabric, while the mid/bass driver is made of low-mass paper with wood fibre reinforcement.

The Spektor 1 is an ultra-compact speaker built around a 114mm wood fibre woofer and a 21mm soft dome tweeter. The Spektor 2 offers a larger inner volume, delivering extra bass performance. The increased surface areas of the 133mm woofer and 25mm soft dome tweeter increases the overall sound pressure levels.

The Spektor 6 floorstander is built around two 165mm woofers and a 25mm soft dome tweeter, while the Vokal is a centre speaker. Prices are: Spektor 1 – £159; Spektor 2 – £199; Spektor 6 – £499 and Spektor Vokal – £169 each.

THE TEAC REFERENCE 7

The Teac Reference 7 (or NR-7CD) combines CD/network player, DAC and power amplifier in one compact box.

Supporting DSD 5.6MHz and PCM to 192kHz, the Reference 7 can convert/up-sample signal up to DSD 12.2 MHz format and up-sample PCM digital signal to 384 kHz via a proprietary FPGA design.

Wireless streaming, via Bluetooth, supports the LDAC codec while the box also features a full-stage monaural differential circuit design. The unit uses an ICEpower Class D amplifier.

Price has yet to be released but log-on to www.teac.jp for more information and updates.



WILSON AUDIO YVETTE

Slotting in between the 'entry-level' Sabrina and Sasha W/P Series 2 in Wilson's range, the enclosure is built primarily from two Wilson-developed composites: the third generation of X-Material and S-Material.

The S-Material midrange baffle is angled to its own plane in order to optimise its time-domain relationship between the woofer below and the tweeter above. Wilson's engineers designed a new venting system for the midrange enclosure, similar to those found on the XLF, Alexx, Alexia and Sasha Series 2.

Hand-built in Utah, USA, and finished in Wilson Audio's automotive-class paint facility to each customer's specific colour requirements, the speakers are priced at £28,880 per pair.

To learn more click on www.absolutesounds.com or call 020 8971 3909

IFI MICRO ITUBE2

The iTube2 is a valve output stage, valve preamp, valve buffer and an impedance-matching device.

"Put the iTube2 before a solid-state preamp with another iTube2 after it to create the effect of tubing the whole audio chain," said an enthusiastic company - or, of course, you can use the iTube2 as a preamp by itself.

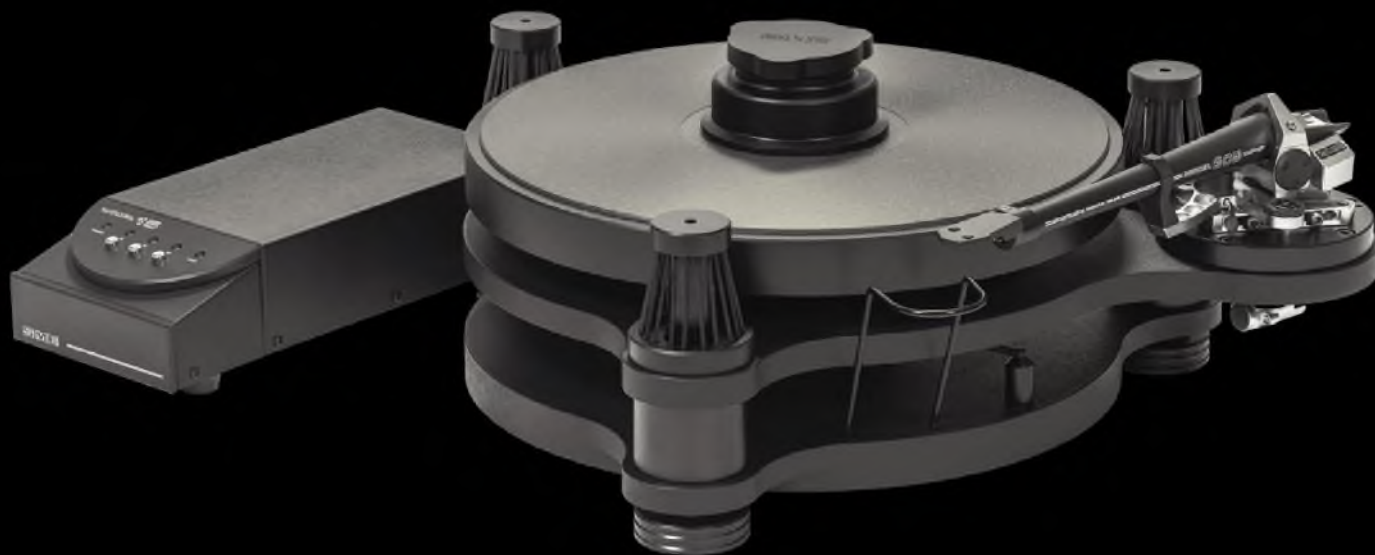
It includes a Tube+ circuit for SET/Push-Pull/Classic tube amplifier signature plus what iFi calls "3D Holographic+" and "XBass+" for "Loudspeakers matrix system".

The unit comes with an analogue volume control. Price of the micro iTube2 is £375. Click on www.ifi-audio.com for more details.



SME

MODEL 15



Experience a New Dimension in Sound

The Model 15 could be described as "the ultimate in recovery vehicles", allowing the cartridge to retrieve the last nth of recorded material whether digital or analogue, from the vinyl disc and thus approaches the ultimate in perfection.

Receiving its inspiration from the superb Model 10 precision turntable the Model 15 seeks to emulate the excellence of our Models 20/3 & 30/2 turntable whilst retaining the more compact footprint preferred by many of our enthusiasts.

The Model 15 has been designed with the same attention to detail combined with simplicity of operation that has come to be expected from all SME products. Its superb performance together with laid back styling make it a glamorous addition to your sound system that will astound and amaze listeners for many years to come.

SME Limited

Mill Road
Steyning
West Sussex
BN44 3GY

T +44(0) 1903 814321
F +44(0) 1903 814269
E enquiries@sme-audio.com
www.sme-audio.com

*Audio
Lounge*
LONDON

Call for a demo

Audio Lounge
138 Wigmore Street
London W1U 3SG
020 7487 4080
www.audiolounge.co.uk

Diamond Life

Wharfedale's new Diamond A2 floorstanders aren't just active loudspeakers – they are wireless as well with a digital hub and DAC included. Just add sources for an excellent system, says Jon Myles.



Study the hi-fi market for any length of time and you'll soon see certain trends emerge. Back in the 1980s it was the rapid adoption of the CD as the principal music playing device. More recently we've seen the re-emergence of the standalone DAC, manufacturers embracing streaming components and the incorporation of Bluetooth into various devices.

Now there's a new trend – in the form of active loudspeakers. Yes, they've been around for years – most especially in the pro-audio market – but have never really made a big impact in the home hi-fi sector.

Times are changing though, with more and more established mainstream manufacturers such as Quad, KEF, Quadral and others unveiling new models aimed firmly at the affordable end of the spectrum.

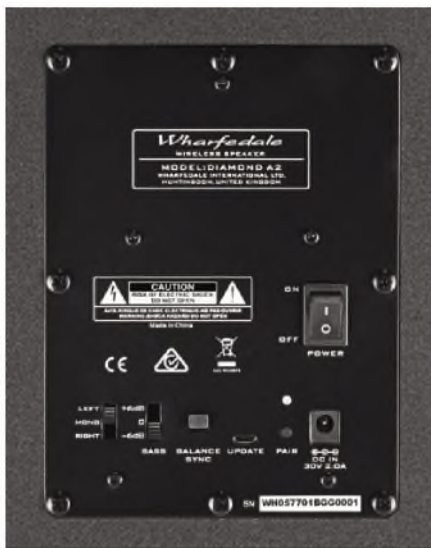
They're now joined by the £999 Wharfedale Diamond A2s under test here which add something extra to the equation by not only being active but also wireless.

I've extolled the virtues of active loudspeakers many times in the past. They allow the designer to match and couple the amplification directly to the

drive units for a more consistent response, eliminating the need for 'speaker cables at the same time.

Plus there's the price element; building the amp and loudspeaker in a single cabinet is more cost-effective than housing them separately, offering better sound for the pound – which explains the price of the new Wharfedale A2s. For £999 here is a complete floorstanding loudspeaker/amplification combination to which you just need to connect your sources.

And this is where things get interesting. You don't hook up components direct to the 'speakers – instead the Diamond A2s come equipped with a wireless hub dubbed HI. It's a compact black box about the size of an ashtray and has digital coaxial (phono socket), optical (TOSLINK) and analogue (phono socket) inputs – one set of each. There are volume and source controls on the top – although the



The rear panel controls allow a user to set the 'speakers for right and left channels (or mono if so desired), pair with the supplied hub and also change the bass setting.

supplied remote is the easier mode of operation.

The HI then sends the music wirelessly to the 'speakers. Intelligently, it uses the 5.8GHz frequency band to avoid possible interference on the 2.4GHz spectrum which is probably already crowded with most of the other devices on your (and maybe your neighbour's) network. The HI can handle file sizes of up to 24bit/96kHz.

It also comes equipped with Bluetooth connectivity for streaming



The rear of the Wharfedales features the reflex port plus control panel at the bottom.

from computers and mobile devices.

Each Diamond A2 as well as the HI need to be plugged into a mains socket but as the latter has a wireless range of 20 metres it doesn't need to sit anywhere near the 'speakers. So you could have the HI and source components on a shelf on one side of the room with the 'speakers at the other with no wires in-between.

The loudspeakers themselves are derived from Wharfedale's popular and well-regarded passive Diamond 230 floorstanders. Measuring 937mm x 210mm x 310mm (H/W/D) and weighing 18.8kg they are a two-and-a-half way bass-reflex design with a pair of 165mm woven Kevlar mid/bass drivers and a 25mm soft dome tweeter.

Inside each 'speaker is a Class D amplifier offering 50 Watts of power – which might not sound massive but is more than enough to drive them very loud. A rear panel switch designates left and right channel assignment and also allows them to be set-up individually in mono mode (perhaps if you fancied using them in separate rooms). There's also a bass boost switch which gives the option

of +6dB/0/-6dB.

Style-wise the A2s are well-finished if unspectacular looking with a leatherette wrap-round finish and black or white high-gloss baffle. The individual drive units have a silver trim around their edge to soften the otherwise rather stark front. Each also has its own circular clip-on grille – although, as ever, I preferred the look with these removed.

SET-UP

Getting the A2/HI combination up and running is simplicity itself. Plug everything in, switch the HI digital hub to pairing mode and then click a rear-panel button on each 'speaker – where a solid green light indicates the operation has been successful.

From start to finish this took me less than a minute. More importantly the wireless connection stayed rock solid throughout the review period with no drop-outs – no matter where I placed the hub in Hi-Fi World's large listening room.

SOUND QUALITY

Punchy and powerful are the first words that spring to mind as soon as you fire the Diamond A2s up. They have a large, authoritative sound with a pleasingly wide soundstage.

The Cinematic Orchestra's 'Durian' (24/96) is an atmospheric piece that sounds like the score from a particularly bleak film noir



The drive complement consists of two 165mm woven Kevlar mid/bass units and a 25mm soft dome tweeter.



The hub has controls for selecting input and volume on the top or you can use the supplied slim remote.

replete with deep bass, haunting strings and sections of stabbing brass. The Wharfedales captured the mood excellently. Bass was deep and fulsome providing a solid foundation for the instrumental samples above which floated into the room with requisite maraca. There was no congestion to the sound - just excellent layering of the various elements.

Like the rest of the Diamond range there's a hint of warmth in the midband but not so much as to sound overly lush. On REM's 'Fables Of The Reconstruction' (a CD played through the H1's optical input from an Oppo BDP-105D disc player) the A2s managed to inject some much-needed energy into an album that can sound disappointingly bland on other systems due to its rather flat production. There was a zing to the chiming Rickenbacker guitar work and an essentially smooth midband brings out the character of Michael Stipe's distinctive vocals.

That smoothness doesn't extend all the way to the tweeter, though, where there's a forward nature and slight hardness to the cymbal work on Miles Davis's 'In A Silent Way'. It's not unpleasant but just not as absolutely natural as some loudspeakers can manage.

That said, it doesn't detract from the all-round performance of the A2s.

Listening to Massive Attack's 'Safe From Harm' I was struck by just how dynamic and well-sorted they

made the music sound. That active operation pays dividends with the pace, pinpoint timing and general sense of scale it brings.

This Massive Attack track has a deep, propulsive bass line which served well to highlight the effect of the A2s' low-end setting switch.

Through all of them the bass was full and powerful but seemed most natural on the -6dB position. Moving to 0 then +6dB brought noticeably extra emphasis to the bass. Much will depend on what music you prefer to listen to, plus room positioning but it's a feature worth experimenting with when you have the 'speakers in situ.

CONCLUSION

It's tempting to view the Wharfedale Diamond A2s as a

£1000 floorstanding loudspeaker - but that would be entirely wrong. Instead it's essentially a £1000 combination of loudspeaker, amplifier and DAC with digital and analogue inputs as well as Bluetooth capability. Looking at it that way you'd be hard pressed to assemble a selection of separates that can match it in terms of sonic ability or ease of use at anywhere near the price.

Add in the novel wireless operation which means the 'speakers needn't be anywhere near your source components and it is one very clever package indeed. Add your source components (a CD, DAP or even a music server, say) and you can have a very good system for less than £2000.



The Wharfedale H1 hub has both optical and coaxial digital inputs as well as analogue RCA in. It communicates with the 'speakers wirelessly.

MEASURED PERFORMANCE

Our frequency response for the Diamond Active is the best (flatest) obtainable, showing results with its three position bass level switch set to -6dB, and the measuring microphone 30 degrees off-axis, meaning for this result the speaker is best pointed straight down a

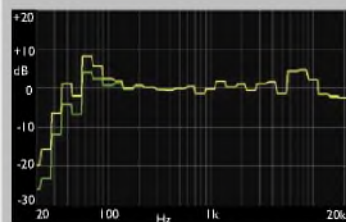
FREQUENCY RESPONSE off axis

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



FREQUENCY RESPONSE on axis

**Green - 0dB bass
Yellow - +6dB bass**



room, not at listeners.

Measured on-axis treble rose by +3dB - enough to make the 'speaker sound obviously bright. With the bass switch set to 0dB (flat) there was obvious bass lift too, so it is easy to end up with a speaker that is strong in its bass and treble. Setting bass to +6dB gave very strong low frequency output - far from a typical modern, accurate loudspeaker. Bass goes low, the port working down to 30Hz, so subsonics will be generated, if only heard in a large-ish room.

The port had a broad damping effect (red trace), meaning bass quality will be good. This will be helped by improved electrical damping that comes from close coupling of power amp to crossover and drive units.

An input of 60mV (rms, pink noise) to the Aux terminals of the control unit gave 90dB Sound Pressure Level from the loudspeaker, making the system sensitive enough for low output phono stages to be used directly.

On-axis and set flat, the Diamond Active has raised bass and treble. Listened to off-axis however, with bass set to minimum (-6dB) it measures flat and is a relatively accurate and even loudspeaker. **NK**



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VALUE - keenly priced

VERDICT
An innovative package from Wharfedale. The wireless operation provides great flexibility and the active 'speakers are sonically engaging.

FOR
- big, powerful sound
- smooth midrange
- excellent bass
- wireless operation
- Bluetooth

AGAINST
- unrefined treble
- no 24/192

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Under Control

Schiit has introduced a sophisticated switched resistor audiophile volume control in the new Saga SCH-20. Noel Keywood takes a close look and discovers its potential.

I spent a weekend watching 'fascinating' videos on how to programme up a micro-controller to operate a volume control then, by way of coincidence, walked into work Monday to find just such a device awaiting test. Schiit aim to offer top quality audio at affordable prices and in the Saga SCH-20 this comes in the form of what can be loosely called a computer controlled volume control. In addition there's a valve. All a trifle odd you may think but still fascinating and it has a logic. This is an esoteric little preamp.

What is odd is that the Saga has no gain; it will not make a signal louder. It only serves to switch between five inputs – all analogue – pass the signal through an ultra high-quality volume control, thence out either direct or through a single 6SN7 double-triode valve (or should I say tube as this is an American product) to analogue outputs.

The ideal place to use a preamp like this is between a silver disc player or DAC lacking a volume control and a power amplifier since the former can always drive the latter. Such an arrangement eliminates the need for a preamplifier,

simplification lowering cost and raising sound quality. You win all round in other words. But there are limitations to consider.

Lack of gain means low output sources such as phono stages cannot be used; a separate preamp with a minimum gain of x3 is required.

And there are absolutely no digital bits at all in the Saga – a real surprise. Especially so since Schiit are very nifty with the digital bits. How they avoided a Bluetooth aerial I don't know.

What you get in the Saga SCH-20 is a volume control of purist audiophile form. Accompanying it are five inputs, two parallel outputs, an input selector button at left of the volume control and an output selector button at right, to select direct output or the tube stage – a cathode follower line driver of low output impedance. Valves need big transformers, demanding big casework but the SCH-20 breaks this mould, looking almost incongruously small and flat.

The product has no external power supply; a mains IEC

three-pin lead is plugged into a rear panel socket. A small toggle switch at rear handles switch on. The front panel has white LEDs to indicate the input and output selected. At centre sits the all important volume control. Turning it gives the first indication of something different: an agitated fast sequence of clicking sounds issues forth like no other device you are likely to have heard – here's why.

Volume controls are imperfect devices by modern standards, even though we hardly know it. They are wonderfully old-fashioned electro-mechanical objects that go way back to the early days of electronics (1930s) yet are still with us today. Super-whizzo alternatives exist, such as digital volume controls with 32bit precision - but do you want to turn analogue to digital and back again just to change volume? It's enough to make any purist shudder.

The electronics industry has come up with any number of alternatives to yesterday's volume control but none are ideal. Most sound pretty good, but then as ordinary volume controls have



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Decoupled Double Dome tweeter





problems how good are they? I do not know whether the Alps Blue or (better) Panasonic Black units we have used in the past were as good as it can get or not. The switched potentiometer in Schiit's SCH-20 is meant to resolve

such worries: it promises perfection because, theoretically, a switched resistive attenuator is all but perfect. Additionally, when computer controlled it can be actuated by anything, from a rotary knob to a remote control, even to an app on your phone.

And Schiit's implementation is impressive. It has sixty-four 1dB steps from maximum to minimum volume (mute) so you get a large 64dB range before silence. As far as I am aware this is sufficient in real life usage. Some controls offer finer resolution, with the penalty of higher cost and size, whilst most are coarser.

The reason volume controls like this are rare is – as you might guess – their cost. Think £200, just for a volume control.

Adding a 6SN7 is interesting. Schiit's switched resistor network has constant input impedance but a varying output impedance; the 6SN7 gives it constant and low output impedance to best feed a long signal cable.

You also get the promise of valve sound – smoother and more spacious, especially from the 6SN7 – a lovely sounding 1940s triode. Here, it introduces little noise or distortion and overload isn't an issue; Schiit understand valves.

Measuring 229mm wide, 152mm deep not including rear connectors and front volume control and just a 51mm high case but needing 102mm clearance when including the valve, the SCH-20 will fit in just about anywhere. The 6SN7 produces little heat as it heaters dissipate just a few Watts. Weight is low at 2.7kgs.

SOUND QUALITY

I placed the SCH-20 between our Oppo BDP-105D Universal player (at full volume) and Icon Audio Stereo 30SE amplifier (at full volume) connected to Martin Logan ESL-X hybrid electrostatic loudspeakers. An Astell&Kern AK 120 fed the Oppo hi-res digital files. Alongside the Schiit performing the same duty was our Music First Audio Passive Magnetic pre-amplifier, acting as a reference.

The Music First Audio Passive

Magnetic pre-amplifier is superb, utterly clear and totally neutral, quite unlike anything else.

By way of contrast transistor preamps come across typically as a tad hard and flat, adding an unpleasant veil. Valve preamps vary more, typically offering a warmer, bulkier sound.

The Schiit SCH-20 was all but identical to the Music First Audio, but it has the advantage of remote control (whilst the MFA has a +6dB gain option in its favour, plus balanced connections).

The Schiit's small, plastic lightweight remote control was a big plus point in practice. It switches five inputs, and also between direct and valve output options, as well as having mute and power on/off functions. Using it there were no thumps, bangs or other noises: it was slick in the speed at which volume could be moved up or down, or mute applied.

Most interestingly – and perhaps surprisingly – I struggled to hear any difference between direct output and valve output. The 6SN7 adds no warmth, no veiling or any other colouration: this surprised me.

Perhaps it should not because



Schiit have implemented it so well measurement showed, so minor limitations possible with valves have been avoided.

Swinging a massive 20V out it is totally free of level related problems and transparent in circuit terms and it showed – or didn't show perhaps I should say – when listening. You get a buffered output to drive a long signal cable or resist interaction with a power amplifier's input but you don't get valve sound.

CONCLUSION

The SCH-20 is a fascinating little preamp. It isn't perhaps for everyone, being a stripped down 100% audiophile remote volume control in effect.

But if you are looking for a preamp that is totally transparent, to sit between a CD player – or most other sources – and a power amplifier, this is it.

Five analogue inputs and two outputs – and no digital to spoil the party!

MEASURED PERFORMANCE

As Schiit claim the Saga SCH-20 has a gain of x1 (unity) via both outputs, Direct and Tube. In other words it provides no amplification; it is a very high quality

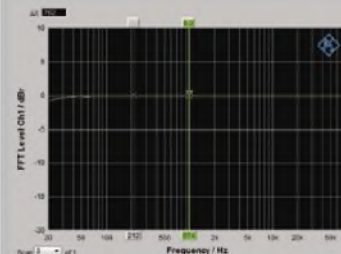
attenuator. Both stages swung 20V output, distortion via tube measuring 0.03% at this extremely high level.

Frequency response was ruler flat in Direct mode, from d.c. to over 100kHz, and via tube from 8Hz to over 100kHz, at all attenuator settings. Noise was minimal at 2.4µV output, or -113dBV, this being thermal noise from the resistors. There was no hum.

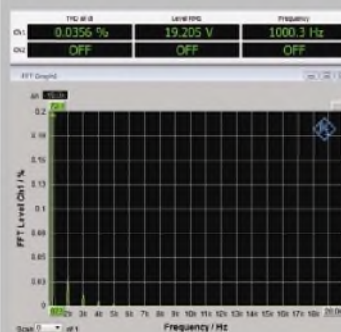
Input impedance (DCR) measured 10k Ohms, and output impedance varied around 2k Ohms, reaching a max of 10k at full volume and a minimum of 249 Ohms at one position. These figures are good enough to feed a 10k input on, say, a power amp., albeit with some loss.

The Saga SCH-20 measured perfectly. Even the tube has been given sufficient voltage to swing a very high output, although with zero gain and only 3V or so available from modern sources this is not going to occur in practice. **NK**

FREQUENCY RESPONSE tube



DISTORTION tube



Frequency response	2Hz-100kHz
Overload	20V out
Distortion	0.0003%, 0.03%
Gain	x1 (0dB)
Noise	2.4µV, -113dBV

SCHIIT SCH-20 SAGA £360



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A totally neutral sounding remote controlled preamp with few competitors. Put it between a good source(s) and a power amp.

FOR

- audiophile sound purity
- remote control
- small and light

AGAINST

- no gain
- no balanced option

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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"

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Raising the Benchmark

Benchmark carries out Sabre surgery on a legacy product to deliver the DAC3 HGC DAC/headphone amp. The operation is a success, as Martin Pipe discovers

A couple of years ago, I reviewed the versatile DAC2 HGC – a potent and substantially-built combination of DAC, line-level preamp and headphone amplifier – from New York manufacturer Benchmark. Now we have its replacement, imaginatively called the DAC3 HGC and built into a case with machined front panel that looks identical to what went before. Not a bad thing, as the controls and connectors are sensibly laid-out. Particularly useful, for troubleshooting purposes, are the LEDs that indicate the composition of the currently-selected digital source.

President Trump will appreciate that the unit is made in the good ol' US of A, from components that are – wherever possible – sourced locally. Those of us on the opposite side of the pond won't appreciate the

massive jump in price relative to the older model. The DAC2 HGC sold for £1,795; its DAC3 equivalent will set you back £2,349. Ouch! Much of this, I was told by the UK distributor, is due to the fall of the pound; the "actual product cost" rose by 10%.

Like its predecessor, the DAC3 HGC is equipped with four digital inputs (two coaxial, two optical) and an asynchronous USB 2.0 port. The new model relies on the same USB drivers that Windows users need for the DAC2 version. That's because both units employ the same USB interface, which harnesses a SMSC USB3318 interface and XMOS controller chip. Well, if it works so well is there any real need to change it? The USB circuitry will handle DSD64 streams via DSD-over-PCM (DoP), as well as PCM ones (up to 24-bit/192kHz). Mac users don't need drivers – neither do Windows PCs,

if all you want is the 24/96 'ceiling' of the unit's other (version 1.1) USB mode. The 'regular' digital inputs are DoP-ready too.

Nor have there been major changes to the excellent headphone amplifier. It's still based around National Semiconductors' highly-regarded LME49600 audio buffers, and intended only for use with unbalanced 'phones – two pairs of which can be simultaneously-connected. As before a Burr-Brown device looks after sample-rate conversion, a Xilinx Spartan-6 gate-array chip contains the proprietary 32-bit DSP trickery, liberal use is made of audio-grade LME49860 op-amps in the analogue stages and there's an internal low-noise switch-mode power supply to provide the juice. The biggest hardware change is the switch to a newer ESS Technologies Sabre DAC – the



ES9028PRO. Each stereo channel employs four of the chip's eight DAC sections, the signals from which are summed.

As well as headphones, the DAC3 HGC will output the selected source to amplifiers in balanced XLR form, and two pairs of phono sockets. Volume adjustment is the responsibility of a high-quality ALPS pot, which is motorised for remote-control – the supplied handset will also select source, switch the DAC3 HGC into or out of standby and 'dim' (reduce by 20dB) or mute (silence completely) the output. There are also two line-level inputs, which make this unit a versatile analogue/digital pre-amplifier capable of driving a power amp or active speakers directly. Remove the eight screws that secure the cover, and you'll gain access to various jumpers that set XLR output level and headphone amplifier gain/output muting.

It's odd that a professional-type AES-EBU digital input connector isn't fitted, given that the DAC3 HGC is made by a pro-audio firm that claims to be "the number-one choice for studios, news and

broadcast corporations worldwide". Furthermore phono connectors, rather than BNCs, are used for the digital inputs. In all fairness, the latter will accept AES-EBU format signals via the appropriate cabling, as the excellent manual points out. If you need a 'pukka' AES-EBU port, you'll need the analogue input-free 'DX' version of the converter – which, alas, is not currently-available in the UK.

Other features include a rear-panel 12-volt trigger output (for switching compatible amplification, like Benchmark's own AHB2, into or out of standby), distortion-compensation, low-jitter, quick-locking to sources (courtesy of 'UltraLock3'), a jumper-configurable digital pass-through mode that turns one of the coaxial inputs into an output (handy for home-cinema enthusiasts, or if you want a USB source in conventional digital form) and the ability to invert a digital input's polarity.

The DAC3 HGC also includes 3.5dB of digital headroom to avoid unpleasant-sounding 'clipping' – which, with a lesser DAC, might occur if your source applies gain

Rather nondescript in appearance, the remote provides control over the DAC3 HGC's key functions – volume, muting (complete silence or a 20dB reduction that Benchmark calls 'dimming'), standby and source selection. It will also switch between the USB port's 1.1 and 2.0 modes.



digitally and your music was recorded with 0dBFS peaks. This headroom also allows the unit to avoid clipping with 'inter-sample overs' – which, according to Benchmark, can be an issue with 44.1kHz and 48kHz-sampled material, especially if lossy compression is involved.

Then there's the 'HGC' that gives the unit part of its name. It stands for 'Hybrid Gain Control' – a system in which 32-bit digital processing and the front-panel analogue pot join forces to provide control over volume. The basic idea is to preserve dynamic range without introducing channel imbalances or unwanted noise. To avoid unnecessary signal conversion, though, HGC works only with digital sources. When an analogue input is selected, it's fed directly to the volume control – and thence to the output/headphone amp.

SOUND QUALITY

I partnered the DAC3 HGC with an Arcam A49 integrated amplifier driving Quadral Aurum Wotan VIII speakers; for personal listening I relied on Oppo PM3 headphones. Among the sources were a Cambridge CXN streamer and Fiio X3, both of which were playing lossless CD rips and hi-res FLAC material via coaxial digital connections. I discovered subsequently that, connected in this way, the CXN is also capable of DSD playback via DoP. A Windows 7 PC, loaded with a suitably-configured Foobar 2000 player and a selection of tracks – some of them DSD, was pressed into service as a USB source.

Initially I had problems with the latter – until I remembered from my experiences with its predecessor that the 'default' operating mode is USB 1.1, for driverless 'plug-and-play' usage (for suitably-connected iPads, as well as Macs and PCs!). To



Inside the metal box at bottom-left is the switched-mode power supply, next to it are the headphone sockets and the motorised volume control that forms part of Benchmark's 'Hybrid Gain Control' system. The ESS9028 Sabre DAC sits at centre. The XMOS chip near the screened mains socket (top-left) forms part of the USB interface.



Two sets of phono outputs and a pair of XLRs are complemented by two analogue inputs, two coaxial digital inputs, two optical digital inputs and the all-important USB port that enables your computer to be used as a high-quality music source. One of the coaxial inputs can be turned into an output, if need be, and there's a 12V trigger for switching other gear.

switch to the USB 2.0 mode that facilitates 192kHz PCM as well as DoP and DSD playback, you have to hold down both front-panel input-selection buttons until the unit's '4x' light is illuminated (or use the remote's USB button!). The front-panel 2x and 4x LEDs lit up when a DSD track was playing. Now we were set up for all sources!

We'll start with DSDs. Garrett Brennan's *Alta Powder Day* (2.8MHz DSD64 DSF Blue Coast download) sounded every bit as good as I remembered it through the DAC3 HGC. A natural sense of space is conveyed between the speakers from this 'back-to-basics' bluegrass recording. And detailing is such that communication of delicate 'you're in the room' subtleties, like breathing noises and guitar string-chatter, are comfortably-resolved. Another DSD64 favourite - the acoustic jazz of Piltch, Davis and Friends' *Take One 2xHD* album - impressed with its sense of timing, instrumental delineation across the soundstage and grasp of tonal colour.

Even with CD-derived PC material, the DAC3 HGC presentation can be remarkably-detailed - without being overly-analytical, as in the case of Prism's excellent *Callia*. Complex multi-layered albums can thus be enjoyed for their own sake, without - for example - a little tape-hiss, associated maybe with a 1970s recording, proving unduly distracting! The guitars and analogue synths that permeate The Stranglers' under-rated *The Gospel* according to the *Meninblack* - the witty *Second Coming*, in particular - were brought to life with appropriate bite and rhythmic 'snap'. Basslines, meanwhile, were solid and well-defined.

In my view you don't get quite the same organic musical 'flow' of the Chord Hugo TT, with its clever proprietary DAC technology, but the DAC3 HGC gets pretty close

Switching to 24/96 FLAC LP rips - notably Jethro Tull's *Thick as a Brick* and Miles Davis' *'Kind of Blue'* - I found it was difficult to distinguish playback with that from the original vinyl, such was the presence and depth on offer. A modicum less 'space' perhaps, but that's the only palpable difference. Headphone-listening was also a most enjoyable experience, and builds on the unit's strengths as a DAC. The DAC3 HGC may not be able to drive balanced 'cans' but there's nevertheless plenty

of drive, coupled to a very believable stereo image.

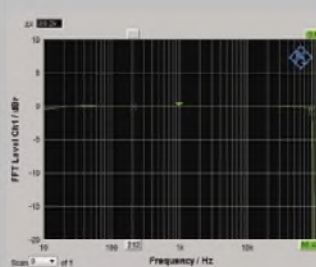
CONCLUSION

A versatile and well thought-out unit that's a good all-rounder when it comes to sound quality, the DAC3 HGC is unlikely to disgrace itself even if partnered with the finest ancillary equipment. It's not particularly inexpensive - thanks mostly to the weak pound - but remember that you might be able to dispense with a preamp.

MEASURED PERFORMANCE

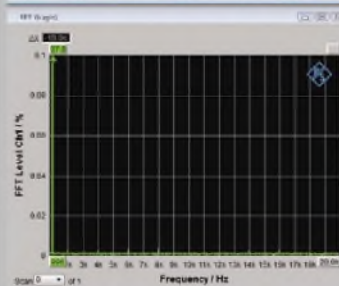
The Benchmark DAC 3 HGC uses the new ESS Sabre32 Series ES9028Pro DAC chip capable of massive dynamic range, quoted as up to 132dB. From all outputs, headphone, balanced XLR sockets and unbalanced Phono sockets, dynamic range measured an impressive 126dB - right up with the very best DACs available. Currently, 122dB-124dB is the front of the field, so the DAC3 HGC is a nose ahead. What this means in use is a smooth and deep sound that is spacious and relaxed, free of digital distortions

FREQUENCY RESPONSE



DISTORTION

THD @ 10	Level (dB)	Frequency
0.0132 %	1.928 mV	997.00 Hz
OFF	OFF	OFF



that distance it from the analogue experience.

Measured distortion was very low at 0.013% at -60dB with hi-res 24bit, and also a low 0.19% with CD (16bit), where 0.22% is common. CD distortion is in fact mostly quantisation noise from 16bit coding, not attributable to the DAC itself, but that the DAC 3 HGC can return a good result here reflects the Sabre32's ability to get more from CD than most.

Output from the rear phono sockets and the front headphone sockets measured a high 3V, yet output from the balanced XLR sockets was lower at 1.9V as delivered, but this is adjustable.

The optical input TOSLINK receivers are not limited to 96kHz as in many DACs, working up to 192kHz. USB works up to 192kHz sample rate as well, but no higher. Dynamic range via USB was a full 126dB, unlimited by a noisy USB receiver as in some DACs.

Frequency response measured flat to a very high 90kHz with 192kHz sample rate PCM; there is no optional slow filter - a conspicuous absence.

The DAC 3 HGC turned in a great set of performance figures. It is ahead of most else. NK

Frequency response	4Hz-90kHz
Separation	104dB
Noise	-114dB
Distortion (-60dB)	0.013%
Dynamic range (24bit)	126dB
Output (XLR, Phono)	2V, 3V

BENCHMARK DAC3 HGC £2,349

OUTSTANDING - amongst the best.

VERDICT
Benchmark's comprehensive manual is full of performance graphs to reassure audiophiles they have bought wisely. Fear not - your ears will not disapprove!

FOR
- revealing without being too analytical
- flexible in connectivity and configuration terms
- headphone amplifier
- finesse and American muscle!

AGAINST
- runs warm
- no provision for balanced headphones
- won't accept 32/384 PCM or DSD higher than 2.8MHz (DSD64)

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Ultra Sound!

Jon Myles enjoys the sound from Atlas Cables' latest Hyper dd Ultra interconnect.

To say Scotland's Atlas Cables know a thing or two about making interconnects would be something of an understatement. The company is almost obsessive with regard to materials, construction, cable geometry, connectors and how small improvements in all these areas can lead to enhanced overall performance.

I first came across the benefits of this approach some two years ago with their high-end Mavros Ultra which was detailed, neutral and smooth and brought a dazzling transient attack to notes (see Hi-Fi World July 2015).

At £875 for a 1 metre length it wasn't cheap but worth the money in the right system. Now Atlas has trickled down some of the thinking behind that cable into the new Hyper dd Ultra interconnect – which is priced at £395.

The dd in the name stands for dual drain – where twin symmetrical drain wires run between a copper/ Mylar foil and screen constructed in such a way as to maintain consistent low impedance load to the plug, as well as providing complete rejection of noise and signal loss caused by RFI.

The conductor is solid core OCC (Ohno Continuous Casting) copper surrounded by multiple bunch-stranded high purity OCC copper wires insulated by a polyethylene dielectric.

The 'speed' characteristic of analogue cables is determined primarily by the dielectric performance of the insulator applied around the conductor, Hyper's conductors are encapsulated within a high-efficiency gas foamed Polyethylene dielectric, with excellent immunity to interference and noise. Termination is via Atlas's low-mass solder-free Ultra phono plugs, with XLR also available.



It's a chunky cable compared to some other interconnects but construction is superb and the Ultra connectors are beautifully machined, offering a solid grip on terminals.

SOUND QUALITY

Plugging the Hyper Ultras into a Naim Supernait 2 and McIntosh MC152 amplifiers the qualities that come through are speed and precision, bringing detail to the fore.

With Pamela Kurstin and Seb Rochford's 'Ouch, Evil, Slow, Hop' the former's theremin playing didn't just sound eerie but crackled with menace via the Hypers. Rochford's drums also came through with a little extra pounding dynamism.

It's not what the Atlas interconnects are adding to the music but more the fact that they are taking nothing away. Tonally they are neutral so no grain or smear is added to the replay chain.

Listening to Tashi's landmark rendition of Messiaen's 'Quartet For The End Of Time', violin, piano, cello and clarinet possessed total clarity, the interplay between instruments highlighted by the precise

soundstaging these interconnects provide.

Switching back to a cheaper – but still very good – Nordost Leif interconnect it was clear the Atlas allowed more musical power, life and vitality to flow through the system without sacrificing delicate detail.

As such, anyone looking to upgrade their interconnect to bring a little more from a system should seriously give the Hyper dd Ultra and audition. At £395 it represents a value-for-money upgrade.

CONCLUSION

A basically transparent interconnect which presents instruments in a realistic fashion and never restricts the tempo of music. Add in excellent detail resolution and the Atlas should go to the top of anyone's list at this price.

**ATLAS HYPER DD
ULTRA £395
(1 METRE LENGTH)**



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

Impressively-engineered interconnect that has speed, resolution and a natural, organic nature.

FOR

- detail
- lack of smear
- build
- speed

AGAINST

- nothing

Atlas Cables
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OUTSTANDING
PRODUCT

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RECOMMENDED



Stereo 40 MKIII

ST40 III True "Hi End" Amplifier, Triode 25w, UL 45w many features from £1,899

HI-FI WORLD

designed by David Shaw



Stereo 25 MKII

Simplified ST40 30wpch UL, HQ Headphone socket, "Easy Bias" From £1,099 (EL34)

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Hi Fi World
"Best Valve
Amplifier"
Stereo 30se

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PS3 MKII MC/MM Phono Preamp

100% Pure Valve Pure valve Phono Preamplifier £2,499



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New 15" Horn speaker now on demonstration

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Here's your chance to win the superb Q Acoustics 3050 loudspeakers we reviewed in the August 2016 issue. Read the review excerpt below and answer the questions at right.

"Standing fully a metre tall and weighing almost 18kg a piece, the

3050 is a two-way reflex-loaded design using two 165mm bass/mid units allied to a 25mm soft dome tweeter. They are arranged in a d'Appolito configuration with the tweeter between the two main drivers, in a bid to give better time alignment.

The main drivers are made from a paper/Aramid composition, while the high-frequency unit is decoupled

from the main cabinet by butyl rubber to isolate it from any minute cabinet vibrations.

The cabinet itself is constructed from 15mm MDF with a 20mm dual-layer top plate and a thick front baffle while internal bracing adds to rigidity and resonance control. A single steel outrigger plinth affixes to the rear for stability with two spikes screwing into the front of the cabinet for levelling.

Two pairs of 'speaker binding posts, sited below the large(ish) reflex port on the rear, allow bi-wiring.

All told it's a handsome, well-finished design with the cabinet's curved top and bottom adding a touch of class, distinguishing it from more boxy designs. Even the 'speaker grilles attach magnetically so there's no unsightly fixings of the baffle.

Design input is from renowned loudspeaker designer Karl-Heinz Fink".

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QUESTIONS

[1] Who gave design input?

- [a] David Cameron
- [b] Isambard Brunel
- [c] Karl Heinz-Fink
- [d] Michael Mouse

[2] How tall are the 3050s?

- [a] a metre
- [b] a mile
- [c] a foot
- [d] a yard

[3] The main drivers are made from?

- [a] zinc alloy
- [b] styrofoam
- [c] bubble gum
- [d] paper/Aramid

[4] The grilles attach

- [a] magnetically
- [b] by glue
- [c] by sticky tape
- [d] with nails

entries will be accepted on a postcard only

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LETTER OF THE MONTH PRIZE

Visit our website at www.hi-fiworld.co.uk or send your emails to letters@hi-fiworld.co.uk. Letter of the month wins a pair of QUAD S2 loudspeakers.

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



QUADRAL PHASE 150

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

A pair of QUADRAL RHODIUM 200 loudspeakers are on their way to Andy Andrews, Letter of the Month winner in our March 2017 issue.

Letter of the Month

UNKIND LIFE

Life has not been kind to me in respect of computer implementation into modern life. I followed the zietgiest advice in your magazine and bought the Audiolab M-DAC and attempted to run it with Foobar as the player software retrieving files from the laptop. I had this for about five days. It worked for roughly one hour during those five days. But what an hour! It was all it should and could of been, great stuff, but only the smallest glimpse. I returned it to the retailer. I need something that works. Works all the time.

I decided after my experience with the computer to DAC solution that I needed a streamer. This, I understood would find my digital files wherever they are stored, do the DAC thing and send the necessary analogue signal to my amplifier. After a visit to my hi-fi dealer the choice that suited my pocket was the Elac Discovery 101. This runs in partnership with a very clever software called Room Essentials. There was some setting up to be done to ensure that my Persiana Cloud NAS drive had all my music collection up to date and that it was solidly connected to the network in the house. Also a wired link needed to be placed close enough to the hi-fi for



Elac Discovery 101 streamer. "The one they took back from me is now their demonstration model and has never missed a beat since I returned it" says Paul Goodwin.

the Elac Discovery streamer. After a trip to Maplin I used the internet through the mains solution.

I got the streamer home and set up could not of been simpler. It did not work too well, but I could sense the possibilities so I persisted. I found the connection with the NAS drive could not be sustained. I concluded that when the house was rewired I had a separate spur put in for the hi-fi and this may not be helping. By moving the mains internet connection to an adjacent plug that was more on the ring mains and less of a cut-de-sac on the devoted hi-fi

spur, it seemed to establish a stronger connection. For about three days music was being streamed successfully but then the connection went and did not return. Firmware was updated, routers and NAS drives rebooted, factory resets undertaken.

My hi-fi dealer was happy to swap for a new unit in order to establish it was not the streamer at fault. With the replacement unit installed, music libraries were found, connections remained and streaming was happening. This happy situation continued, for about four months it



A mains network connection, available from Maplins. Convenient and can work well, but mains borne interference can upset such systems. Is this the source of Paul Goodwin's problems?

never missed a beat.

Then about two days before New Year's Eve I noticed half my library was no longer there. New files added were also not being found. In an effort to retrieve the library again through a re-scan, I lost the lot. Another round of reboots, updates and factory resets produced no satisfaction. Other devices could connect to my NAS, (the laptop and smartphone). In fact I could go out the house connect to the internet somewhere and connect to my NAS from miles away, but the streamer in the next room could not, the same library stored on the laptop remained invisible to the streamer. However internet radio stations could play from the streamer so it was connected to my network and the internet.

I eventually put a call to my hi-fi dealer over the lost connections. He gave me a sympathetic ear but needed me to try harder before blaming the streamer. The one they took back from me is now their demonstration model and has never missed a beat since I returned it.

This is the question, finally. Is my experience of digital audio what you are all really experiencing? Maybe you have not got round to admitting it yet? Is my experience the same as other users out there? Is the only truly realistic expectation is to have an intermittent, unreliable experience. Punctuated with periods where it works beyond your expectation and so you forgive it the foibles? Is part of the attraction the endless tinkering to maintain connections to keep the system running? I recently found that both the NAS and the streamer had changed their IP addresses! How and why could that happen?

The main issue still plagues me

unresolved. Just for now for today everything is working. Tomorrow or even one hour from now it may well not be working.

I have not even started on my CD ripping experience. What do you do when a CD won't rip? (I have used both Exact audio copy and dbpoweramp). Needless to say your advice that I see repeatedly, to simply "rip your CDs to a NAS and away you go, why don't you?" strikes me as a rose tinted spectacles scenario. I am not sure what I expect from you in way of a reply. You may be able to suggest a way to solve my connection problem on a permanent basis, my feeling is there are too many variables for that to be possible. Maybe you can address some of my broader issues. Despite my struggles I would not of got this far without your publication and the help and expertise of my local hi-fi dealer.

Kind regards

Paul Goodwin.

Hi Paul. Running the local network through the mains is a notoriously unreliable thing to do. Everything you say suggests to me your problems lie here. Unreliability may be attributable to a nearby source of mains noise, anywhere on the mains grid, especially industrial motors which may be far outside your home.

If you use quality ethernet data cabling, not the mains, your system will become more reliable I believe – that's my experience.

If a CD won't rip, the player cannot play it and this is usually down to surface damage. The CD is due for the bin.

We all suffer the problems you suffer. Digital is an all-pervasive technology that has weaknesses as

well as transformational strengths, even if sound quality isn't one of them. It is difficult to address the issues of poorly written software, flaky physical transmission systems and damaged CDs. All of which you are suffering. But you do seem to have a very sympathetic and helpful hi-fi dealer. All is not lost! **NK**

Hi Paul. You do seem to have been particularly unlucky with your experiences. Usually, once a streaming network has been set-up, it should be fairly robust if the hardware and cabling is up to the job.

As to your particular problems, you do not say what router you are using. The routers supplied by most internet service providers (Sky, BT, Virgin etc.) do the job but are not the best available. Many people have found switching to something better has solved problems of drop-outs. Personally, I use an Apple Airport Extreme connected to my Virgin Super Hub which has improved reception throughout the house. If you also added an Apple Airport Express on the network this would give you the option of a wired connection to your streamer from it while using wi-fi. Like Noel, I would advise against internet through the mains – not least because it can degrade sound quality. The mains is full of rubbish.

As to your NAS and streamer changing IP addresses – both get this information from the router which dishes them out to any equipment needing one. If you have rebooted the devices or powered them down then they have probably sent out a new request for an IP address and been allocated a different one. It is possible to assign a fixed IP address to items but this will entail delving into your router's instructions to accomplish (methods vary from model to model).

On CD ripping, if you are having problem with a particular disc try ripping it on a different computer if you can. Sometimes one drive simply will not recognise a disc while another will. A Stouges CD I had simply would not rip on my MacBook Pro but worked perfectly on a friend's (older) Windows machine. There's also the possibility that – if the CD is from many years ago – it could contain copy protection.

I hope this advice helps. **JM**



The Deltec DFA50S power amplifier (bottom) from our review in the April 1991 issue. "it's pre amp (above) has a minor minus – it does not have a remote control" says Gran David Gerby.

PASSIVE QUESTION

I do hope that you can help me with a question of mine. I'm use for many years the Deltec DFA50s kombo setup (reviewed by you in Hi-Fi World, April 1991) in my music system, and I'm still very satisfied of it's performance, but it's pre amp has a "minor minus" – it does not have a remote control.

I wonder if I can ask if you think that the Deltec dpa50s power amp (I got two) would be compatible with Music First Audio Classic Passive Magnetic Preamp (reviewed by you in Hi-Fi World March 2011)?

I have read that it can be eventually "Gain problems" with the mentioned Passive Pre Amp and some Power Amps, and before I go further to borrow the Pre Amp home, if possible, it should be wonderful to hopefully got an opinion from a person who really knows the two gears very well!

I haven't read your review of the "Music First Pre Amp" mentioned above, just quotes from it, but your words about the DFA50s setup in 1991 was the mcjor factor that in the end made me start a long term, now, relationship with it!

I do hope that you have same time over to send an answer to me in this question.

With best regards,

Gran David Gerby,
Stockholm,
Sweden

P.S. Still got your own Deltec DFA50S setup, or what gear made you stop using it as a reference gear, if I may asking?

Hi Gran. In that review we tested the pre and power together so I have no sensitivity figure for the power amplifier alone. However, most power amps need 1V input in order to deliver full output and the DFA50S is almost certainly the same. All silver disc players (CD, DVD etc) deliver 2V or more, so you can use the Music First Audio passive magnetic preamp with the DFA50S. You are only likely to encounter gain issues with low output sources, most commonly these days low gain

external phono stages. The Music First Audio has a +6dB gain option but it isn't enough for a phono stage delivering around 100mV output, for example. What's more it doesn't have remote control. You might be better considering the Schiit SCA-20 I review in this issue, that does have remote control. Its unbalanced (phono socket) outputs can be connected across the balanced input of the Deltec.

So it really depends upon what you want to partner with your DFA50S power amplifiers.

We return all review product; the Deltec samples left our possession long ago. But I am still in contact with designer Rob Watts, who now designs the unique DACs used in all Chord Electronics products, including Mojo. Since Mojo will work with a DFA50S you can still buy Deltec today – well, sort of. **NK**

PAUL AND ANTHONY

All hail Paul the Philosopher! Lovely piece on Anthony Phillips in the February edition. You've echoed what I've always felt about Anthony's post Genesis work; namely, that he managed to preserve, and continues to do so, that elusive soul of the 'real' Genesis for all time. That 'essential, classically ethereal sound' which offers both 'healing and solace'. Anthony Phillips is Genesis.

I first discovered his post Genesis muse in the cut out bin section of a Virgin Mega Store. 'Private Parts and Pieces' was the album I stumbled on. It was an American pressing on Passport Records. I was actually drawn to the wonderful imagery depicted on the sleeve, painted by Peter Cross. There's no title I can make out but I'd wager it's called 'Field of Eternity'.

Anyway, when I sat down and listened I was completely and utterly



The Music First Audio passive magnetic preamp suits Deltec's DFA50S as it has balanced outputs, but it lacks remote control.

transfixed. No mere words can describe the effect his music had on me so I'm not going to try. I mean how can you possibly do justice to a piece like 'Tregenna Afternoons'?

From Anthony's own description on the rear sleeve: 'This is essentially a twelve string and classical guitar duet, though both are duplicated sporadically. It takes its title from exquisitely languid days overlooking St. Ives Bay from the magical Tregenna Castle in Cornwall' And that's only one piece!

His way with words are both funny and gentle. A throwback to a time long forgotten but thankfully preserved in aspic on these ancient pieces of black plastic and cardboard...

Another person who definitely adhered to William Edward Hickson's dictum is a certain Nick Saloman (Bevis Frond) who celebrates 30 years this year ploughing his own furrow. During that time he has released a staggering 22 albums under his own Bevis moniker. A lovely self effacing and very funny guy. His entire output is being currently rereleased by Fire Records and they are mostly expanded and gorgeous vinyl editions containing the original albums plus outtakes. I definitely think you should do a piece on him Paul...

And to add to the 'invisible' list for future articles : Richard Skelton, Andrew Chalk, Timo Van Luik, Roedelius, Dean McPhee, Steven R Smith...with music like this it's a crying shame that it continues to just blow in the wind. Then again maybe that's a good thing! Then it becomes our secret...

**Dermot Bell
Eire**

Hi Dermot. Thanks for that, I generally appreciate a good 'hail' before breakfast to fortify my editorial endeavours for the day. I'm also familiar with Bevis Frond and echo your thoughts. Let me make a note about that one for the future, as well as your closing list.

And yes, it's almost a shame to tell everyone about this music. Part of the 'magic' is to believe that you are the only one hearing it. To wallow in the relative obscurity of a treasured find is a joy in itself. **PR**

MORE PAUL AND ANTHONY

I would just like to thank Paul Rigby for his article on Antony Phillips. I was actually listening to Fields of Eternity from the first Private Parts and Pieces album as I was reading his column!

I used to repair pub video and gaming M/Cs when I was younger for

a company that supplied football tables for Antony's first album release at Dingwalls, Camden Lock. If you know the cover you will know why! At the end I was presented with a copy of Um and Ah, his first album and Private Parts and Pieces, both of which have been firm favourites of mine ever since. I will definitely be seeking out more of his music following Paul's article.

It makes me wonder how many other favourite artists I have lost touch with? I remember being delighted when I found that East of Eden were still releasing albums into the noughties. SNAFU being one of my all-time top ten albums.

It is nice to know that great musicians like Antony Phillips do not just disappear but continue to produce fabulous tunes for us music hungry audiophiles for many years, we just need to know where to look. It seems now that Hi-Fi world is one of those sources, long may you continue your good work. Thanks again Paul.

John MacCormack



Private Parts and Pieces, an album by Anthony Phillips. "He managed to preserve, and continues to do so, that elusive soul of the 'real' Genesis for all time" says Dermot Bell.

Hi John. Ah, our minds are moving in a synchronous fashion, it seems. For East of Eden, I trust you are keeping in touch with the Esoteric label reissues? 'SNAFU' has seen remastered and now has bonus tracks attached. **PR**

DUAL DRIVE

I wondered if this might be of interest to your readers, not having seen it elsewhere...

On your recommendation I bought a McJo. Currently driving it from a MacBook using the Audirvana app. which switches off a number of the Apple background apps and also picks



"One of the McJo outputs was sending Left channel only and the other Right channel only" says Zap. "A huge improvement. Notes were clear and sharp, transients spot-on, and the sound stage perfect".

up all my libraries (hard drive & iTunes on the Mac.). And also using Qobuz (44.1kHz stream). Audirvana also allows me to play hires files which I can't seem to do using the iTunes app. And the sound through my 25yr old Sennheiser HD545s is excellent. Surprising as they are both "Old" and a 300 ohm load.

I then tried using the McJo to drive my main system pre-amp [Audio Note M6] using an Audioquest "Golden Gate" 3.5mm jack to RCA interconnect (2m). And, sad to say, the sound was not too good. Quite muddy with blurred notes and quite poorly defined separation.

The McJo has two headphone outputs, to allow two phones to be used at once and I wondered if I might get an improvement by using both to drive the pre-amp [bi-amping?]. I took an old RCA to RCA interconnect [IXOS 1002 50cm] and replaced the send pair of RCA's with stereo 3.5mm jacks. On one of the 3.5mm jacks I connected only the left lug, and snipped off the internal right lug (just to keep the wiring neat in the jack and make sure there were no stray signals). On the other jack I connected only the Right lug in the plug. This meant therefore that one of the McJo outputs was sending Left channel only and the other Right channel only.

I then tried again on my pre-amp and the music was a huge improvement.

good quality 3.5mm jack to RCA cable the Audio Quest "Golden Gate" was 80 and so not a cheezy.

Best regards,

Zap

Er – interesting and imaginative! Sending one channel from each headphone output won't affect the Mojo, but I am a little surprised this should make any difference. OK, each output drive amp has less load. But you have spilt the earths and this is sending a sort-of pseudo balanced output that perhaps explains the difference in sound. As long as it gives a better result, that's all that matters. Other Mojo owners with a soldering iron may like to comment. **NK**

MUSEUM PIECE?

I, like many other music lovers, embraced the CD as the format of the future and built up a significant collection. Only trouble is I have an extensive collection of vinyl and have recently, with the help of a plinth provided by Peak Hi-Fi brought my Garrard 301 and SME 3009 arm back to life.

My musical tastes are mainly classical and jazz with a little pop and R&B thrown in. I have had my

Hi John. As good as they were, I think you'll find the KEF104abs have been improved upon. Both loudspeakers you mention have ribbon tweeters and I think you ought to take a little listen. You'll be aware that we've all been very impressed here with the Quadral Chromium Style 8 and it was our favourite of 2016.

The other point to mention is that the SME3009 arm, as lovely as it was, rings a bit, giving a light sound. Consider an SME309 I would suggest. You will get a firmer sound with wider sound stage and stable imaging, especially with percussion. Your Ortofon 2M Black and Garrard 401 deserve it. **NK**

Hi John. As Noel says, the KEF 104abs were a fine loudspeaker with a big sound and a good low-end thanks to their passive bass radiator. However, things have moved on and I think you would indeed find the Quadral Chromium Style 8 will give you a cleaner, better defined sound. I would also add Castle's Avon 5 to your listening list – another model with a ribbon tweeter and an innovative transmission line system for excellent bass. It was another loudspeaker we rated strongly (see review Hi-Fi World October 2015).

JM

LP QUALITY

Is it just me or is the quality of vinyl pressings getting worse despite the recent revival of the format? Over the last few years I have had so many 'disappointing' LPs where the general level of pops and clicks seems far beyond that we used to get. I have numerous LPs from the seventies and eighties that, despite having had a far from loving past life, still have fewer audible problems than many of my newer disks. Recently I bought a new copy of The Wall on 180gsm and to be honest I gave up and consigned it to the shelf after just one listen. All my records are cleaned on an AudioDesk Vinyl Cleaner Pro before they ever see my turntable, a Garrard 401 with Origin Live Encounter arm and Dynavector Karat 17D3 cartridge all mounted on a twin level AudioSlate plinth.

It seems that whenever a butterfly beats its wings in a faraway forest one of my hermetically sealed 180gsm LPs somehow manages to gain a new scratch, pop or click. I can only assume that the vinyl being used these days is somehow more susceptible to damage than used to be the case. Of course the demise of the local record



SME 309 arm, the best replacement for John Arnold's SME 3009, Noel says. It has a rigid tapered arm tube, removable headshell and is beautifully made and finished in legendary SME fashion.

Notes were clear and sharp, transients spot-on, and the sound stage perfect. I was achieving the same clarity as the directly connected headphones.

I've also used the same interconnect to drive a WAD valve Headphone amp (again years old) and once again the music really did snap into focus.

I'm not sure if this is a good solution or if I might cause any long term damage to the McJo. And I'm also not sure how much replacing the 2m Audioquest "Golden Gate" [3.5mm jack to RCA] with a 0.5m IXOX cable might have contributed to the improvement. But I have found it difficult to identify a

NAPI 20/NAC22 reconditioned by Naim and a pair of KEF 104aB speakers together with an Ortofon 2M Black and Dynavector DV-10X5 complete the bill.

It all sounds pretty good to my ear but am I missing something? Your recent review of the Quadral Chromium Style 8 set me thinking and I have read good things about the Quad S5. My question is, would it be worth me investing in either of these speakers, or is my current system only worthy as a museum piece?

Many thanks,

John Arnold



LP production is an old mechanical process carried out on big, heated presses. Results can be variable. Check out <http://www.pallas-group.de/en/vinyl/vinyl/> to see a press in action, stamping a 'splatter LP'.

shop hasn't helped the situation. In the "good old days" you could, if you had a decent local record shop, always take it back and negotiate with them for a replacement.

Unfortunately, my local independent shop finally gave up the uneven battle a few years ago, so like many people I now buy on line where the sheer effort required to repack and return a record because you are not happy with the quality means that I will almost always live with the problem simply tutting and moaning to anyone who will listen. Most of my friends are now deaf to these regular outpourings of dissatisfaction and simply say "why don't you just download the MP3?"

I do despair for the masses who think MP3s on a phone played through cheap earphones gives them the whole musical experience. I may actually be forced to disown my own children for this particular crime, I will certainly have to leave my system and records to someone who understands the additional pleasure good hi-fi can add to the listening experience when the time comes.

I would buy more hi-res downloads – the few I do have certainly approach vinyl for sound quality – if the sites weren't generally such a poor user experience. They really need to be as slick and easy to use as Amazon to get the throughput to a level where the prices are acceptable. How on earth can a download be more expensive than a double LP in a gate-fold sleeve delivered to your home?

Whilst penning this rant I have been listening to Kula Shaker's rather excellent K2.0 on vinyl and not a single pop or click to spoil the experience so

it is possible to get quality vinyl, but just not as often as I'd like.

Martin Bah and Humbug Taylor

Vinyl is very difficult to cope with commercially. There is (or was) little profit margin on it and when an LP was returned we found that the time spent checking the return and the cost of postage of the replacement was so great as to put us into significant loss. Vinyl LPs have to be sold with a decent margin if a retailer is to cope with all this, otherwise they go off market, as you have found. The CD was designed from the outset to avoid such issues, so as to be a commercially viable.

NK

Hi Martin. T was ever thus! I recall returning Queen's 'Jazz' to HMV, when it was first released, on five occasions before I found a half decent copy.

Unlike those MP3s and downloads that you mentioned, vinyl production is such an organic process. Issues can occur at any one of dozens of points throughout the manufacturing process, whether they be due to the frailties of vinyl,

machines or, indeed, humans.

The percentage of vinyl errors probably hasn't increased but it might seem so because vinyl is more numerous. If I'm wrong and vinyl errors are, in fact, increasing then look to the sheer strain that pressing plants now find themselves under because of vinyl's popularity. Be careful what you wish for, indeed. **PR**

SCREEN STAR

You asked about experience with screened cables. Mine may be of some interest. I live in a situation where you might think screening is unnecessary, a rural location far from transmitters, in a cottage with thick stone walls that even inhibit the wi-fi signal from the router reliably connecting with my listening room. There is however a pole mounted electricity transformer within 10m which converts the overhead supply across the fields to domestic AC.

Over the years, with different amplifiers and speakers, I have experienced some edginess in the treble and a diffuseness with stereo placement. Attention to the mains seemed obvious and using Isotek and Russ Andrews extension leads with filtering ameliorated, but did not cure, the problem. I should explain that my sources and amplifiers hide behind a substantial chimney near the listening position which necessitates long speaker



Chord C-screen screened loudspeaker cable costs just £5/metre. Of a predecessor, "the result was a revelation with no apparent sibilance or edginess and very clear and firm instrumental placement" says Dr John Hurley.

leads. Over the years I have tried leads of different gauges, materials, ribbon and twisted configurations from major suppliers, without much success.

I eventually took my problem to my dealer who suggested a screened Chord lead, which is now obsolete but at the time cost over £30 a metre. They were able to loan me a demonstration pair of long leads for home trial. The result was a revelation with no apparent sibilance or edginess and very clear and firm instrumental placement.

However, I was not able to justify spending in excess of £500 on cables at the time. Searching the internet I was able to find a generic professional cable using high purity medium gauge twisted copper of very similar screened construction to the Chord, albeit using slightly less advanced insulation. At just £3 a metre it was "worth a punt" and the result has been most satisfactory. The lack of grain and edginess is still very apparent and imaging is precise, if not in quite the same class as the Chord, but it is much better than any other cables I have used. It also happens to be very musical. I would say it gives 90% of the performance of the Chord for 10% of the price, so is very good value.

I can think of no other reason for this improvement other than the long length of the cables at 8m each might have made them more susceptible to interference, from sources unknown.

I should say that I continue to buy equipment from my dealer, who if they did not get a sale on that occasion have, from their willingness to loan demo equipment, benefitted substantially subsequently.

Dr John Hurley
Research for Education

Hi John. That is interesting. Long loudspeaker leads make good aerials, as people in Crystal Palace, South London, know when they suffer severe interference from the commercial television transmitter that dominates the area. Thick walls make little difference, unless they are aluminium, steel or copper! Perhaps it is screening, or immunity to 'radio' signals that explains some of the differences we hear between cables. Your experience certainly suggests so and is a valuable insight. **NK**

SILENT USB

On my way to restoring vinyl to my life after many years' absence I have just bought a GT40-alpha, on the strength of the excellent Hi-Fi World review some time ago.



Furutech GT40 Alpha has on-board phono stage and digital output via USB. But it "doesn't want to talk to the Oppo BD105" says Jim Thorpe.

I want to connect the USB B output of the GT40-alpha to the USB B input of my Oppo BD105 Blu-ray player, as it has no analogue inputs. I tried to connect them together with two USB A to USB B cables coupled together. However the GT40-alpha doesn't want to talk to the Oppo BD105. Is there something I can do? Maybe USB B can't talk to USB B.

I have of course checked, by connecting it to a MacBook Pro, that the GT40-alpha produces a USB output, and confirmed that the Oppo USB B input accepts a signal, from the MacBook Pro, connected with USB A to USB B cable.

Your assistance would be greatly valued.

Jim Thorpe

Hi Jim. With USB you need a device and a controller, irrespective of the socket used, and the controller is your computer. Both your hi-fi items are classed as devices so they won't speak to each other.

But why do you want to connect the GT40-Alpha to the Oppo BDP-105D? I assume here you have the

Oppo connected into the hi-fi and want to use it as a preamp with remote volume control. Putting the GT40 Alpha into a digital loop where it turns analogue to digital and the Oppo then turns it back into analogue before sending it to an amplifier isn't the best idea. You need to connect the Alpha's analogue outputs into the amplifier direct, to avoid going digital. If it is an integrated amp it will have input switching, if it is a power amp you will need to buy a simple input switch box. These are rare but Maplin sell one for £7. **NK**

SUPER SOCKET

Thank you for printing my letter outlining my positive experiences of installing a dedicated mains spur and your interesting reply in the bumper January edition.

The improvements from the mains outlet were very tangible but the electricians had fitted a basic switched socket. Popular opinion advised a quality unswitched socket, so I duly contacted Russ Andrews who immediately sent me



A Russ Andrews Super Socket, UK 13A mains socket. "Our helpful and patient electricians appeared doubtful of the potential benefits" says Mark Armitage. But it offered "even further improvement especially in terms of detail and deep and tuneful bass".

their double Super Socket which looked as though Russ had actually signed it himself.

I presented this proudly to our helpful and patient electricians for installation who appeared doubtful of the potential benefits and asked How much did this cost? Despite their misgivings, it was expertly fitted and once again even further improvement especially in terms of detail and deep and tuneful bass emanating from the Audionote ANEs.

This experience again left me wondering why I had not done this before, after installing specialist power cords, interconnects, supports and a host of turntable mats, eventually favouring a Funk Firm Achromat on the Rega P9.

Thank you Electricians and Russ Andrews.

Kind regards

Mark Armitage

Thanks Mark. We always need personal views about cables and mains upgrades, since circumstances differ so much; our experiences are not necessarily representative.

If you want a laugh with your electricians, ask them to install a balanced power supply, as described by Euan Grant in Letters last month. He uses an Airlink Balanced Power supply, and they offer versions with noise filtering and advanced noise filtering.

Direct doubtful electricians to the Airlink transformers website (www.airlinktransformers.com) where they will find credible explanations of what balanced mains power is all about. **NK**

SOUND BAR

Hello. My name is John and I have been trying now for close over a week to gain some info – and no joy. Any feedback I receive is somewhat sparse on not helpful at all, very vague and tepid.

I have a Sony Bravia 40" screen. I am very much taken with Yamaha audio and the Yamaha YAS-306 sound bar loudspeaker. I have Vonhaus universal sound bar braces. Can the sound bar I



Yamaha YAS-306 sound bar, shown here below a screen. Can it go above the screen, asks John Keenan?

am talking about be attached to the sound bar braces to be situated at top of the television: Yes or No or does it give as good a result just situated on my television rack. Yours sincerely
John Keenan

Hi John. I say Yes to putting the Yamaha YAS-306 above the Sony Bravia. It is billed as wall mountable and you need to give the sound it projects unobstructed dispersion around the room, because that's how it gives apparent surround-sound from one source.

If you place it low down the surround effect is compromised by furniture and carpets (absorption).

So hoist it onto those Vonhouse brackets and get drilling! Don't put it too high: just above the screen will do, especially as this helps keep ugly cable runs (signal and power) short. The subwoofers give more bass when hard against a wall too. **NK**

FANCY RIBBON

Has the ribbon tweeter arrived? At one time a rarity in speaker design they are now occurring in designs by Audiovector, Quad, Castle, Elac, Dali, Golden Ear, Piega and I am sure a few others I have not mentioned. Is the reason lower production costs and greater consistency between individual samples, as I have read that in the past speaker manufactures would have to match pairs of ribbon tweeters individually (a time consuming task), often rejecting whole production batches due to poor manufacturing tolerances.

Reviews consistently mention a ribbon tweeter's superiority over the usual domes for clarity, accuracy and openness. Does this latter attribute make ribbon tweeters an attractive proposition for pairing with transmission lines to provide deep and accurate bass (as in the Castle 5 for example)



Castle Avon 5 – a transmission line cabinet with ribbon tweeter.

or closed box designs as opposed to the usual reflex port, which can have problems. I have been looking at IPL Acoustic's kit designs which marry a ribbon tweeter with a single mid range/ bass unit, promising an accurate but low bass. A new direction in speaker design?

Yours

Peter Graves.

The reason ribbon tweeters were uncommon is because the few that existed reached down to 4kHz or so – not low enough to match the bass/ midrange unit of a two-way design. The solution was to use a dedicated small midrange unit able to reach smoothly up to 4kHz, but this means a three-way design that is more complex and expensive. I'm not aware that ribbons are intrinsically more variable or unreliable than domes; this is a manufacturing issue.

Partnering a sweet sounding ribbon that reaches high smoothly, with transmission line bass that goes low will in principle make for a great sound. But this will not be a cheap loudspeaker, because transmission lines demand a complex cabinet – and that is where a lot of cost lies. The Castle Avon 5 we reviewed in our October 2015 issue is a good example of this approach however.

NK

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Grand Opus

The new Opus 2 portable digital audio player boasts a host of features - and is one of the best sounding on the market, says Noel Keywood.



The Opus 1 portable digital audio player (DAP) I reviewed in our August 2016 issue was solidly built, smooth in its sound, easy to use and – best of all – costs a reasonable £499. The new Opus 2 by way of contrast costs £1250 or thereabouts, so this is a premium player. What could its Korean manufacturer TheBit possibly add that could justify such a price I wondered?

Their website (www.audio-opus.com) soon made this clear. Where the Opus 1 uses a Cirrus Logic CS4398 DAC chip, the Opus 2 uses the more expensive and prestigious ESS Sabre32 series 9018K2M (portable version). It also possesses wi-fi for easy firmware upgrade, and Bluetooth so music can be streamed wirelessly to the hi-fi – providing it has a Bluetooth link of course. TheBit say it has Mastering Quality Sound (MQS), but this simply means hi-res ability – not to be confused with Meridian's MQA digital file authentication system.

The Opus 2 is chunky and solid. Measuring 83mm wide (not 76mm as the website thinks), 125mm high and 18mm deep, it will not fit a shirt's top pocket; this

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Press button controls for Play/Pause and Track Skip at left, with microSD card slot and microUSB socket at bottom.

player is for a strong trouser pocket, or a bag. On our scales it weighed 254gms and anything over 200gms I rate as heavy. The reason is an ESS 2018K2M chews current and needs a big battery, so to get 9 hours playing time a 4000mAh Li-polymer battery is fitted where 3000mAh is common. Add in a chunky machined alloy case and large TFT 4in touch display panel of 480x800 resolution and you end up with a sizeable player. It had a turn on time of 25 seconds.

The Opus 2 has a protected, side mounted rotary volume control that is definitely a plus point: it can be twiddled in the pocket without looking. There are 150 discrete levels so resolution is good, and at maximum (150) the player delivers enough output from its 3.5mm headphone socket to drive headphones loud.

This same socket also has an optical digital output hidden away inside, for which you need a small, cheap, plastic plug-in adaptor (available from Maplins) into which an optical Toslink cable can be inserted. A drawback of this is that the optical input receivers of many DACs work to 24/96kHz maximum, so play a 192kHz sample rate file (24bit) and the system falls mysteriously silent.

I value the presence of a digital output because it allows me to hook up a player to the hi-fi via a mains powered DAC, bypassing the battery powered audio output stages that, as good as they may be, never match mains powered circuits in sound quality – always short of dynamic punch.

To the right of the headphone socket lies the strange and almost unusable 2.5mm four-pole socket that offers balanced output (also used by Astell&Kern). I spotted what looks like an adapter and a pair of XLR line plugs on the website, so balanced analogue audio can be taken to the

hi-fi if you obtain these bits, but digital linking is preferable.

You can also connect up headphones balanced as I did with my Oppo PM1s, for slight improvement in sound quality if, that is, you can get hold of a suitable headphone cable terminated with a miniature 2.5mm four-pole plug. I soldered up such a cable some time ago, using an



slot that will address up to 200GB. An ARM Cortex quad-core A9 processor handles all processes, making the Opus 2 fast and slick to use. Its user interface is easy enough to handle, helped by a

swipe down screen with all main functions on it, as well as the inevitable Settings menu. All the usual options such as Gapless playback, Equaliser and what have you are provided, but there are no filter options. There is a USB DAC option, however, that allows the unit to be used as a quality headphone amp with a computer, connected through its microUSB input/charging cable.

All the usual file formats can be read, including WAV, FLAC

illuminated bench magnifier (Maplins again) – and it was difficult. The plug body is too small to accept twin screened cables. Also, the plugs are so weak they snap in use! So you can get balanced sound – but not easily, nor for very long.

There is 128GB of internal memory and one microSD card

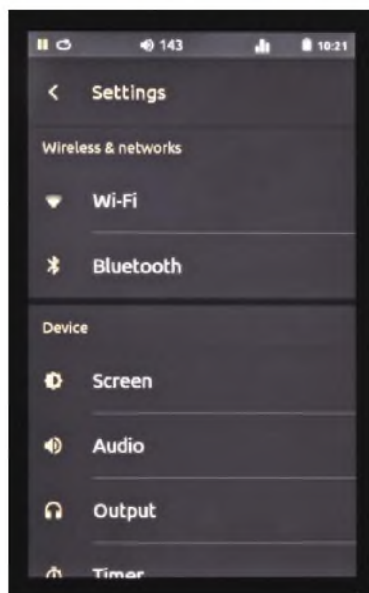
At top sit a 3.5mm stereo headphone socket, with coaxial digital output, and 2.5mm four-pole balanced output socket.

and Apple's ALAC and AIFF. There's OGG and APE too, as well as DSD (64&128) with the DFF and DSF file tags.

SOUND QUALITY

The Opus 2 sounds – in a nutshell – big, powerful and exciting. It drew me in immediately; within minutes I was in a place that was very good audio wise. Portable players these days all do a good job and it is difficult for one to stand out but the Opus 2 did – and sort of in the way expected of the ESS Sabre32 series DAC chips.

Meaning it was organically rich and smooth, better textured in its sound than others. Tracks I play regularly for review purposes all grew; the voice of Lucia Gomez singing 'Lucia' (24/96) was closer and more complex sounding; I found her more engaging than usual whilst the wooden block on one channel and accordion on the other had a stronger presence through sheer force of realism. All this is what I



Swiping down brings up this screen of basic player setting options.

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expect to hear from Sabre32 DACs well implemented.

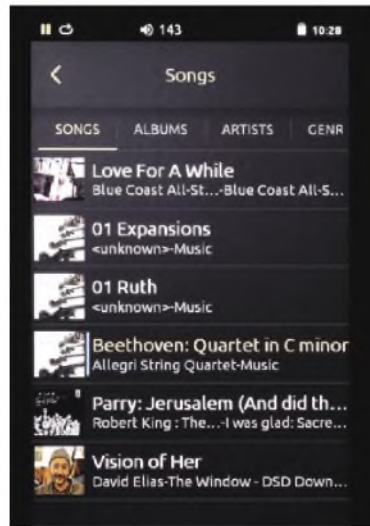
However, headphone drive chips and power supplies are an issue on portables, the latter little talked about, but low battery volts must be stepped up with modern dc-dc converters and there's plenty of leeway to mess up here. I suspect it is in this critical area that TheBit have done a better job than most, allowing the 9018KM to really fly.

Because another feature that grabbed me of this player's sound was the width of the soundstage, and its sense of depth and airiness. It brought life to any rock music where a microphone(s) had been used (i.e. most rock!) and also to classical – where I had some surprises. Benjamin Grosvenor playing 'Chopin's Nocturne No 5 in F Sharp, Op 15, No2' (24/96) I usually pass over as a trifle bland in quality and not revealing enough for a sound quality assessment yet on the Opus 2 it sprung to life not only as a beautiful piece of music superbly played but as a live and atmospheric recording too, brimming with detail, the piano stretching wide across a generous soundstage that possessed air and space, with a depth perspective.

This so captured my attention that I listened intently to a whole breadth of classic music and found the Opus 2 brought out low level detail and atmosphere like no other, making it especially strong in delivering choral works like Eric Whitacre Singers' 'Oculi Omnium' (24/96).

The Opus 2 doesn't have the hard-etched sense of time domain progression of Astell&Kern players, so much as packing a powerful low-end punch and perfect timing, obvious with the metronomic drum machine in Queen's 'Radio GaGa'. Tracks with a bit of a rough edge in the recording (24/96), like Tom Petty's 'Refugee' were better sorted out in their structure, messiness unraveled to go easier on my ear; suddenly 'Refugee' was made by humans in a studio rather than being a simulacrum hatched up on a cheap PC.

And as the all-analogue 1965 recording of Otis Redding singing 'Respect' (24/192) hove into aural view (as it were!) I felt as if I was listening in the Stax studio as the song was being laid down. The Opus 2 threw up a big wide picture of what was going on, with deep insight into Redding at the microphone and the Memphis Horns acting as



Track menu information is easy enough to read, with cover graphics depicted.

accompaniment.

Judging the player in absolute terms by comparing it to an Audiolab M-DAC, connected via optical digital cable, there wasn't the dynamic contrast available to acoustic bass, tenor sax or connet in Duke Ellington's 'Stomp Jones' (24/96) to take one example, but otherwise the Opus 2 had much of the svelte richness of the mains driven Audiolab,

that also has an ESS 9018 DAC inside of course. I don't think it is realistic to expect a battery driven device to be comparable to a mains unit, so this is no deal breaker; the Opus 2 still had the essence of the Audiolab.

Moving from listening with Phillips Fidelio X1 headphones to Oppo PM1s that can be connected balanced, I found the balanced output lacked the low-end drive and punch of the headphone output and I suspect it is purposed as a line output that needs to see a higher load than 'phones. It still sounded nice and clear however, with great instrument separation across the midband and pin-sharp imaging.

CONCLUSION

The new Opus 2 from TheBit is one of the best portable players I have heard to date. It has a wide range of useful facilities, is easy to use but – most of all – has fabulous sound quality that makes listening a riveting experience.

This player is expensive, but the bits inside and the final sonic result justify it. If you have the money and the desire – get it! It will put you into the place the recordings were made.

MEASURED PERFORMANCE

Frequency response of the Opus 2 (192kHz sample rate) measured flat to a very high 91kHz so this is a wideband device, more so than most other players. However, the audible impact of such wide bandwidth is usually minimal, slower filtering commonly offering a

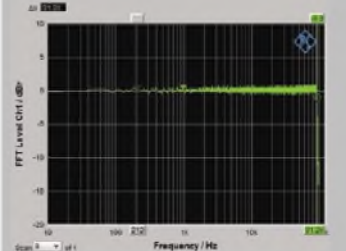
better damped time domain impulse result. This is why players commonly have an alternative 'slow' filter, something the Opus 2 lacks.

Output was healthy at 2.3V, more than enough to drive even insensitive headphones (magnetic planars) loud, if a little less than the 3V common nowadays.

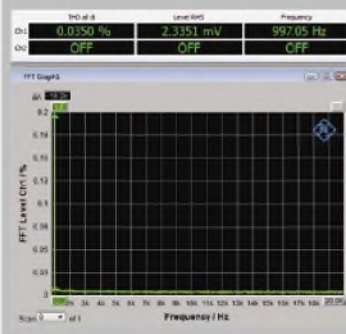
Dynamic range was high at 116dB, if not as high (120dB) as the Cowon Plenue S reviewed in March 2017 issue, so the Opus 2 is very good but not quite class leading, as might be hoped at the price. Distortion measured a low 0.035% at -60dB with 24bit and 0.24% with 16bit – both very good figures. Our distortion analysis shows a complete absence of distortion products, being a summation of noise.

Output from the tiny 2.5mm four-pole balanced socket measured 2.6V and dynamic range was again 116dB.

FREQUENCY RESPONSE



DISTORTION



Frequency response	6Hz-91Hz
Separation	94dB
Noise	-114dB
Distortion	0.035%
Dynamic range (24bit)	116dB
Output	2.3V

OPUS #2 £1,249



OUTSTANDING - amongst the best

VERDICT

A portable with fabulous sound quality. But expensive.

FOR

- sound quality
- ease of use
- balanced analogue output

AGAINST

- heavy
- a tad bulky
- small balanced socket

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LISTEN BEYOND

The Fantastic Four

In-ear headphone pioneer Etymotic has updated its venerable ER4 range with two new models. Jon Myles takes a listen.

Etymotic were amongst the first wave of companies to tap the burgeoning market for audiophile in-ear headphones in the wake of the rapid rise of the iPod.

With a specialist background in acoustic research and hearing aid design the US-based company was well-placed to enter this new sector.

I well remember traipsing up and down London's Tottenham Court Road to find a stockist of Etymotic's ER-4 'phones after purchasing the third iteration of Apple's portable jukebox with what was then a gargantuan storage capacity of 10GB.

They were truly different, being inserted deep into the ear canal for a noise-isolating fit and using balanced armature drivers.

Of course, many others have followed in their wake and there's now no end of similar designs available. But the ER4 (yes, they've now dropped the hyphen) range is still going strong with the latest models being the ER4XR and ER4SR which feature an upgraded driver.

In terms of design they are identical but inside feature slightly different sets of drivers - the XR (Extended Response) having a boosted low end while the SR (Studio Reference) retains the classic flat sonic profile of previous Etymotic models.

Both are priced at £329.99 and come with a hard-shell neoprene carrying case together with six sets of ear tips - four of which are the triple-flanged type in large and small sizes while the other two are of the foam variety.

The earphones themselves are extremely thin and constructed from aluminium with a 5 foot detachable, woven cable which uses an MMCX (micro-miniature coaxial) connector. Each earpiece contains a filter which

is said to smooth the frequency response and also prevents earwax from clogging the drivers. These have to be changed from time to time as they become clogged, so a set of replacements is also included.

FITTING

Choosing the right eartip is crucial in getting the best performance out of the Etymotics. They go deeper into the ear canal than most earbuds to



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form a seal and aid noise isolation – a loose fit means you lose the frequency extremes.

Personally, I prefer the triple-flanged tips which once inserted are extremely secure. If you've not used them before they can take a little getting used to - but wear them for a couple of hours and it becomes quite natural.

The foam tips are initially more comfortable but do slightly curtail the upper frequency response – although not to the extent that you lose any essential clarity. The best advice is to try the various options for comfort.

SOUND QUALITY

There's a clear distinction between these two new Etymotic ER4 models. First, the SR – which have an accuracy and detail that befits their Studio Reference title.

With Empirical's 'Tabula Rasa' the high violin tones on 'Ascent' were picked out with absolute precision and timbral accuracy. There was an incisive quality to the high frequencies yet they were not sharp or glaring but had air and dimension.

The midrange was smooth but without any artificial warmth which when combined with the treble meant the ER4SRs sounded exceptionally fast. They also highlight the finest information within a recording, unearthing little sonic details that some other 'phones mask. Being a single driver design there's no crossover involved so integration between bass, mid and treble is seamless.

At low frequencies the Etymotics are again admirably clean with a flat, tight response that doesn't add thump to bass notes. Playing Keith LeBlanc's 'Malcolm X - No Sell Out' the lower registers were all present and correct, but the lower octave didn't have quite the heft some other 'phones muster.

But that's where the ER4XRs come in. While they have a similar sonic signature in the midband and treble the use of a slightly different driver means there's an added heft to the bass.

The Keith LeBlanc track now had a more powerful presentation – the electronic bass digging that much deeper. Not that the low-end is overwhelming but it does have more presence than on the SRs so the walking bass lines of Charles Mingus's

"an extreme clarity in the mid-range and a shimmering quality to the upper registers."

'Pithecanthropus Erectus' was fuller with extra vibrancy.

That said it does mean there isn't quite the same absolute tonal accuracy that the SRs provide - the sense that you are listening to exactly what was put down on the recording. However, I'd say those whose musical diet veers towards rock, dance and modern pop will probably prefer the XRs.

CONCLUSION

Both the ER4SR and XR models – extreme clarity in the midrange and a shimmering quality to the upper registers. They separate individual instruments better than almost anything else at this price. Little details that can be clouded over by other in-ears are captured beautifully to add realism and detail.

The big difference is in bass response. The XR has more depth and punch – so works better with

modern dance and rock music where this factor can be vital. The SRs, while not curtailed in the lower registers, don't give it as much emphasis and as such are essentially more accurate.

Both, though, are stellar performers and the choice of models will be down to your individual taste in music. Neither will disappoint.



ETYMOTIC SR4SR
£329.99



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

These in-ear headphones provide reference quality sound at their price with sparkling highs, detailed midrange and even bass with no emphasis.

FOR

- clarity
- even response
- detail
- detachable cable

AGAINST

- light-ish bass

ETYMOTIC SR4XR
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Martin Pipe revisits the Pro-Ject Debut - the entry-level turntable that helped to put new life into vinyl.

Early Debut

Cast your mind back to the early 1990s, when CD was king and only a few die-hards remained loyal to vinyl. These analogue flag-wavers would compare a decent LP with the CD version, in their attempts to prove that vinyl was more musical despite the clicks and surface noise of cherished decades-old pressings. But the rest of us weren't listening. We had bought into digital - after all, it had been trumpeted as 'the sound of the future'. Neglected turntables, entire record collections and for that matter analogue tape recorders ended up in storage, or being disposed of for next to nothing.

Which makes the launch of an affordable turntable at this time all the more surprising. The man responsible was Heinz Lichtenegger then a Viennese hi-fi retailer. The trend-bucking turntable he introduced in 1991 was the Pro-Ject I, a modified and improved version of a budget design from the Tesla factory, Livotel, Czechoslovakia.

Few (reputedly only a hundred or so) Pro-Ject Is were built, but that wasn't the end of the line. Over the years, a range of successors were introduced. Today, the Pro-Ject I lives on as the £575 I Xpression Carbon.

However it's the true budget end of the turntable market that we're interested in here. The matt-black Debut, which made its first appearance in 1999, was the result of an agreement between Pro-Ject in Austria and importers Henley Designs in the UK. The Debut MkI became an instant success, gaining numerous accolades.

2001's Debut II (£115), the first model of the series officially sold in Europe, switched from a mains-powered AC motor to a low-voltage one powered by an external mains-transformer. It was available in six different colours to broaden its appeal to the design-conscious - for this, you had to pay an additional £15.

Then came the £160 Debut III that benefitted from, amongst other things, cosmetic changes and a relocated power switch. It could be supplied in a choice of eight colour. Indeed, there seems to have been no end of Debut III variations. They enabled the Debut III to be marketed for seven years or so.



The Ortofon OM5E, a medium-compliance moving-magnet design with user-replaceable elliptical stylus, was supplied with several generations of Debut. A 78rpm stylus is available - handy if you decide to replace your Debut's pulley for old-time record playback.

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My own Debut III, as featured here, is an unmodified Phono USB from 2008 or so. Selling for £315, it was one of the first turntables to ease the process of digitising vinyl for playback on smartphones and personal music players.

The circuit board adding this functionality lives behind a metal box mounted underneath the deck. It contains a basic RIAA phono stage, built around LM833N op-amps, and a Burr-Brown PCM2904 chip that converts the resulting line-level audio (also available on gold-plated phono sockets) into 16-bit, 48kHz-sampled stereo signals destined for your computer via USB 1.1. No device drivers are necessary for its goal of 'direct to disk' recording, for which Pro-ject recommends the excellent free software Audacity.

Even with the 'stock' OM5E MM pickup cartridge, the Debut III is a very musical performer – it genuinely gives listeners a taste of high-end vinyl playback. Sure, it is not the last word in terms of dynamics or detail – and presentation can lean towards the 'thin'. But it nevertheless makes listening to records a very engaging experience, which is a definite achievement given the modest price. I can imagine that it helped to turn the tide in vinyl's favour, certainly giving digital converts the opportunity to enjoy those LPs they had almost forgotten about.

The USB feature is alas not the best I've heard, and those 16-bit recordings can sound a little coarse - but it's still leagues ahead of those cheap plastic USB turntables sold by high-street retailers, with their awful ceramic cartridges! A significant limitation is that you have no control over recording level - the gain chosen by Pro-ject's engineers is a compromise. As a result, a compilation LP crammed with tracks can be recorded at a low level - below -6dBFS - while a heavily-modulated 12in. dance single can 'clip'. Henley Designs told me that a new Pro-ject model in preparation will address this problem.

Owners of the 'standard' turntables can experiment with different phono stages, as well as trying some of the various upgrades distributed by Henley Designs. They include a 12in. Acryl-IT platter, cork and leather replacements for the 'stock' felt mat, superior cartridges (notably the Ortofon 2M Red), uprated interconnects and the Clamp-IT puck - that addresses



The simple but effective 'Pro-Ject 8.6' tonearm is secured to the Debut III via two bolts. Bearing 'play' is sometimes a problem – and the tonearm in the picture is being removed to sort that out!

warps and holds the record and mat closer to the platter. There's also a replacement 33/78 pulley, for those who are prepared to sacrifice singles for shellac (suitable styli are available for the OM5, and other Ortofon carts).

My particular Debut III Phono USB had some 'slackness' in the arm bearings, and it seems this isn't uncommon. To fix this, I had to remove the tonearm (the nuts that secure it are accessible from the underside of the plinth). I could then lift out the arm, and tighten (slightly!) the collar of the vertical shaft (which is locked with a grub-screw).

This isn't a job for the faint-hearted, and you have to be extremely careful when doing it. Over-tighten, and the increased friction will affect tracking. Get it right, though, and an improvement in sound quality is evident - I found that, in particular, focus and detailing were audibly better. Not bad for

a deck that I chanced upon for a fiver at a car boot sale! It was in Rega packaging, which suggests the owner had upgraded. A few minor bits (the belt and bias weight, for example) were missing, but Henley stocks all of these. I was lucky; used Debut IIIs tend to sell for £100 or so, depending on condition and version. Older models and non-workers in need of attention can be yours for less. But all mark a viable entry-point into the joys of vinyl!



This circuit board, which lives in a metal box screwed into the base of its plinth, is the simple but effective phono stage and USB converter. The LM833N op-amps of the RIAA-equalised pre-amplifier, a crystal (associated with the digital converter and USB interface chip on the other side of the board) and power-supply components are all visible. Similar circuitry is used on Pro-ject decks to this day, although the firm will soon be updating the converter to a more worthwhile 24-bit resolution.



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Switzerland-based Piëga are back in the UK with their new Classic range of loudspeakers. Jon Myles tries out the entry-level 3.0 standmount.

Swiss Classic

Ribbon tweeters were once something of a rarity – generally restricted to the higher end of the loudspeaker market due to their complexity and cost compared to traditional soft dome or metal alternatives.

All that has changed recently, however, with a number of established manufacturers bringing out ribbon-equipped models in the sub-£1000 range (think Quad, Castle, XTZ, Quadral for example).

Family-owned Swiss company Piëga, though, has been an enthusiastic adherent of the technology since its inception in 1986, using in-house designed drivers

in most of their range. Piëga has had a rather sporadic presence in the UK hi-fi market over the years so its name is not as well-known as perhaps it should be.

All that could soon change however as Piëga is making a concerted effort to woo British listeners – especially through its Classic series of which the 3.0 standmount on review here is the smallest model with the rest of the range featuring five floorstanders and a centre 'speaker.

And the Classic 3.0 is certainly a handsome-looking loudspeaker. Measuring 340mm x 210mm x 280mm (H/W/D) our samples come in a beautiful gloss Macassar finish

– white and black are also available – which simply oozed quality out of the box. On first sight I (and one or two others) estimated their price at around £2000 due to their fit, finish and construction. But no, the Piëgas come in at £899 which is an immediate plus point considering their up-market looks.

In terms of design they are a traditional two-way, rear reflex-ported model with an 18cm mid/bass driver above which sits Piëga's proprietary AMT-1 tweeter. There's a single pair of binding posts at the rear and impedance is a quoted 4 Ohms with a claimed frequency range of 38Hz to 40kHz (see Measured Performance for our



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authoritative results). The supplied grilles attach magnetically so there are no ugly fixing points on the fascia if you choose not to use them.

SOUND QUALITY

As the Classic 3.0s are a relatively large standmount and weigh in at around 8kg, a solid pair of stands is essential to getting the best from them. Suitably placed and firing straight down the room they were connected to both a McIntosh MC152 solid-state power amplifier and an Icon Audio Stereo 30SE single-ended amplifier using KT150 valves.

It was quickly evident that the quality looks are matched by a sound that is both full and insightful. The low end, in particular, is pleasingly large and weighty for a speaker of this size.

On The Beta Band's 'Life' from 'Hot Shots II' the descending bass line near the end of the song was particularly testing as it covers a full octave and proves a severe test for standmounts. The Piegas handled it with aplomb, punching the notes out into the room with rich tonality and a good sense of power.

The lower registers have a definite emphasis to them but this does mean anything with a propulsive rhythm comes across with a foot-tapping quality. Slotting King Tubby's 'Dub Fever' into the CD player the power of the bass lines brought a smile to my face. They were deep and powerful but with no bloat or overhang.

Up above the ribbon tweeter shone, having both speed and precision, translating into an insightful sound. With Elvis Costello's version of 'Shipbuilding', Chet Baker's echoing trumpet solo floated well clear of the speakers, having height and depth as well as a crystalline quality that sent tingles up my spine.

With a wide soundstage on offer the Piegas proved adept at unravelling complex pieces, layering instruments in a clearly delineated space. My Bloody Valentine's 'Loveless' with its tremolo guitar techniques and sampled feedback can descend into a drizzle through some speakers but the Classic 3.0s picked the music apart so I could follow the individual guitar lines, while Kevin Shield's and Belinda Butcher's vocals – although low in the mix – were easy to follow.

Taken together, the strong bass and soaring treble can at times make the midband sound a little recessed

but it was nevertheless smooth and fluid with a good degree of detail on offer. The ringing piano on The Bad Plus's 'Comfortably Numb' sounded timbrally rich, Wendy Lewis's passionate voice possessing a husky texture and phrasing.

That detailed treble does mean the Piegas do not flatter poor recordings. Compressed pop could start to sound uncomfortably edgy and on Billy Bragg's 'Life's A Riot With Spy vs Spy' the so-called Bard of Barking's solo electric guitar was just a little too searing for my ears.

With better quality material, however, the ribbon tweeter served to bring out detail soft dome units commonly gloss over. Ornette Coleman's saxophone on 'Sound Grammar' at 24bit/96kHz was so gloriously realistic I could picture his fingers on the buttons. Even better, the atmosphere of the venue in this concert recording was fully conveyed, giving a live feel to the music.

That's the great thing about these new Piegas: they are able to bring out detail and nuances in all forms of music while sounding extremely assured with a great sense of tempo



A reflex port sits above gold plated mono-wire terminals able to accept 4mm plugs, spades or bare wire.

and a bass response that positively thrives on up-tempo rock and dance music.

CONCLUSION

The Piega Classic 3.0s have a lot going for them. They are beautifully built for their price and have strong bass with the sweet treble quality that only a ribbon tweeter can provide. There's a lot of choice around the £900 mark when it comes to loudspeakers but this is one model that demands attention.

MEASURED PERFORMANCE

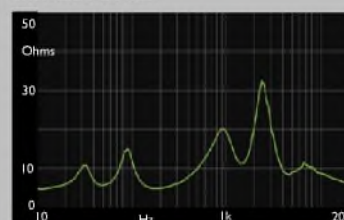
The Piega Classic 3.0 has strongly rising treble when measured on-axis, the microphone positioned directly in front of the loudspeaker. Moving the microphone 30 degrees off-axis gives the frequency response shown, where there is still a treble rise of +3dB above 10kHz. With the cabinet pointing straight down the room and not directly at listeners the Classic 3.0 will sound obviously bright, but since folded ribbon tweeters usually provide a fast, incisive yet clean sound

FREQUENCY RESPONSE

Green - driver output
Red - port output



IMPEDANCE



this may well be tolerable. A treble rise of this magnitude will strengthen detail but it will also make poor quality digital sound challenging.

The 'speaker has a smooth midband, suggesting low colouration. Low frequency output rises below 300Hz and this will add warmth and body to the sound. Deep bass is well maintained, the port (red trace) producing broad output around 50Hz. It acoustically damps the bass unit well, as our impedance trace shows in the breadth of the port dip at 50Hz and the low residual peaks either side of it. Bass will be strong, run deep and sound well damped, with a lack of overhang.

A measured sensitivity of 86dB sound pressure level from one nominal Watt (2.8V) of input is good, and as expected from a cabinet of the size; amplifiers of 60 Watts will be sufficient for very high volume. Overall impedance measured 7 Ohms due to a rise across the midband, although the bass unit is 4 Ohms like most.

The Classic 3.0 has accentuated bass and treble so it is not especially accurate, but it will likely play a bass tune well and deliver strong detail. Poor quality digital will have its limitations emphasised however, and LP surface noise accentuated. **NK**

PIEGA CLASSIC 3.0

£899



EXCELLENT - extremely capable.

VALUE - keenly priced.

VERDICT

Piega's in-house ribbon tweeter provides clean, extended treble while there's good bass on offer from this classily built standmount.

FOR

- strong bass
- clean, open treble
- build quality
- tempo

AGAINST

- unflattering to poor recordings

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METALLICA

Hardwired...To Self Destruct
Blackened

Age does funny things to people. Take Metallica, a band whose fame

and reputation relies upon their energy and rage...spouted from much younger minds and bodies. A lot has happened to the band since then. As creative artists, they have all evolved and changed in so many ways. This album seems to want to inject that same brand of rage and anger and energy into their music, at least initially. Is this one of those crises that you get when you get older?

The energy and anger is there, all right. Ab-so-lutely. 'Moth Into Flame', track four on the first disc, is just such a beast but then 'Murder One' appears later on, on disc two: certainly a track that you wouldn't get on an earlier release. A tribute to the late Lemmy from Motorhead, this is a track that's all about age and time and loss.

If the band hoped to keep the

energy going then maybe a double album was not the place to do it (a 4-track EP, perhaps?) They run out of puff too quickly.

Then we get a mix-match of varied styles and creative interpretations. Until the band suddenly realise that, 'Hang on a minute, can't we celebrate who we are now? Be the band we are now? Do what we're good at now?'

And that's what is best about this LP. There are quality compositions here, some excellent songwriting and great musical performances. I wish they'd had the confidence to hit the ground running with that attitude.

In mastering terms, with this band's reputation, I was expecting terrible compression but...no, the vinyl arrives with a touch of compression to add shine and lustre but it never impinges on the airy soundstage. It arrives as a 2LP set in a gatefold sleeve with a digital download option.

AUDIOPHILE VINYL



SIX BY SEVEN

The Closer You Get
Beggars Banquet

An indie rock quintet with art rock tendencies hailing from Nottingham and formed in 1991, their debut single failed to appear until 1997 which led to their signing with Beggars Banquet.

This album was their second, from 2000, and has a great line in song titles, many of them deeply philosophical while others are more pragmatic: 'Eat Junk Become Junk' is one direct piece of advice, while 'Sawn Off Metallica T-Shirt' offers lots of intriguing imagery.

There's a real early Radiohead-speeded-up-a-bit feel about many of the tracks and the delivery of the lead vocals here, and I wonder about the band's influences on that score. 'Ten Places To Die' is one such chin scratcher. No matter – that track announces the LP's true arrival as it offers extended drum sequences and melodic noise excursions that touch on post rock

drones.

There's some considerable thought given to how each song is structured and formed. The band set a mood and an arrangement to suit with plenty going on to attract the ear that, on a decent hi-fi, maintains the interest with its layered complexity.

In mastering terms, the LP appears to have been recreated from the original tapes, such is the insight and clarity of the presentation, while there is no appreciable compression to trigger listening fatigue. Notice I said 'recreated' and not 'remastered'. The band wished to retain the original 'look and feel' of the music. And that's no bad thing. Change is not always required and it certainly is not needed here.

I hear that this release – alongside a couple of shows and the release of a hits package – will signal the end of their career which is sad news indeed. If so, this LP release will be a fine testament.

You may not be too aware of the Austrian composer Muthspiel but this fine guitarist – whose oeuvre spans jazz and classical works – has worked with many fine artists as an expert sideman, including Gary Burton, Youssou N'Dour, Gary Peacock, Dave Liebman and Paul Motian.

Muthspiel has already collaborated with Larry Grenadier and Brian Blade on previous works but here expands that band to include star pianist Brad Mehldau and trumpeter Ambrose Akinmusire.

The tracks hold a sometimes easy-going, sometimes thoughtful array. There are occasions when the slow-paced output produces a quiet tension. The second track on side one, for example, 'Intensive Care' has that sitting nervously, stroking your chin in a worried way feeling, bubbling from within. There is an almost balladic tension within this piece that reflects the skill of the arrangement, yes, but also the

subtle nature of the slow twists and turns that Muthspiel constructs.

More than that, each of the band members show an impressive accomplishment in terms of their innate skill and raw talent. This is an album featuring a hot quartet that never feels the need to show off.

In mastering terms, the music sounds to me as if it was recorded 'live', although that could just as well have been a manufactured intention with the mic sometimes producing a close-up 'glare' that seems to send the music into the red a touch. So, while there is no compression on this release, the music itself is pushed somewhat to the max in pure sonic terms.

Other highlights include the tribute to Kenny Wheeler, 'Den Wheeler, Den Kenny' and the title track, another act of musical tension.

Also look out for another ECM release, this month, Jakob Bro's 'Streams' starring Thomas Morgan and Joey Baron.



WOLFGANG MUTHSPIEL

Rising Grace
ECM

AUDIOPHILE VINYL

This LP is a product of the One Step process which we featured in last month's issue (Hi-Fi World March 2016). To paraphrase for the sake of this review, the technique changes how a vinyl LP is created.

Instead of the usual three-step lacquer process, the Ultradisc One Step (UD1S), to give it its proper name, uses just the single step – taking you closer to the music by a factor of two generations.

The industry standard three-step is there for a reason: to provide the industry with the maximum yield for the costs involved, in order to make a profit while keeping the product at a relatively low price. UD1S exists with the aim of producing the ultimate in sound quality. Hence the high price of around £100 for each LP release (which is already hitting around \$400 per LP on eBay). This is a 'money no object'

process.

In this case, the album arrived in a pizza-style box. Inside was the album itself, sitting on two discs, within its own gatefold sleeve, to be run at 45rpm. Also present were a fine-art print of the original Mati Klarwein painting used on the LP cover plus other inserts.

But what of the music? Stunning. No, really. Absolutely stunning. There's more of it, music that is. Far more information in all areas whether that be bass, midrange or treble. That first track introduction of the bells being brushed and struck said it all. Treble with an unparalleled level of tonal reality.

Then there was the very low surface noise, which sparked a terrific clarity, giving tiny details a chance to breath for the first time and adding extra character to more familiar noises such as guitar and organ. Surely, the ultimate vinyl record pressing ever?



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Bel Canto DAC 2.7 Review
Hi-Fi Today, January 2016



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Stream Magic?

Interested in streaming music services such as Spotify or Tidal but unsure how they work? Jon Myles provides a guide to what you need to know.

It's every music lover's dream. Millions of tracks at the touch of a button – ranging from modern pop to classic rock, dance, opera, jazz, dub, hip-hop and virtually every genre you can think of (even Eurovision).

It's akin to having the most comprehensive jukebox in the world installed in your listening room. And all from a starting price of just £9.99 a month.

Yes, that's the promise of the music streaming service providers such as Spotify, Tidal, Qobuz, Apple Music, Deezer, Amazon and the like. They have become the fastest growing sector of the recorded music industry, with total sales having overtaken that of physical media such as CD.

But there is still some confusion amongst hi-fi enthusiasts about how to access the services, their quality

service (name, e-mail address and a password are required), download their dedicated app to your computer, laptop, tablet or mobile and sign-up for a subscription. Open the app and you'll be taken to the site where you can search the vast on-line catalogue to find the music you want to play back on your device. Type in Mahler on Spotify, for example, and you'll be presented with a selection of some 1500-plus albums to choose from – enough to keep even the most dedicated fan fairly busy.

HI-FI CONNECTION

Of course, listening via a desktop, laptop or mobile device is fine – but what about via your hi-fi? Here there's a range of options available. The simplest method is to connect your computer or laptop to an existing set-up via its audio out



The Naim Mu-so QB has built-in Spotify and Tidal functionality – making streaming a simple matter.

WHY STREAM?

The big advantage of streaming music services is the sheer choice available. For a monthly subscription of typically around £10-£20 listeners get access to millions of tracks.

The libraries can be searched in a variety of ways (artist, album, genre etc.) and most will give you the option of creating your own playlists which can be returned to later. The more sophisticated will also suggest music you may be interested in based on previous listening - a fantastic way to discover new artists.

The downside is that the music is never owned or physically downloaded to the subscriber's equipment. End the monthly subscription and all access to the catalogue is lost. Then there's the question of quality (see separate panel).



Cambridge Audio's CXN makes an excellent choice for adding streaming capability to a system.

and just what you get for your money. So here's Hi-Fi World's guide to all you need to know.

HOW STREAMING WORKS

All the different services are web-based, meaning you'll need an internet connection – ideally wireless. While individual features vary, they all work in essentially the same way.

First you register with the

connection. For best results take a digital output from the computer into a DAC (by-passing the internal soundcard). I've used a MacBook Air into a Chord 2Qute for streaming Spotify and Tidal with good results.

This does, though, mean having the computer close to the hi-fi – or having a long run of cable. An alternative method is to go wireless - which will usually mean

adding another box. This needn't be expensive, though. A device like Google's Chromecast Audio costs as little as £30 and plugs into a hi-fi (via RCA, 3.5mm or digital optical) to allow the streaming of services like Tidal and Spotify with your phone/tablet/computer acting as the control point.

For its price the Chromecast sounds surprisingly good, so if you're looking to dip a toe in the water

Annual Clearance

	Retail	Clearance
ATC SCM-11 (cherry)	£1,200	£1,019
Bel Canto REF500M power amplifier (pair)	£3,998	£2,199
Bel Canto REF1000M Mk2 power amplifier (pair)	£7,000	£2,499
Bryston 28B SST2 1000W power amplifier (pair)	£19,000	£7,599
Burson Audio Timekeeper	£1,950	£1,199
Burson Audio Conductor SL9018	£1,199	£999
Burson Audio Soloist	£799	£679
Chord Chordette Maxx amplifier	£989	£799
Chord Sarum speaker cable (3.5m pair)	£3,850	£2,999
Clearaudio Performance DC turntable	£2,495	£1,999
Cyrus 82 DAC QX (Quartz Silver)	£1,970	£1,549
Cyrus SmartPower	£699	£349
Denon AVP-A1HD processor	£6,799	£1,499
Denon DVD-A1UD universal player	£4,500	£1,199
Devialet 200	£5,490	£4,399
Devialet 250 Companion	£7,990	£5,499
Devialet 400	£9,890	£6,999
Dynaudio Focus 220	£2,600	£799
Focal Diablo Utopia + stands (White Carrara)	£9,898	£6,499
Focal Scala Utopia V2 (Black Lacquer)	£21,399	£12,749
Grace M903 headphone amplifier	£2,150	£1,599
KEF Reference 1 (Gloss Rosewood)	£5,000	£4,249
KEF Reference 3 (Walnut)	£7,500	£6,399
KEF Reference 5 (Gloss Black)	£10,500	£8,899
KEF R500 (Walnut)	£1,500	£1,149
KEF R700 (Rosewood)	£2,000	£1,549
Lavry AD122-96 MKIII (analogue to digital converter)	£6,360	£3,199
Lavry 3000S (sample rate/bit depth converter)	£4,248	£2,099
Linn Akurate 212 (Rosenuit)	£4,380	£3,299
Linn Akurate 4200 (Silver)	£5,270	£3,849
Linn LP12 Akurate (Walnut, no cartridge)	£5,270	£4,449
Linn Majik 4100 (Black)	£2,410	£1,899
Mark Levinson No32 Reference preamp	£15,000	£7,499
Moon 180 MiND streamer	£799	£499
Moon 380D MiND DAC streamer	£4,500	£2,999
Musical Fidelity E20 and E30	£900	£649
Naim CDS3	£6,795	£2,295
Pass Labs XP-25 phono stage	£12,000	£6,499
Plinius SA-Reference power amplifier	£17,000	£13,599
PMC Fact 12 (Tiger Ebony)	£12,995	£9,749
Proac D30R (Cherry)	£4,750	£3,749
Quad PA One headphone amplifier	£1,200	£999
Raidho D1 + stands (Walnut Burl)	£15,125	£10,599
Sennheiser HD800 headphones	£1,099	£799
Sennheiser IE800 headphones	£599	£499
Sim2 HT5000 projector	£42,500	£7,499
Sonus Faber Olympica II (Graphite)	£6,398	£5,049
Sonus Faber Olympica III (Walnut)	£8,998	£6,799
Sonus Faber Venere 1.5 + stands (Gloss Black)	£1,298	£999
Spendor A5R (Walnut)	£1,995	£1,399
Torus RM16 power conditioner	£7,900	£1,999
Vitus RCD-101 (Black)	£9,700	£7,249
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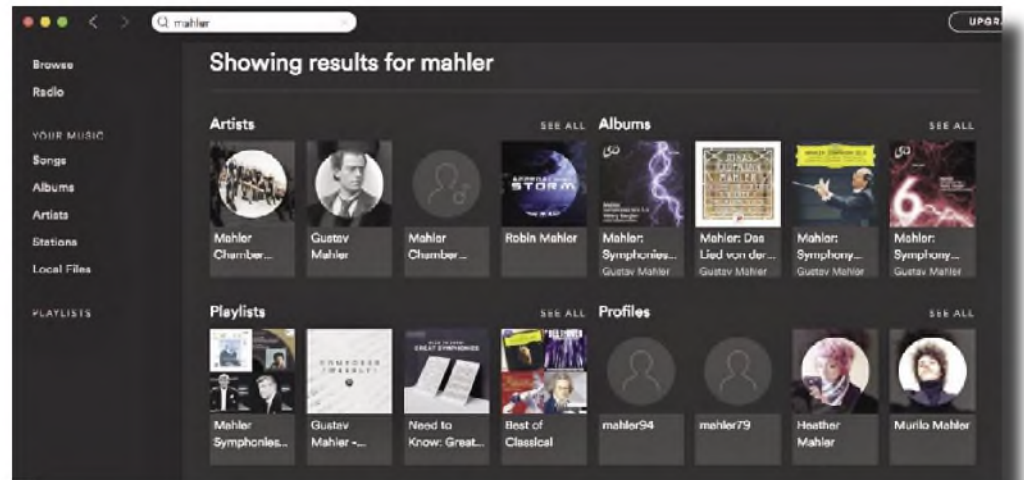
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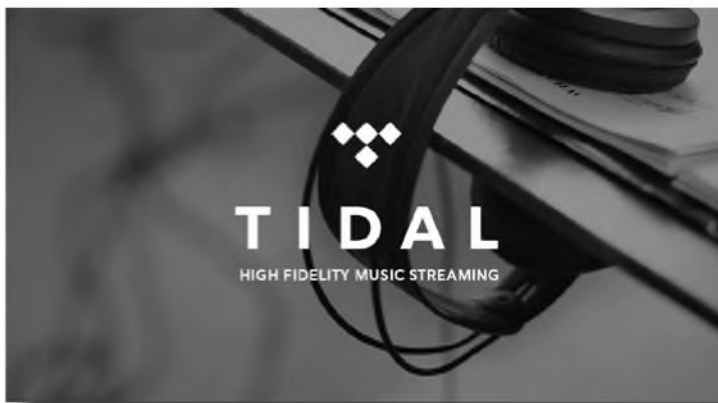
with streaming without spending too much money, this is an ideal way to start. Another alternative is the £42 Gramofon – a dedicated Spotify device.

Further up the price scale more and more dedicated streamers, speaker systems and all-in-one players now have native support for various streaming services built-in. All you need to do is log in to your account on a computer or mobile device to control them – they will access the individual sites automatically from your network.

The growing popularity of streaming music services means established manufacturers such as Naim, NAD, Cambridge, Arcam and even the likes of McIntosh see it as essential to include access to them in their products.



Spotify's dedicated app makes searching for albums, individual tracks, artists and even dedicated playlists simple.



The Tidal streaming service offers millions of tracks in CD quality – giving it a clear advantage over the likes of Spotify for audiophiles.

Indeed, as I write this I'm listening to a selection of music streamed from Tidal's extensive library (more than 40 million individual tracks) playing via a Naim Mu-so Qb wireless speaker. It's CD quality sound and all controlled from the comfort of my seat. If you haven't tried it, perhaps now is the time to start.



For just £30 Google's Chromecast Audio offers a cost-effective way to add streaming services to your hi-fi. It also sounds surprisingly good for the price.

WHICH SERVICE TO CHOOSE?

The crucial question and the answer depends on what you are looking for. If you want to discover new music for buying in a better quality format later, are simply looking for background sounds or will be playing the stream through a mobile or tablet via headphones one of the lower-quality £9.99 options makes sense.

If, though, quality is of the essence then the higher-priced lossless services have to be the choice. The difference is clear through a decent hi-fi set-up.

The good news is that all the services offer free trial subscriptions of varying lengths so you can try before you buy.

SOUND QUALITY

Apart from their catalogues, the quality of the music files on offer is the biggest difference between the various streaming services.

The most popular – Spotify – offers 320kbps streams in the Ogg Vorbis format on its Premium (£9.99 a month) service. This offers decent detail levels but is still below CD resolution. There's a free tier as well, but this is capped at 160kbps and advert-supported – meaning promotions interrupt the stream every few songs.

Newcomer Apple Music (also £9.99 a month) streams at 256kbps in AAC (Advanced Audio Coding). Again this is a lossy codec, but some people say they prefer its overall sound to that of Spotify.

For true lossless potential subscribers will need to point their browsers towards Tidal. Its top tier HiFi service streams Flac at 1411 kbps (16bit/44.1kHz) for £19.99 a month - although there is a lower Premium subscription which offers 320kbps AAC for £9.99 a month.

Not surprisingly, with even relatively budget hi-fi equipment the Tidal offering trumps Spotify and Apple Music in terms of sound quality – with extended frequencies, more detail and a richer soundstage.

Its only mainstream rival is French-based Qobuz which also offers CD-quality lossless files for £19.99 a month, but the catalogue is not as extensive as Tidal. Interestingly, it has recently introduced a new hybrid streaming/download option dubbed Supreme. For an upfront yearly cost of £220 (equivalent to £18 a month) subscribers get CD quality streaming plus a 30 to 60 per cent discount off downloads from a selection of 40,000-plus hi-res albums ranging from 24-bit/44.1kHz to 24-bit/192kHz. Once purchased these can also be streamed in hi-res.

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"Cut me open then, and you'll see SME written inside"



Noel Keywood

The press thrives on bad news, or as Donald Trump and Breitbart would have it – fake news! Whatever, I won't get into that here. Happily Hi-Fi World isn't about 'end of the world' doom stories, real or imaginary, and does not have to be negative to attract readers; that's an elsewhere mindset.

I have one piece of non-news, however, and it is that the UK economy is at present stable and functioning well: I'm not hearing endless moans from manufacturers about the market drying up. I'm also getting more requests to buy the magazine (no) from overseas investors who see an English language magazine distributed worldwide as a place to stash cash. Hmmm...

Money is available from investors world-wide to fund companies that have potential – and Britain has a durable hi-fi industry that continues to attract overseas investment.

Today's buoyant environment is encouraging for the future and I've just returned from an interesting little 'closed' press event that very much caught my interest. It was a follow up to an announcement made December last year about Cadence Group's (Pune, India) acquisition of SME, renowned manufacturer of pickup arms. That came out as a press release; this event was to more fully explain the situation, first hand by those involved.

Tripping along London's Oxford Street – mobbed as usual – in the sleet on a cold February day, I tumbled thankfully into Audio Venue on Wigmore Street nearby. The event woke me up more than the weather outside however, because it involved a better explanation of the intentions of the group in fine detail. Matters of engineering, investment in jobs and manufacturing and such like very much interest me, being an engineer

and – for my sins – once even a manufacturer.

SME is based in Steyning, West Sussex – a picturesque town nestling in the gorgeous rolling countryside of Britain's South Downs. It had been in the hands of its founder Alastair Robertson-Aikman, since he started it in 1946, although recently his son Cameron Robertson-Aikman took over. This company is one of the last remaining bedrocks of traditional British hi-fi, one I have always admired – like so many other people around the world.

SME is an abbreviation of Scale Model Equipment, which is how the company started out. It engaged in small scale precision engineering and founder Alastair Robertson-Aikman, was a notoriously eccentric and obsessive perfectionist. It was said he demanded tractors on his land plough the fields so that the furrows ran parallel to the horizon, rather than converge on it! I never asked him about that one.

He and I agreed that Quad ESL-63 electrostatics were as good as it got (he used vertically stacked pairs) but I managed to persuade him that World Audio Design 300B mono-blocked power amplifiers were better suited to driving them than Krells, and he gratefully agreed after hearing them, buying a pair.

I have always used a 12in SME arm at home – currently a 3125 – with my Garrard 401, that I bought from Garrard way back in 1971. Cut me open then, and you'll see SME written inside.

There's something very personal about all this, I think because both products have more than fulfilled their promise over the years. There's little I can think of so well made and finished as an SME arm, and so lovely to use.

Also, I want and need to review and use top quality cartridges

in a well developed and stable environment – see the Audio Reference One review this month – and an SME arm provides this. But more than anything, SME arms deliver wonderful sound: I have never desired for anything else.

One final technical note: a 12in arm generates less distortion than a 9in, so for cartridge distortion measurement I must use an SME 3125 to minimise the arm's contribution.

At the small press gathering the new MD, Stuart McNeillis, confirmed that the company will continue to make all parts in-house, including screws. Bought-in screws are not good enough.

Oh boy – is that ever perfectionist! SME is a hi-fi company quite unlike others.

Cadence group is run by the mild mannered Ajay Shirke, who attended the gathering. He has a passion for British hi-fi, also owning Spondor, and even a UK loudspeaker cabinet maker. I have to be impressed by the fact that he purchased one of the last British cabinet makers just to keep the skill alive in the UK, investing to re-equip it.

After Ford passed the ball with Jaguar Land Rover, Indian truck manufacturer Tata made it work: I hope the same will happen with Cadence's purchase of SME.

MD Stuart McNeillis, a perfectionist engineer from the aircraft industry, talked about setting up apprenticeships at SME to provide skills training locally. Ajay Shirke not only supports the idea, but funds it.

What a great time for all this to happen. With the vinyl market now glowing white hot – see Paul Rigby's piece on Mobile Fidelity's sell out of the LP Abraxas – the future of SME looks good.

So this column is about good news that's real – not fake, I promise you! ●

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"I find it interesting when creative people try to recreate themselves anew"



Paul Rigby

We all have a past. The older we become, the larger that past gets, of course. For some, the past is something to be forgotten and buried, others see it as a memory of lost opportunities and 'what ifs'. There are those who see the past as a time of pride and will repeat and repeat its details during family gatherings. There are others who see the past as an embarrassment, a time to be ignored, protected and walled-off.

Many of us see the past as a film. One that is edited for public consumption. Where bits are revealed for select occasions while others are left to gather dust. Of course, relevancy comes into this. For example, in my career as a journalist, I have always told a prospective employer about other magazines or newspapers that I have written for but have strangely excluded my Saturday job at Argos when I was 16. Probably because I was afraid to receive an "Oh yeah. And...?" Irrelevant to the subject at hand, you see?

I do find it interesting, though, when creative people try to recreate themselves anew. You know the sort of thing, devil-worshipping, heavy metal axe man who used to pen ditties for Children TV's educational programme *Sesame Street*.

Well that sort of scenario is not too outlandish. Remember David Bowie's 'Laughing Gnome'? Then there was: Black Sabbath/Rainbow hard rock frontman Ronnie James Dio who started out as a clean-cut rockabilly singer with a DA haircut, uncompromising industrial rock Nine Inch Nails man Trent Reznor, who played in a new wave band covering songs by the Thompson Twins, or hardcore hip hop man Everlast, whose early career ventured into

cheesy Vanilla Ice territory.

Some people can get away with it, though. Master guitarist Steve Hillage for example, was a flower power-esque hippie who was part of the Gong collective but who ended up writing successful guitar-based techno music in the 90s for the second *Summer of Love* (which dovetailed quite nicely for him). David Bowie not only publicly catalogued his own past but revelled in it and based an entire career on his own personal changes (and then penned a song with that very name).

Others liked to pretend that their career began with the band that brought them fame and that they never had a creative past. That they were never anything else except the chart-busting, fame-hound that you see in front of you, playing this sort of music with this type of fashion sense.

Marc Bolan, before his ego grew larger than the Outer Nebula, was part of John's Children ('A Strange Affair' two CDs of sixties recordings can be found via the Grapefruit label). He wrote a song called 'Desdemona', which was banned by the BBC, and then grew frustrated of not being in control and jumped ship.

Sometimes a past leaps out at you when you least expect it. Peter Skellern was a singer-songwriter who was plastered all over the TV when I was a child. He appeared in the early 70s and would have had the musical spot on TV programmes like *The Morecambe & Wise Show*, singing easy-going ballads with a sepia-tinged, almost Noel Coward-esque delivery with hits such as 'Hold on To Love' and 'You're A Lady'.

And yet Skellern was a member of the psychedelic outfit *The March Hare* signed to Decca before transforming into *Harlan County* in the early 70s (see the psychedelic

pop compilation, 'Shapes & Shadows' on Grapefruit).

Moving to another musical scene, Tim Rice likes to bathe in his grand and rather cerebral role as a Tony and Grammy award-winning lyricist with his colleague Andrew Lloyd Webber for the likes of 'Jesus Christ Superstar' and 'Evita'.

But Rice was also an enthusiastic manager for the rather twee, British psychedelic-pop band *Tales of Justine* (See the CD, 'Petals From a Sunflower' on Grapefruit). Think 'Butterfly'-era Hollies in style. In fact, *Justine* band member David Daltrey would ultimately appear in the 'Joseph and the Amazing Technicolor Dreamcoat' show.

Then there's the Manchester band *10cc*. The thing I like about *10cc* is their acceptance of the past (good, bad and embarrassing) and their acceptance that the past leads to the future. It does sound obvious, but you'd be surprised how often the laws of physics are ignored by rock stars.

All of the ex-band members of *10cc* are and were always very happy to talk about the history that brought them to 'this point'. Take the novelty, pre-*10cc* group, *Hotlegs* (see 'The Complete Sessions 1970-1971' on Grapefruit), who had a hit with the rather simplistic, novelty chart hit 'Neanderthal Man' (before Graham Goldman joined).

10cc man, Kevin Godley, explained, rather refreshingly, that "I think everything we did up to that point contributed to it whether we knew it or not. What we were doing essentially was learning by doing. Although some of the stuff we did we didn't think was great, every time we did anything it coalesced in our brains without us knowing it was happening"

Rare and commendable maturity from Kevin, there. ●



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“David Bowie played one of his first gigs during a weekly folk night at one of my local hostelrys”



Jon Myles

Art, TV, drama and almost all other forms of popular entertainment invariably have a period that gets dubbed as their Golden Age. Music is no different.

To some people around my age the year 1977 looms large as it was the date when punk hit the mainstream and ushered in the likes of The Sex Pistols, The Clash, The Buzzcocks, Siouxsie And The Banshees and a host of other – many now forgotten – bands (Slaughter And The Dogs anyone?).

That in turn led on to the extraordinary surge of creativity which was post-punk and New Wave, giving us Joy Division, Talking Heads, Patti Smith, Public Image Ltd and, eventually, the first flowerings of electronic music.

To others it is the 1920s when jazz came roaring out of New Orleans and swept America, Britain, France and elsewhere.

Renowned music journalist David Hepworth has his own view entirely – singling out the year 1971 as the “most febrile and creative time in the entire history of popular music”. It’s a bold claim but one he makes entertainingly in his new book entitled (appropriately enough) *1971 – Never A Dull Moment: Rock’s Golden Year*.

I must admit, that particular twelve months had never struck me as an especially auspicious or memorable one in the annals of recorded music. But, as Hepworth explains, a year that dawned with Paul McCartney initiating proceedings to wind-up The Beatles saw the release of more influential pop and rock albums than any one before or since.

Forget events such as the Open University beginning TV broadcasts, Rolls-Royce going bankrupt, decimalisation, The Daily Mail going tabloid or

even MPs voting to join the European Economic Community...it was the music that mattered most.

The cast of characters involved is indeed impressive, incorporating Led Zeppelin, The Rolling Stones, David Bowie, Marvin Gaye, Carole King, Joni Mitchell, Pink Floyd and Rod Stewart to name just a few.

Oh, and then there was the small matter of The Old Grey Whistle Test launching on BBC2.

If you want to get an idea of the breadth, depth and overall quality of the music involved there’s a handy accompanying playlist on Spotify entitled *1971: Never A Dull Moment*, that is worth a listen.

If 1971 doesn’t take your fancy, however, how about 1966 as an alternative? That’s the period chosen by fellow writer Jon Savage who, in *The Year the Decade Exploded*, picks it out as the time pop entered the cultural landscape in a way that changed the whole fabric of society. As Savage notes, Haight Ashbury in San Francisco was the centre of the hippy universe, pirate radio was flourishing and Bob Dylan became the first major artist to release a double album (*Blonde On Blonde*). Mix in The Beatles, The Byrds, Velvet Underground, The Who, The Kinks and The Rolling Stones and it’s quite a powerful argument.

For a more country-centric view of a Golden Age of music look no further than Rob Young’s *Electric Eden: Unearthing Britain’s Visionary Music* – a 654-page exploration of Britain’s relationship with folk music and most especially its commercial zenith in the late 1960s and early 1970s. It’s a winding journey that takes in well-known names such as Pentangle, Steeleye Span, Nick Drake, Ewan MacColl and John Martyn as well as lesser-known bands with such evocative names as Parchment, Tintern Abbey, Mr Fox, Oberon and

Dulcimer, with digressions along the way concerning William Morris, Vaughan Williams, cult film *The Wicker Man* and Cecil Sharp’s English Folk Dance and Song Society.

Fascinating nuggets of information crop up on almost every page. I had no idea, for example, that David Bowie played one of his first gigs during a weekly folk night at one of my local hostelrys – The White Bear in Hounslow (also, apparently, the scene of early gigs by Jimi Hendrix and The Small Faces).

Nor was I aware that the founders of the Glastonbury Festival wished to “stimulate the earth’s nervous system with joy, appreciation and happiness so that our Mother planet would respond by breeding a happier, more balanced race of men”.

Again, like David Hepworth’s *1971*, there’s an accompanying soundtrack available in the form of a 2CD collection featuring a selection of the artists covered in the book. Many of the artists don’t quite have the glamour of Led Zeppelin, The Rolling Stones or Pink Floyd but the music provides a fascinating snapshot of a musical movement whose influence has never really died away (look to Mumford & Sons for proof of that).

Personally, I’d make no great claims for a Golden Age in any form of music, preferring to see all genres as constantly evolving, mutating and, occasionally, merging to create new forms and sonic adventures. But the beauty of books such as these is they get you digging out albums you had long forgotten or point you in the direction of artists you may never have listened to before. They also highlight how the music being produced today has been influenced by that which went before. As such all three books I strongly recommend – preferably read while sitting down in front of the hi-fi. ●

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"Some 57% of all UK households currently have at least one digital radio"



Martin Pipe

Norway decided to phase out FM radio this year. It's already started – first to go, in January, was the transmitter serving the northern city of Bodø. Switch-off was announced in 2015, the schedule being proposed as far back as February 2011. Norway started trialling the DAB technology that will account for much future radio-listening there in 1995 – the same year our own BBC started DAB services (note in passing that Norway, like the UK, started FM broadcasting in the 1950s). The latter revelation is contained in the 'Norwegian proposal on the digitisation of radio' document, published by Norway's Ministry of Culture, which also revealed that the "analogue switch-off" would be triggered when "at least 50% of Norwegian households" have digital sets.

Sounds familiar? Maybe. The 50% figure is used slightly differently here. As Yvette Dore, Communications Director of trade-body Digital Radio UK, explains: "When 50% of all listening, regardless of what station you're listening to is via a digital platform," then "current digital-radio policy will be reviewed." This essentially means devising a plan to make all radio-broadcasting digital – Sky, cable, Freeview and online, as well as DAB – within a specified timeframe. Dore made the revelation that some 57% of all UK households currently have at least one digital radio. DAB penetration in British cars isn't as widespread, although I was told that 85% of new cars are now factory-fitted as standard.

A DAB adaptor for cars sells in the UK for £130 plus fitting – Norwegian listeners can buy similarly-priced hardware. It modulates the selected DAB station onto a FM channel that the car's

existing radio can receive – not dissimilar in practice to the UHF modulators built into TV set-top boxes. A stereo line-output is also provided, for the benefit of in-car audio systems that can take advantage of it, while a Bluetooth receiver adds the ability to wirelessly-stream music from your smartphone.

Yes, the Highway 400 seems to be a complete car-radio makeover; other features include smartphone voice-control, song identification, Spotify control and – if you're able to resist all these distractions – 20 DAB presets. I was informed by Dore that Pure will soon be launching a budget DAB adaptor for less than £100.

But in Norway? Progress Party MP Ib Thomsen, was reported by Reuters as saying that the country was "simply not ready", pointing out that despite the availability of adaptors "two million cars on Norwegian roads" still aren't DAB-equipped – and that "millions of radios in Norwegian homes will stop working when FM is switched off".

These FM sets belong to listeners who are satisfied with existing stations – notably those from NRK, Norway's most prominent broadcaster and the equivalent of our BBC. They aren't bothered about the extra choice that DAB brings; in Norway, an eight-fold increase in variety relative to FM is claimed.

Other DAB advantages pitched to listeners include clarity and freedom from hiss. Its signals, reckon DAB's Norwegian backers, carry better in fjords and mountains than FM's. I'm not sure about that. Both utilise VHF – 174-240MHz in the case of Norwegian DAB and 88-108 MHz for FM. It's more a case of how and where the transmitters and their aerials are installed. Computer-modelling is a technique that didn't exist when FM went live...

So now those listeners, many of whom are elderly, will need to replace their radios if they want continued information, education and entertainment from the NRK they grew up with. Interestingly, an opinion poll conducted by the Dagbladet newspaper last December revealed that 65% of Norwegians opposed switch-off. Only 17% were in favour, the remainder being undecided.

In a July 2016 edition of the same newspaper journalist Jan Thoresen told readers that "Norwegian politicians have decided to make 15 million FM radios in Norway completely useless – a bad idea".

The Norwegian situation is nevertheless being closely-monitored elsewhere in Europe. Denmark is considering closing down FM, while Switzerland plans to do so from 2020. In the UK, 2020 has also been mentioned.

Most Norwegian stations are actually carried via the DAB+ variant, with its HE-AAC v2 audio. Bitrates vary from 16kbps to 96kbps. Traditional DAB, as deployed in the UK, relies on the older and less-efficient MPEG-1 Layer-2 codec. Higher bitrates are needed to deliver acceptable sound quality, reducing the number of stations that can potentially be accommodated. So, might there be a switch to DAB+ here? Funnily enough, it's already happening. Last year Sound Digital, a semi-national commercial DAB multiplex, started operations. Four of its 19 services (Jazz FM, Fun Kids, Magic Chilled and Union Jack) are DAB+.

Older DAB radios won't be able to decode these services, which are carried at 24 or 32kbps. So, might all stations go DAB+? Dore couldn't comment but does recommend radio-buyers look for the Digital Radio UK tick-mark which shows the product is DAB+ compatible. ●



WORLD STANDARDS

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

TURNTABLES

AVID INGENIUM £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 Soneci goes from strength to strength. New Xeel 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 slick to use. Superlative SME quality and sound at affordable price.

SME V £3000
Offers rapid rise 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.



GOLDRING 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 phono stage 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 phono stage with valve output circuit and a big sound.



QUAD 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 phono stage 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 DA 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 VS160 £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 8DAC £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.

SUGDEN 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 VS175 £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.



QUAD 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.

QUAD 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 D3 £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.



QUADRAL 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.

QUADRAL 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 DC10 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 OBH11 £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

ELECTROCOMPANET 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.



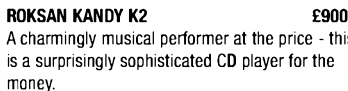
OPPO BDP-105D £1200

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 20UTE 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.



CONVERT TECHNOLOGIES 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.

LOTOTO 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 sprightly 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
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
Purposed 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.

vinyl section

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www.hi-fiworld.co.uk

DUAL MTR-75 TURNTABLE 83

Noel Keywood takes Dual's new budget USB turntable for a spin

AUDIOPHILE BOOK 87

Paul Rigby reads George Harrison's updated I Me Mine

THE DOORS 89

Paul Rigby talks to the man behind the new reissue of The Doors legendary debut LP.

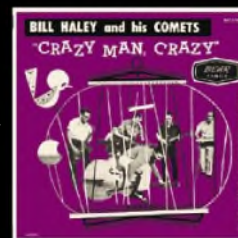
CHARISMA REFERENCE ONE MC CARTRIDGE 92

A top quality moving coil cartridge at a reasonable price. Noel Keywood listens

news

CAN YOU BEAR IT?

New from German audiophile outfit Bear Family (www.bear-family.com) is a pair of 10" albums. Firstly, Bill Haley and his Comets' 'Crazy Man Crazy' (1955). The title track was the first rock'n'roll track in the charts and to appear on national TV.



Wanda Jackson's self-titled 10" is a reissue of a 1959 Japanese ten-track LP after the track 'Fujiyama Mama' (included here) became a hit in Japan.

Also look out for Lancelot Layne's 'Blow Away' from the early 70s. The title track was the first example of rapso (a blend of Trinidadian calypso, soca and hip hop).

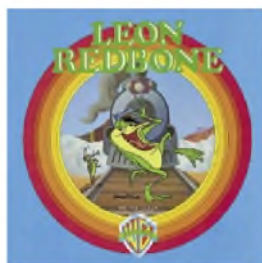


THIRD MAN ON FIRST

A new bunch of goodies from US-based Third Man (thirdmanrecords.com) includes a White Stripes' fifth album reissue 'Get Behind Me Satan' – available for the first time on black vinyl. Top class rock that needs time to digest, from 2005.

Two from minimalist, lazy low-key voiced Leon Redbone includes his pre-war style of blues, folk and jazz with the spacious and lo-fi 1975 debut, 'On The Track' and the new LP 'Long Way From Home' – 1972 raw recordings. Brilliantly, enigmatically, magnetic. If only Prozac worked this way.

Finally, two 'Live at Third Man' LPs: Woods is psych-folk in a cloak of falsetto while comedian Billy Wayne Davis is a master of observational humour.



BOB DYLAN MONO TRIO ON MO-FI

Big gun audiophile vinyl from America's Mobile Fidelity (www.mofi.com) which offers 1964's excellent 'The Times They Are A-Changin'' 1965's amazing 'Bringing It All Back Home' and 1967's brilliant 'John Wesley Harding'. Classics, the lot of them, all on mono, all limited and numbered to 3,000 and all running at 45rpm. Play them with a stereo cartridge (even in mono mode) and delude yourself. Make sure you grab a decent mono cartridge to play them otherwise there's no point in buying these luxury editions in the first place (a 0.7mil tip only, folks).



PURE PLEASURE CLASSICS

From Pure pleasure comes Carmen McCrae's sparkling 'The Great American Songbook' (1972), featuring the likes of Joe Pass and Jimmy Rowles. Also look out for Sidney Bechet's 'Grand Master of the Soprano Sax and Clarinet' (1956) compiling three sessions from 1938-1947. A welcome reissue of a forgotten rarity.



LITTLE JIMMY SCOTT

Ex-Lionel Hampton jazz singer who was cruelly ignored for decades until rediscovered late in life, Jimmy Scott's



'I Go Back Home' (*Eden River*; www.eden-river.records.com) is a limited-edition, two LP package connected to the documentary film project of his life. Not a well man when he recorded

this LP, his voice is weak but his interpretive abilities are brilliant. Ray Charles said that Scott was the only singer who could make him cry. Now I know why.

...AND FINALLY

From Band Ane (www.clang.ci) this atmospheric electronica features beat-less soundscape ambience. Highly texturised like a nicely constructed latte.

The Dream's 'Get Dreamy' (1957) features guitarist Therje Rypdals and trippy psychedelia with obvious Hendrix influences. A compelling LP that's still fresh.

Ex-Procol Harum men (Bobby Harrison and Ray Royer) form prog/blues/rock outfit Freedom and pen soft porn soundtrack 'Black on White' (www.sireena.de). Superior music with moments of real imagination.

Mike Watt (former Minutemen and Firehose) and alt-rock 'Ring Spiel Tour '95' (Columbia) – a live album featuring Dave Grohl and Eddie Vedder. A strong album and a great occasion.

Second LP from Eight Rounds Rapid 'Objet D'Art' (www.codiz.com) has a Dr Feelgood feel spouting street-level lyrics. Gets under the skin and refuses to leave.

Produced by Steve Severin, Altered Images' 'Happy Birthday' (Vinyl 180; www.vinyl180.com) offered moody post punk. Surprising and surprisingly good. Includes bonus 7".

Tom Glazer & Dottie Evans' 'Space Songs' (1959, Modern Harmonic; www.modernharmonic.com) is an educational LP that adults will love. Even includes two songs covered by They Might Be Giants!

From Oslo, Reflections in Cosmo's self-titled, experimental jazz-rock, album (Rarenoise; www.rarenoiserecords.com). Deep, trippy, adventurous, sonic madness.

Led Bib is of the same genre, also on Rarenoise, a five-piece jazz outfit. 'Umbrella Weather' has a more jazz-primitive edge. Jazz, stuck together with flour paste.

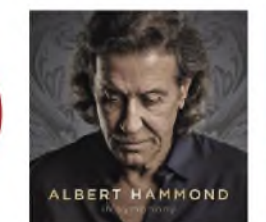
Jess Morgan's 'Edison Gloriette' (www.drabant.com; www.jessmorgan.co.uk) is a laid back, lo-fi, folk outing. Her voice blurs articulation, smearing the lyrics a touch so the music oozes out in little urges.

From Demon (www.demonmusicgroup.co.uk), a two LP coloured version of Marc Bolan's 'Slider' (1972) includes 'Rabbit Fighter: The Alternate Slider'.

English songwriter and singer Albert Hammond's new release 'In Symphony' (BMG) re-records his hits including 'When I Need You' (Leo Sayer), 'The Air That I Breathe' (The Hollies) and the classic 'It Never Rains in Southern California' that he sang himself.

Swedish metal outfit Katatonia has reissued 2005's 'The Great Cold Distance'. More dynamic with a great deal more light and shade.

Finally, Brasstronaut's self-titled album (www.tinangelrecords.co.uk) takes a melodic, almost Lightning Seeds approach to experimental rock with a math rock sliver running through the centre.





Budget Dual

At just £250 Dual's new USB turntable offers a great deal for the money – and can sound even better with a cartridge upgrade, says Noel Keywood.

As I watched the arm smoothly lift from its rest, traverse to the disc then settle down gently into the run-in groove, I smiled. It was a masterful performance, carried out in muted silence, unlike the Garrards I once used that would crash their way through the process. And all Dual ask for their new MTR-75 turntable is £250. Fantastic.

But, listening to some old blues

reminded me they have hellhounds on their trail. I've been very impressed recently by the Audio Technica AT-LP5 (Oct 16 issue) and Reeloc Turn 3 (Jan 17 issue) that cost £350, both of whom could be considered serious competitors, since they have similar facilities and a higher spec...yet cost just £100 more. Bearing this in mind, because the budget turntable market is getting quite hot, let's look at what the MTR-75 has to offer.

This is a two speed (33rpm, 45rpm) fully automatic turntable that comes as a complete plug-and-play package. It has an on-board phono preamplifier, making an external phono stage unnecessary, and it has the now-obligatory USB digital output that turns the analogue sound to digital so it can be recorded on a computer. This is almost unbelievable ability at £250. So what are the drawbacks?

Dual of Germany have a



A nice, clean underside with well made nylon gears, auto-change stampings and small frontal servo-motor.

reputation for producing good budget turntables that stretches way back to the 1960s. Those products were built in Germany, this product comes out of China. And that means not Hanpin of Taiwan who so ably produce the Audio Technica and Reeloc turntables. Chinese turntable producers are rarer than hen's teeth because China has no history of using the LP. Mao was a spoil-sport and would not let them have it, since decadent Rock 'n' Roll would upset the revolution.

In spite of this historical interpretation (!), Dual has found a Chinese turntable manufacturer, able to build a decent product I found – for peanuts. Drawbacks are an uber-budget unmarked Audio Technica cartridge that, they say, tracks at “3-3.5 grammes”, or perhaps that should be “tractors” at that weight, ploughing through grooves, since it is a worryingly high figure. I found, however, that the unit worked perfectly well, according to our tracking test disc (CBS STR-110), at a more reasonable 2.5gms so this was how I used it.

The plinth is a lightweight plastic pressing that resonates when tapped with a finger whilst a record is playing – not ideal. But the up-side is that the player is very light at 3.9kgs.



The arm bearings had no play and no friction either, allowing free movement in both planes.

It is also low profile at 122mm high, with a well finished tinted acrylic, hinged dust cover. The plinth is 372mm (14 1/2in) deep and a 14in wall shelf is needed for enough rear clearance for the dust cover to open. Width is 435mm.

Set-up was very easy, aided by an anti-skate force dial at rear, and a calibrated counterweight. The cartridge comes fitted to a plug-in headshell with standard bayonet fitting so a spare shell with better cartridge could be used. The only fiddly bit was getting the drive belt over the motor pulley.

I took a very close look at the turntable's mechanisms and they were all well made. The auto system would trigger at the end of an LP, to lift the arm, with tracking force right down to 1gm – and the cartridge wasn't even disturbed. The arm bearings were free of slack and moved freely in both planes. And the auto system worked flawlessly. Press the Start button on the front of the plinth and the MTR-75 does the rest, placing arm onto LP then lifting it off at the end, returning it to the rest. It was uncanny to see all this again, working so smoothly and quietly; Garrard would have cried.

The arm is capable of taking a much better cartridge and I went with a Goldring 1012GX after first using the Audio Technica. A lift/lower is fitted and you can even hand cue the arm, although the finger lift isn't ideally shaped. A replacement head shell would fix this though.

The rear carries one small slide switch to select the internal phono stage (Line), or direct (Phono) if an external stage is preferred. Measurement showed the internal stage is pretty good; it even has a warp filter, interestingly similar to the filter in the Hanpin turntables. Even the USB outlet was very similar, fitted with the 16bit Analogue-to-Digital convertor (ADC), operating at 44.1kHz or 48kHz sample rate. This offers CD quality and under measurement worked well.

Dual even offer a copy of Audacity's editing software on a CD to enable digital recording. You do have to use a digital audio editor like this to record LP to your computer

as a digital file, but Audacity is available free on-line, works well and has comprehensive on-line user guides to explain all.

With no mains earth, as there is no exposed metal casework, earthing is through the phono leads. A captive two core mains cable is terminated in a UK 13A plug – no wall warts here.

SOUND QUALITY

All internal electronic circuits switch off when the turntable stops rotating, so the deck is absolutely silent when not playing.

As the arm hit the first LP I played, however, I heard a slight drone in the background, coming from the motor, something playing a silent rumble test track at high



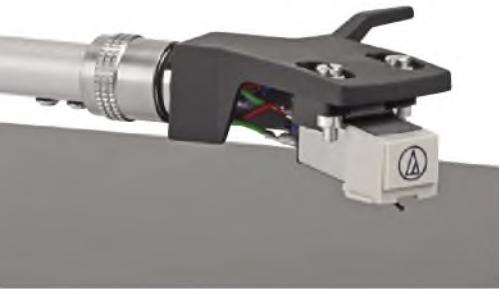
A record size selector sits close to the stylus: care is needed.

volume confirmed. It was slight though – and inaudible in normal use.

I ran the deck first connected through its phonostage (Line) to an Icon Audio Stereo 30SE amplifier driving Martin Logan ESL-X hybrid electrostatic loudspeakers and all was fine, the Dual having plenty enough output.

In spite of my reservations over the Audio Technica AT-3600 cartridge, an AT-21 variant (conical stylus, 2gms tracking force) with dual V-magnet and carbon fibre cantilever, it sounded very good. By this I mean smooth and easy, not dull or warm – and with great midband push to horns that would shame any CD player at the price.

With classic Rock tracks like Dire Straits So Far Away, from Brothers In Arms, there was strong low-end drive, drums and bass sounding meaty and muscular, just what you hope for from LP. At the same time there was no low-end wallow, due to the warp filter. Whatever I played moved with a sense of speed and dynamic snappiness,



Audio Technica's AT-3600 cartridge in a headshell stiffened by side webs.



A calibrated counterweight and anti-skate dial make set up easy.

Audio Technica, with mild upper treble free of sharpness or spit, or excessive warmth. What you don't get from a conical stylus is extended treble or forensic detail; it's all a bit generalised up top, but Audio Technica know their cartridges and the AT-3600 was a good listen (bought separately they cost £21). I see also they say the carbon fibre reinforced cantilever is "capable of standing up to rigorous commercial use" so this is a turntable the family can use! An excellent choice of cartridge then.

Playing an LP with sustained piano notes (Solid Acoustic Reference, NoB) piano had a sense of 'cracked tone' and temporal indeterminacy. On occasion the MTR-75 sounded a tad drunken after using our Timestep Evo modded Technics SL-1210 Mk2 Direct Drive reference. Piano aficionados may detect this but with most else it will pass unnoticed. The Harpin manufactured decks from Audio Technica and Reeloc manage obviously better here – and that is part of what you get for paying £100 more.

With the Goldring 1012GX cartridge fitted, I switched to using the direct (Phono) output, feeding an Icon Audio PS3 valve phono stage. As expected the sound became

much better defined and more insightful; the arm does not give the hard defined images on the sound stage, left to right, as a Rega arm for example, or the sense of dynamic impact, but it doesn't destroy dynamic contrasts or imaging either, which is why I enjoyed listening.

CONCLUSION

Watching an automatic turntable perform its little ballet is amusing – today when such things are meant to be long gone. But Dual's MTR-75 went through its sequences perfectly. It is a budget turntable that has been very well balanced throughout to deliver what you hope to hear from LP, combined with ease of set up and no-hassle use. For £250 – it is nothing short of fantastic.



The rear carries a small phono/line slide switch, and USB digital output socket.

I constantly went back to this thought: the Dual was every bit as easy to use as a CD player but had a fuller bodied, more natural and musically engaging sound with the

MEASURED PERFORMANCE

The needle of our Kenwood FL-180A Wow & Flutter meter swung cyclically and strongly around 0.25% (DIN, unweighted), exceeding 0.3% at times – close to unacceptable for a hi-fi product. No amount of run-in changed things. So this amount of speed variation was related to invariables such as mechanical eccentricity in main bearing or the platter's belt rim. Our spectrum analysis shows the high variation lay at basic rotational frequency 0.55Hz (33rpm), eliminating the motor as the problem.

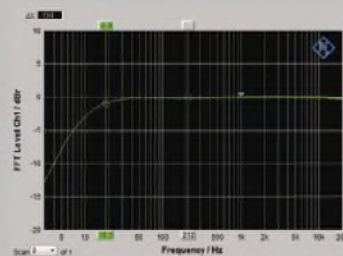
With DIN weighting, total Wow and Flutter measured 0.15% – a much better result because the DIN filtering suppresses variation at 0.55Hz. Speed was fast at +1.6%.

Subjectively, low rate variation like this makes for 'watery' pitch, softening time domain grip. Occasional slur, on sustained piano notes for example, may be apparent.

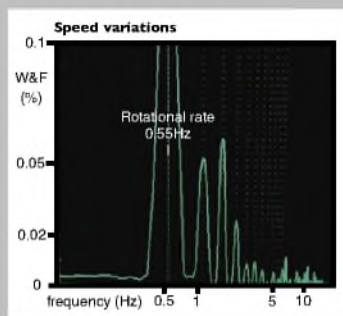
The internal phono stage that provides Line output had a useful gain of x800 (58dB), giving a high 0.8V output from just 10mV input from a cartridge. This is more than enough to drive amplifiers to full output. Overload margin

was adequate at 27mV in; few cartridges can deliver this. RIAA equalisation was very accurate and an excellent warp filter has been included, our analysis of equalisation accuracy shows here. Noise

FREQUENCY RESPONSE phono



WOW AND FLUTTER



measured a low -70dB IEC A weighted, a respectable figure.

The USB digital output reached digital maximum (0dB) at exactly the limit of the fitted Audio Technica cartridge's tracking ability, +15dB on CBS STR-112 tracking test disc (63µm peak amplitude). This was equivalent to 14mV in. USB has been well matched in.

The ADC is 16bit resolution offering sampling rates of 44.1kHz and 48kHz. Noise measured a low -77dB IEC A weighted, the effective dynamic range of the ADC and a respectable figure for budget 16bit.

The MTR-75 had poor speed accuracy and stability. The internal phono stage and USB digital converter by way of contrast were very good, accepting they are budget items. The cartridge tracked well at 2.5gms and doesn't need to be run at 3-3.5gms quoted in the handbook. NK

Speed error	+1.6%
Wow	0.25%
Flutter	0.08%
Total W&F weighted	0.15%

DUAL MTR-75 £250



OUTSTANDING - amongst the best

VALUE - keenly priced

VERDICT

A fine little automatic turntable at a super low price. It has a lovely sound and will fit easily into any system. The whole family can use it without fear.

FOR

- fully automatic
- easy to set up and use
- smooth yet dynamic sound

AGAINST

- slight motor drone
- resonant plinth
- speed instability

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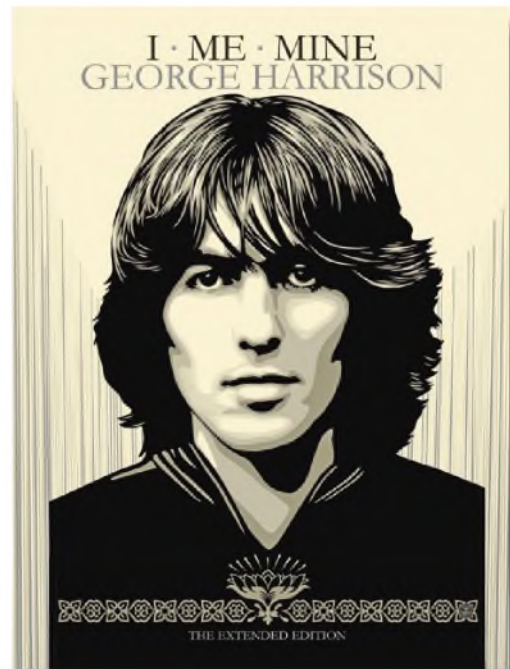
In the latest of a series on music books, Paul Rigby looks at an updated edition of the late George Harrison's memoirs.

I ME MINE – THE EXTENDED EDITION

George Harrison

Genesis Publications

Price: £40



One of the great anti-climaxes of the music publishing world. We all thought that George Harrison's book, when it was originally published in 1980, would be insightful and – judging by the book's title – even revelatory in exposing the facts and thoughts of such a private man also known as the 'Quiet One' of the Fab Four.

Not so. Only sixty pages were allocated to the man's career and much of that was actually penned by ex-Beatles PR chap Derek Taylor.

Genesis, the publisher, declared that the book is "...the closest we will come to George Harrison's autobiography". This is true, but what does that actually mean? Not a lot because Harrison omitted much of The Beatles story and avoided most of the details that we all wanted to hear about.

Not because we wanted to hear the gossip, far from it. We wanted his take on the story. His point of view. We wanted to hear his opinions and judgement on the major landmarks of his and The Beatle's career.

As it stands, what we get is a series of life notes and song lyrics. In fact, from page 80 to page 543, this book consists of song lyrics, sometimes accompanied by images of the originally penned works on various pieces of paper styles and types. On occasion, Harrison will add an explanatory piece adding context and background to the song itself.

And there are some interesting anecdotes in there. For example, I didn't know that 'Savoy Truffle' was

inspired by friend Eric Clapton who always needed dental work around that time and was walking around with permanent toothache, "...he ate a lot of chocolates - he couldn't resist them and once he saw a box he had to eat them all. He was over at my house" said Harrison, "and I had a box of 'Good News' chocolates on the table and wrote the songs from the names on the lid".

For 'Here Comes The Sun' the song was written, "...at the time when Apple was getting like school, where we had to go and be businessmen, all this signing accounts, and 'sign this' and 'sign that'. Anyway, it seems as if winter in England goes on forever; by the time spring comes you really deserve it. So one day I decided I was going to 'sag off' Apple and I went over to Eric Clapton's house. I was walking in his garden. The relief of not having to go and see all these dopey accountants was wonderful, and I was walking around the garden with one of Eric's acoustic guitars and wrote 'Here Comes the Sun'".

That's the book so why publish it again? Apart from the fact that this is the publisher's 100th book, this edition of 'I Me Mine' is larger than ever before. Arriving without a dust jacket but with a Travelling Wilbury's book mark inserted under the front cover, it now covers the

period between 1963 and the end of George's career in 2001, features 141 songs, with over fifty presented for the first time plus photographs from the Harrison family archive that are seen for the first time. You also get an updated introduction by Olivia Harrison.

Don't see this book as a straight biography, the disappointment will be palpable if you do. See it purely as a book of lyrics with a long introduction plus insights into the Harrison creative process. On those terms, this tome will be rewarding and fulfilling.

[Click on www.amazon.co.uk]



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It hinged on this

Featuring a specially-created LP/CD set of their debut album, Paul Rigby examines a new anniversary Doors reissue and talks to the original recording engineer on the project, Bruce Botnick.

It was fifty years ago that The Doors recorded their debut album on Elektra Records. From that moment, this now-classic rock album set John Densmore, Robby Krieger, Ray Manzarek and, of course, Jim Morrison on a stellar recording career.

To celebrate the recording, the surviving members of the band have released 'The Doors: 50th Anniversary Deluxe Edition', a 3CD/LP set. In addition, the music will also be available digitally.

Packaged in a large format hardcover book, the set includes a remastered version of the album's original stereo mix for CD. A mono mix is included both on vinyl and is also making its CD debut. The third CD features a live performance from 'The Matrix' in San Francisco, recorded just weeks after 'The Doors' was released. Also included are liner notes and a selection of rare and previously unseen photographs.

I wanted to find out more about the set from an audiophile point of



view and was lucky enough to talk to one of the gods of the recording industry, a man who has 'been there' on more than one occasion, Bruce Botnick. To describe Botnick's career as 'illustrious' is an understatement.

Apart from The Doors' debut LP, he was there when The Beach Boys produced 'Pet Sounds' (although "I spent more time with Brian [Wilson] on Good Vibrations than Pet Sounds" Botnick said), he recorded Love's 'Forever Changes', he worked with Buffalo Springfield, Tim Buckley, The Rolling Stones, Marvin Gaye plus many more. He also worked in the film industry with the equally legendary Jerry Goldsmith and John Williams. Is it any wonder that I undertook the interview on my knees with my face pinned to the floor?

"I've been there with The Doors from the very beginning," said Botnick. "August 19 1966, when we started recording them. We've remained friends, been god parents to children...our relationship has been good," said Botnick. "At that time we were the same age, single and fancy free. They were this



The Bernie Grundman Mastering studio.



The Mastering Lab's EQ and levelling studio.

unknown band that had been playing up at the Whisky A Go Go club. In fact, when they finished recording for the day in the studio, they went over to the Whisky and did a set. They were a working band, no-one knew them. In those days, we didn't work late evenings. Working until 8pm was a long night, for example".

When The Doors began to record their debut work, producer Paul A. Rothchild and Botnick attempted to capture the live performance in the studio, "Probably the first album is the closest record to the live experience of the band, beyond actual recordings of live performances of course. Apart from a few studio tweaks, we stayed out of

the way".

Tweaks? Well, a live version of a particular song favourite might rumble on for 15 minutes or so but a single vinyl disc wouldn't allow

example, where they would come in, there was a three hour session. From 10am to 1pm they'd record Side One, take a lunch break and record Side Two from 2pm to 5pm, recording live mono and stereo mixes and a three track back-up. When the session was over, we'd grab the master takes, edit them together, go into the disc mastering room, cut the lacquer masters and there would be album pressings out there in three or four days".

Ever since Paul Rothchild passed away and Botnick produced the reissue of L.A. Woman, he has been the band's producer and 'Keeper of the Flame', in terms of everything and anything to do with putting music on the shelf. "Great care goes into going back to the original analogue masters" he said.

Those original masters were recorded on Scotch III tape, offering "...huge particles. It was like early Agfa. You could do anything to



Doug Sax's The Mastering Lab. Included are Neumann lathes with Neumann cutting heads. All electronics have been designed and built by the Mastering Lab. itself.

that so judicious editing of the song arrangement here and a shortened guitar solo there was required.

When Jim Morrison and Ray Manzarek met on L.A.'s Venice Beach, Morrison already had twenty-four songs in the bag. "The first three albums comprise of most of those songs" said Botnick. "They knew their songs, they'd been playing them every night". Hence, the debut LP featured a tight, disciplined band.

It took around four and a half days to record the album and then the final vinyl package was on the shelf pretty soon afterward. "That was normal then. I can go back to my albums with The Ventures, for

it and it kept on ticking. Incredible tape. We've been very careful with our stuff all these years. We've kept the tapes in excellent condition, the environment at the Hollywood Vaults (a storage facility designed from the ground up for long-term preservation of film and tape) has the best archive in the world in terms of standards".

"We put out a vinyl box set five or six years ago, including a mono variant of the debut album on vinyl. That's what you have here for this new vinyl disc. This new mono vinyl pressing is based upon that remaster. That mono version was mastered with Bernie Grundman and was never sold separately. All of the



At the time of the recording of their debut album, the Doors were largely unknown.



Grundman's facilities includes a valve-based Scully Lathe with Westrex Cutting Head and BGM electronics.

albums were originally mastered on tubes. I wanted the music for the debut mono LP pressing to be mastered on a tube system to keep the character and so we used Bernie's tube system".

Botnick supplied the original mono tape master to Grundman, "We had those because we always mixed in mono. After all, that's what radio was. I love those mixes, I love mono. You're not distracted by things coming at you from side to side. It's a bit like black and white movies. They make you focus in on the story and the characters. Colours can be a little too real. It's like watching the 3D

"Mono is great because you can put things one behind the other. You can use your effects and your reverbs to create dimensions. It's a little harder in stereo. I do well in stereo, don't get me wrong, but mono was wonderful. In Los Angeles, back then, you'd see three speakers in front of you. Firstly, because we recorded in 3-track half-inch, that was the main form but also mono was out of the centre speaker and you'd use the stereo from the outside speakers. We'd always do two mixes".

Unlike other big name reissue projects of late, hi-res digital files were not used as a source for the vinyl lacquer. The source itself was the original analogue tapes, "The goal is to master from the original analogue master tapes, warts and all".

Botnick did create a hi-res digital file for use with the vinyl master but that digital file was only utilised to set EQs and levels, nothing

else. "Why set the EQ, etc with the digital file? Because the original analogue masters are old and, in some cases, fragile. You don't want to run the tape over the heads more than necessary, so the reason to use

something that is stable and then cut the lacquer masters once. It's the old adage, measure twice and cut once".

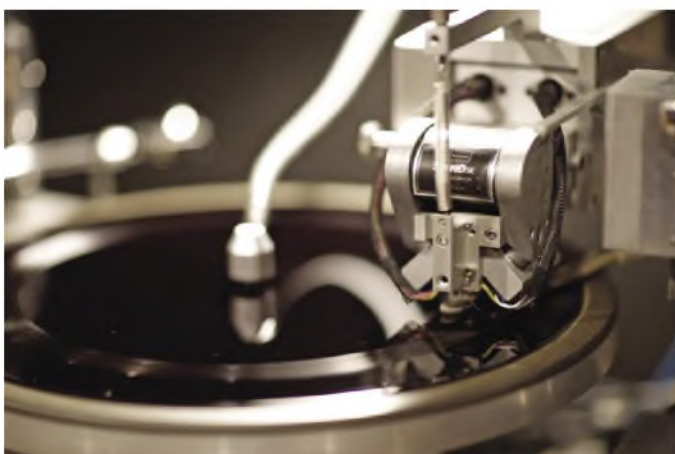
The CDs included in this new package actually feature a different album master, created two years ago by the late Doug Sax who used an all-valve (tube) Neumann system plus custom electronics designed by his brother. The Sax master was initially utilised by Acoustic Sounds for their 45rpm vinyl editions and currently remains the most recent Doors master from the original tapes. This is the first time that Sax's remastering has been utilised for a CD edition. "For this box set, we used a 24bit/192kHz EQ master from the lacquer mastering process to down sample to 16bit/44.1kHz for the new CD masters" said Botnick.

High resolution files (24bit/192kHz PCM and DSD) were created from the tapes but no concrete news has emerged as to how they will be used. "The higher the resolution we can go, the better" said Botnick. "There's more information there. We're looking very seriously at 384kHz now, possibly 32bit. It takes up a lot of room on the hard drive but the closer we can get [to the original analogue masters] without changing the character of the sound, the better".

The Doors: 50th Anniversary Deluxe Edition is out now.

TOOLS & TOYS

"At Bernie's and Doug's, all of their gear is built in house," said Botnick. "EQs, cutting amplifier, the cutting heads, everything is in house designed and built. When I started in the industry, all of the studios built their own recording consoles and so on. The only thing that they didn't build was the tape recorders. Bernie's mastering machine is a Studer mastering deck with an analogue preview head but with plenty of in-house designed kit. In my studio, I use an Ampex ATR-104 that uses Aria electronics".



Cutting a lacquer at Bernie Grundman Mastering.

version of the 'Wizard of Oz' which I have on a Blu-ray. It's weird. It took all of the magic out of the movie. I also like mono because the balance never changes, no matter where you are sitting".

Red Gem

A ruby cantilever distinguishes the Charisma Audio Reference One moving coil cartridge. Noel Keywood thinks its a gem.

Charisma Audio are a Canadian distribution company from whom we received a Reference One moving coil (MC) cartridge, June 2016. Under test it fell short of what is expected from a high quality cartridge at this price so we rejected it. Apparently, the generator assembly was out of alignment; here is a review of its replacement.

The Reference One has quite an ambitious specification and apparently it comes from a specialist manufacturer, I'd guess Ikeda of Japan by its body shape. The materials are different to those Ikeda use however, the Reference One using a ruby cantilever, no less, and the generator assembly is mounted in a resonance-free Amboyne burl wood body.

Sounds like it might be heavy then, but the Reference One weighs in at a relatively light 7.1gms – right in the middle of the 5-10gm weight range all arms can accommodate – so no incompatibility problems here.

Recommended tracking force is 2gms and the generator is quoted as 14 Ohms, suiting 100 Ohms loads or

more – most MC inputs are 100 Ohms. The stylus is quoted as a super fine line nude diamond.

In all then, this is a nicely balanced MC cartridge design wise, suiting all arms and all MC preamp inputs. Like most MCs it suits a medium mass arm, which means around 12gms effective mass. I used it in an SME309 that meets this spec.

The unit comes in a small wooden case, with three pairs of hex screws, short to long, a screwdriver and a bubble level gauge. The body has captive nuts so fitting is easy and connection is straightforward since the pins are colour coded. Charisma Audio recommend a 50 hour run in, which is about right; all cartridges need this before they loosen up and smooth out.

The measured performance of our second sample was superb. This is not the first time I've encountered variability in cartridges, especially micro-engineered specialist MCs. However, being hand built they should be hand tested afterward, in this case on a Clearaudio Trackability test disc where the Reference One should clear the 80µm track (7) as quoted in its spec. – our first sample would not. I can only hope then that in practice the units sold will be working to spec, and a dealer may have to ensure this for any purchaser. The reason I say all this is because the Reference One, in spite of initial problems, is a very good cartridge and is worth consideration; our problem may have been a one off; it is impossible to know.



A clear shot of the red ruby cantilever, sitting within a generator assembly supported by Amboyne wood body.

SOUND QUALITY

After measuring the Reference One I was expecting to be impressed – and was. Spinning a new remaster LP, direct from analogue master tapes, of Neil Young's classic *After The Goldrush*, *Tell Me Why* spread wide in a big panorama between the electrostatic XStat panels of our Martin Logan ESL-X loudspeakers, driven by an Icon Audio Stereo 30SE single ended valve amplifier and Icon Audio PS3 valve phono stage, with MC input transformers. Neil Young's plaintive voice sat within a glassy clear space, completely free of colour or taint. Strummed acoustic guitar cut out of the speakers hard – and fast.

From this opening track I was aware the Charisma Audio Reference One is fast and quite lacerative: I could hear that treble lifts noticeably, but not to a degree that bothered me. Also, cartridges first wear in – then wear out. As they do so they get dull, so best to start a little bright like this. There was tremendous separation between strings and a lovely dry resonant thrum from the



Gold plated, colour coded pins facilitate connection. The long, thin ruby cantilever and nude stylus are also visible here.

body of the guitar. The Charisma has no softness or bloat in its sound, it delivers fantastic speed and insight, coming over as dry and forensic in the way it teases music from the grooves.

There's a smoothness too and I noticed that, in spite of the treble rise, very little in the way of surface noise or ticks and pops, especially apparent when playing a glorious new Decca re-mastered LP from Pro-ject of Mozart Symphonies: OK it is a new LP on modern vinyl, but it does show how suitable LP is for classical music. The Weiner Philharmoniker was presented in a deliciously clear rainbow of sound before me, again with a sense of glassy clarity and with almost perfect background silence.

What the Charisma Audio Reference One does not have is the slight colour that metal cantilevers inject into the sound, in particular lacking the slightly hard 'clatter' of boron cantilevers. Having said that, the ruby cantilever is not at all forgiving; this is a not a euphonically enhanced transducer by any means, unlike my beloved Ortofon Cadenza Bronze, that has a touch of honey in its sound, for example. Not so here, Jackie Leven almost shouted at me on the opening of Young Male Suicide Blessed by Invisible Woman, the reverb of the invisible woman tailing away clearly into the distance.

Down at the bass end this cartridge is dry and tight again, as you might expect. Hand drum strikes on Some Ancient Misty Morning (Jackie Leven, Tales of the Dying West) had a stabbing dynamism to them, but were come and gone in a blink. I had to spin a few 12in 45s to see what the Reference One was doing at the low end and Carol Kenyon's Dance

With Me summarised the sound. It didn't have the slamming low end weight of the Cadenza Bronze, but it was vividly fast and a tad more detailed and insightful. Lack of slur or overhang complemented the rock steady speed of our Timestep Evo modified Technics SL-1210 Mk2 Direct Drive turntable, with SME309 arm. The synthesised disco drum

beat in Dance With Me was seemingly better controlled in its timing than you hear from CD and breathtaking to hear. But the Charisma Audio Reference One didn't underpin the track with bass weight, it is fast, dry and controlled in its bass delivery, rather than fulsome or heavy.

CONCLUSION

The Reference One is a glassily clear and deeply analytical sounding MC cartridge. Hearing it was almost a shock; MCs like this make you re-think what LP is capable of. It isn't quite for everyone, being a surgical knife in its precision, but at the same

time it has clarity and insight few MCs can match – and those that do have other problems. On the matter of bass, the Reference One has insight and control, rather than brute strength. It didn't alter my final view that the Reference One is an excellent MC cartridge, especially at the price. I loved listening to it and you may too.



The Reference One comes in a small wooden box, with a set of hex key attachment screws and driver, a bubble level gauge for turntable levelling and a brief instruction sheet.

MEASURED PERFORMANCE

This new correctly working sample of the Charisma Audio Reference One had a very good tracking performance, clearing all test bands on CBS STR-110 test disc, only the top torture track (90µm peak amplitude, 300Hz) being marginal. In the important midband it stayed in the groove at 25cms/sec, the torture test on B&K QR2010 – a very good result. Some cartridges jump out of the groove on this band.

Distortion levels were a tad above the norm, measuring 2% lateral and 4% vertical (mod slant angle corrected) at 45µm on CBS STR-110. Comprising second and third order harmonics this isn't a big issue sonically.

Output measured 0.5mV at 3.54 cms/sec rms (Shure TTR-109), low but respectable for a quality MC. Channel separation was a high at 32dB, few cartridges getting past 30dB.

Vertical tracking angle measured

FREQUENCY RESPONSE



26degrees (DIN 45-542 test disc) which is a good compromise between tracking height and cantilever length.

Frequency response (JVC TRS-1007 test disc) measured ruler flat across the audio band, treble rising above 6kHz to measure +2dB at 10kHz and +5dB at 20kHz our analysis shows. On inner grooves, tracing loss reduced this to a totally flat response (red trace). On balance then the cartridge is tonally accurate but with some treble zest. It will not sound overtly bright, but neither will it sound warm or 'smoothed'.

The second sample of Charisma's Audio Reference One measured very well and to do this its generator system and component parts have to be excellent. The promise is of good sound quality. **NK**

Tracking force	2gms
Weight	7gms
Vertical tracking angle	26 degrees
Frequency response	20Hz - 15kHz
Channel separation	32dB
Tracking ability (300Hz)	
lateral	80µm
vertical	45µm
lateral (1kHz)	25cms/sec.
Distortion (45µm)	
lateral	2%
vertical	4%
Output (5cms/sec rms)	0.5mV

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AGAINST

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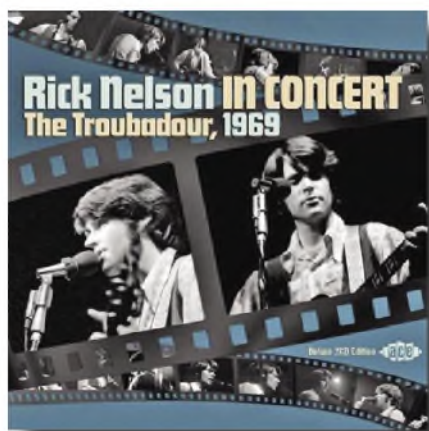
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RICK NELSON

IN CONCERT: THE TROUBADOUR, 1969

ACE



"A real gem...one that should be on any country rock fan's play list"

This column features an album that was fronted by a man that the American public loved...as someone else. The LP never had a chance and was largely ignored. The problem? Rick Nelson used to be Ricky Nelson: a man with a past, as it were. Nelson was an honest-to-goodness teen idol singing a combination of pop and rockabilly. He wasn't as scary as Jerry Lee and his voice wasn't the best you've ever heard but he took an unsung part in making rock'n'roll acceptable to middle America.

How did he do that? Well, we have to go even further back in time for that. You see, Ricky Nelson, before he became a teen idol, was a fully-fledged child star appearing in a sitcom with his father Ozzie, mother Harriet and brother David. 'The Adventures of Ozzie and Harriet' was as wholesome as mother's apple pie and twice as sweet. It was required family viewing back in the early fifties to mid-sixties (it spanned an enormous 434 episodes, which was a testament to its popularity).

Imagine then. Little Ricky is getting into this rather scary rock'n'roll movement? Well, it can't be that bad, surely? Ricky Nelson provided a measure of reassurance to parents who initially saw rock'n'roll as a destructive and violent force that was going to wreck the moral basis of society and change their sweet darling children for the worse.

In fact, his early music was helped a lot by being plugged on the TV show. This is how his Fats Domino cover 'I'm Walkin' reached No.4 in the charts.

What prevented Nelson from being a Pat Boone clone was his own inspirations and inner fire: Elvis Presley and Carl Perkins were heroes of little Ricky and so he surrounded himself with top-notch talent (he had a knack of doing this on a regular basis).

People like guitar genius, James Burton and Joe Maphis, plus writers such as Johnny and Dorsey Burnette, singing songs such as 'Poor Little Fool', 'Teen Age Idol' and 'Hello, Mary Lou'.

Nelson always enjoyed country music, which infused his work. By the late sixties, this country feel to his work was growing in importance. Especially as the quality of his

usual pop songs was falling like a stone.

Nelson created the Stone Canyon Band, one of the first country rock outfits featuring more quality talent from people who would play in star outfits such as Poco, Buck Owens (Tom Brumley), Little Feat and with Roger McGuinn. Founder member of The Eagles Randy Meisner was another. Nelson began to sing his own fare but also cover important songwriters such as Tim Hardin and Bob Dylan.

The performances on this album were recorded live at the venue between 30 October to 2 November 1969. Nelson chose his twelve favourite tracks for the LP.

This well mastered and pressed Ace reissue expands on that LP but pushing the track count up to forty-two over two CDs. The original song selection was, I would venture to suggest, well chosen by Nelson and perfectly blended into a perfect album but the extra songs are very welcome, nevertheless.

Listening to the songs, you feel that the audience were not doing Nelson any real favours (audiences are a selfish lot, though). They're at the show with nostalgia in their heads. They want to hear the oldies. Thing is, Nelson's more recent fare was artistically superior. Hardly the encouragement to break new boundaries and soar into unknown territory that Nelson would have wanted or needed. Especially so as this LP was his best release for many years.

This release is important for several reasons. Firstly, because of its early and pioneering historical position in the country rock genre. Secondly, because of the people Nelson had around him on stage during the live performance: Randy Meisner on bass and backing vocals, Allen Kemp on lead guitar, Patrick Shanahan at the drums, and Tom Brumley on steel guitar and the importance of the group as an entity (a vastly under-rated group they were too).

Thirdly, this is one of Nelson's best releases. He really loves the music and it shows. This is not a man who has turned up for the pay cheque. Fourthly, the show itself is a classic live recording.

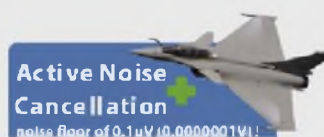
A real gem. A genuine 'lost classic' and one that should be on any country rock fan's play list. **PR**



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