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CONTENTS

MARCH 15

VINYL & RECORD REVIEWS

- 74 Classical Companion**
Christopher Breunig brings you his pick of the essential recordings of Richard Strauss's *Four Last Songs*
- 76 Vinyl Release**
The band fast-tracked to the top with a major-label LP that sparked with originality. Steve Sutherland on MGMT's *Oracular Spectacular*, recently reissued on 180g vinyl
- 78 Vinyl Icon**
Cream's *Disraeli Gears* saw the band combine full-on psychedelia with their blues roots. Mike Barnes looks at the recording of the LP
- 84 Classic Rock Venues**
Steve Sutherland continues his tour of world iconic rock venues with The Beacon Theatre in New York
- 90 Music Reviews**
Audiophile LPs, hi-res downloads and the very latest rock, jazz and classical albums reviewed

DEFINITIVE PRODUCT REVIEWS

- 30 Ming Da Dynasty Cantabile-Grandé MC998-A**
Big-ticket two-box is no traditional valve amp thanks to its use of extreme Chinese FU80 tubes
- 36 T+A PDP 3000 HV**
Flagship SACD player/DAC packs PCM and DSD decoding engines with separate analogue outputs



ABOVE: Sonus faber Olympica I, see p58



- 40 Simaudio Moon Nêo 430HA**
Fully-balanced headphone preamp with optional DAC claims to be the world's best. Time to find out...
- 46 Technics SB-R1**
It's a bold move from the resurrected Technics brand, but can this exotic speaker make its mark in the high-end?
- 50 Benchmark AHB2**
From the company best known for its DACs comes an amp trailblazing a new type of technology – THX's AAA
- 54 Clearaudio Absolute Phono Inside**
German company takes a fresh look at phono stage design, using current amplification in a bid to banish noise
- 58 Sonus faber Olympica I**
Can Sonus faber repeat the success of its Olympica III floorstanders with this compact two-way standmount?
- 62 Phonon SMB-02**
These wallet-friendly headphones may not be portable but they reward with a sound many rockers will relish
- 67 Black Rhodium Duet DCT++**
New cryogenically-treated speaker cable makes a bid for the high-end
- 68 Musical Fidelity Round Table**
Manufactured by Pro-Ject, can the British company's second turntable trump rivals on value for money?

VINTAGE

- 118 Vintage Review**
How does the classic kit of yesteryear measure up today? We test Meridian's Component Preamplifier from 1983
- 124 From the vault**
This month's pick of articles from HFN's vast archive is from 1984 where we find Ken Kessler enthusing over Audio Research's D-70 amp

NEWS AND OPINION

- 13 Welcome**
A message from the editor
- 14 News**
Chord's 'Table Top' DAC, Icon Audio unveils 'ultimate triode tube amp', active monitors from PMC, McIntosh adds DXD/DSD compatible hub
- 16 Show Blog**
Paul Miller joins the high-end hi-fi fraternity at International CES 2015 where valves 'n' vinyl joined DACs and network systems to ensure no shortage of treats for the ears
- 24 Investigation**
Originally a working display in the London Science Museum, the Denman Horn was once the UK's largest loudspeaker. Ken Kessler has the story of how it has been rebuilt
- 103 Opinion**
Insider comment on the audio topics of the day from Paul Miller, Barry Fox, Jim Lesurf, Steve Harris and, writing from the US, Barry Willis
- 112 Sound Off**
Modern kit and overly bright treble, rebuilding pinch rollers, servicing a Quad 606, more on high efficiency amps, plus which USB input is best?
- 138 Off The Leash**
The home of the future will be packed with hi tech, but the control of music replay is not on consumers' wish-lists, discovers Ken Kessler



ABOVE: We report from CES – the largest electronics show on Earth. See p16

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FREE! Chord Crimson VEE 3 interconnect See page 88

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Paul Miller, Hi-Fi News



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- **Hi-Fi News**, June '14

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ABOVE: This flagship Moon 430HA headphone preamp from Simaudio comes with an optional USB DAC board. It's a treat for your cans, p40



ABOVE: Benchmark's AHB2 is first to market with THX's efficient 'AAA' amplifier technology [Investigation, *HFN* Feb 15]. But is it cool? See p50



VINYL: Disraeli Gears by Cream, the short-lived Supergroup, is this month's Vinyl Icon (p78), while Steve Sutherland hears a one-hit wonder as MGMT's *Oracular Spectacular* is re-released on 180g (p76)

RIGHT: *Hi-Fi News & RR* is the exclusive UK representative of EISA's Hi-Fi Expert Group and editor Paul Miller is EISA's Hi-Fi Expert Group Manager

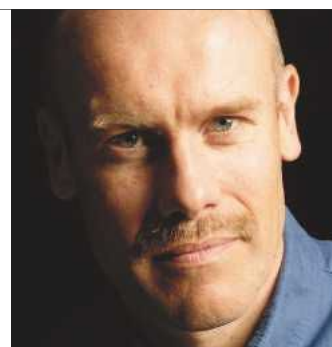


Time was when developments in audio moved at a seemingly glacial pace. Innovations such as the Quad Electrostatic loudspeaker, the SME Series V tonearm and first 'super amps' like the Krell KSA-50, were the subject of column inches for months if not years after their launch. CD changed all that with its digital revolution over 30 years ago. Hi-fi picked up its pace and started to walk.

More recently, the growth in availability and popularity of CD-quality and higher-res music downloads has delivered another jab on the accelerator. That initial burst of speed brought a plethora of USB DACs, providing audiophiles with their first practical route for integrating computers with their audio systems. Now hi-fi had broken into a run.

If not quite reminiscent of a sprint, today's surge has also delivered a host of headphones – big circumaural models designed to be used on the hoof as well as in the home. And with headphones have come headphone preamps, often a variant on the USB DAC theme but equipped with a powerful, low impedance 'phone socket.

All this and more was evident at the 2015 International CES [p16] where diversity rather than a paradigm shift in technology was the order of the audio day.



(Things were very different at the main Convention Centres where 4K Blu-ray, 3D printers and driverless cars welcomed visitors to the 'world of tomorrow'.)

The 'specialty audio' exhibits majored on diversity – I had never seen quite so many turntables rubbing shoulders with servers and big tube amps warming the air right next to

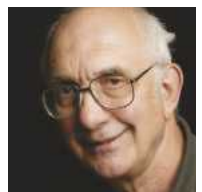
'Turntables were rubbing shoulders with digital servers'

lean, green, cool-running solid-state machines.

Sony wheeled out a new digital 'Walkman' while Astell & Kern did the opposite and demo'd a decidedly non-pocket-sized CD-ripper, storage device and music player. Constellation had a very high-end phono stage, McIntosh had headphones and Devialet played shock and awe with its all-singing Phantom. From now on, we should all expect the unexpected...

PAUL MILLER EDITOR

HI-FI NEWS' EXPERT LINE UP: THE FINEST MINDS IN AUDIO JOURNALISM BRING THEIR EXPERIENCE TO BEAR ON ALL AREAS OF HI-FI & MUSIC



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Investigative journalist supreme, Barry is the first with news of the latest developments in hi-fi and music technologies



JOHN BAMFORD
JB brings huge industry experience, a penchant for massive speakers and a love of hi-res audio in all its diverse guises



KEN KESSLER
is a long-serving contributor, luxury goods writer and champion for the renaissance in valves and 'vintage hi-fi'



KEITH HOWARD
has written about hi-fi for 30 years, and edited *Hi-Fi Answers* for nine. KH performs our speaker and headphone lab tests



STEVE HARRIS
Former Editor of this very title from 1986 through to 2005. A lifetime in audio and a love of jazz makes Steve a goldmine



JOHN HOWES
Foremost collector and archivist of vintage hi-fi, famous for the UK's bi-annual Audio Jumble, John shares his experience with *HFN*



STEVE SUTHERLAND
Worked on *Melody Maker* and then edited *NME* from 1992-2000, the Britpop years. Steve brings a unique slant to our Vinyl Release pages

Heroic Hugo

CHORD'S BEST-SELLING HUGO PORTABLE DAC/HEADPHONE AMP SPAWNS A STAY-AT-HOME SIBLING

Chord knew it was on to a 'good thing' when it launched the stylised Hugo DAC/headphone preamp this time last year, but the company has still been surprised by the impact its first portable WTA filter/Pulse Array DAC technology has had on the mobile market. While designed to be used everywhere 'you go' (Hugo), many of these first-time audiophiles ended up using it in desktop systems.

In this case what was really needed was a DAC/preamp that also afforded improved connectivity, performance and features. This is the £2995 Hugo TT (Table Top), a bigger and beefier unit based around the same proven FPGA-based DAC but equipped with full-sized B-type inputs for both



SD USB and HD USB sources. The latter accommodates 384kHz/32-bit LPCM and DSD128. Coaxial and optical digital inputs are included alongside both single-ended and balanced analogue outs, on RCAs and XLRs respectively.

Naturally, the Hugo TT hasn't forgotten its roots, so features a single 3.5mm and two 6.35mm (1/4in) headphone sockets. The unit is still battery-powered but now has 10,000,000µF of 'supercapacitor energy storage' for even greater performance. It's more flexible too, so along with full remote control it has an alphanumeric LED display to show inputs and settings.

Chord Electronics,
01622 721444;
www.chordelectronics.co.uk

PMC Pro monitors

TWOTWOS DANCE INTO HI-FI STORES



Now available for audition at selected hi-fi dealers and for purchase via an online portal, PMC's 'twotwo' Reference Monitor range offers engineers and pro-leaning enthusiasts a simple, high performance active speaker solution for direct use with DAC and digital playback sources. The £3300 twotwo.5 and £4200 twotwo.6 are joined by the larger £6570 twotwo.8. All are equipped with 'audiophile' Class D amplifiers and 192kHz/24-bit inputs. **The Professional Monitor Company Ltd,** **0870 444 1044; www.pmc-speakers.com**

HI-FI NEWS' NUGGETS

MF GETS AHEAD

Musical Fidelity is attempting to build on the success of its first on-ear headphone, the entry-level MF100, with a new model boasting matched 40mm drivers and a higher performance. The MF200 is priced at £229 and includes a choice of padded leather or alcantara suede interchangeable ear pads that have a memory foam insert specially selected for both its acoustical properties and comfort. Tech specs include a 64ohm impedance and 99dB sensitivity.

www.musicalfidelity.com

NAXOS ONLINE

Naxos, world-leading independent classical music label and distribution network, has announced the launch of its high-definition and lossless classical music streaming service. At a monthly cost of £11.99, users can search liner notes, libretti and composer/artist information while streaming files up to 24-bit/192kHz. **www.classiconlinehd.com**

Titanic triodes

ICON AUDIO AND THE BIGGEST TRIODE AMP

'Lovingly created' and only likely to be made and sold in very limited quantities, the MB81 monoblocks are Icon Audio's attempt at the 'ultimate triode tube amplifier'. The project was inspired by the discovery of a quantity of NOS (new old stock) Russian GU81 transmitter valves which, paired in push-pull mode and coupled with a massive power supply and sophisticated tertiary output transformers, are claimed to deliver a full 250W/8ohm. A pair of EL34 pentodes is used simply as drivers! The MB81 amps are double the size of the MB845MkIIIm – the current Icon Audio flagship – and weigh around 100kg per pair. Price is £12,500 per set.

Icon Audio, 0116 244 0593;
www.iconaudio.com



Wilson's curtain call

TOP SECRET PREVIEW OF WILSON AUDIO'S MK2 WAMM

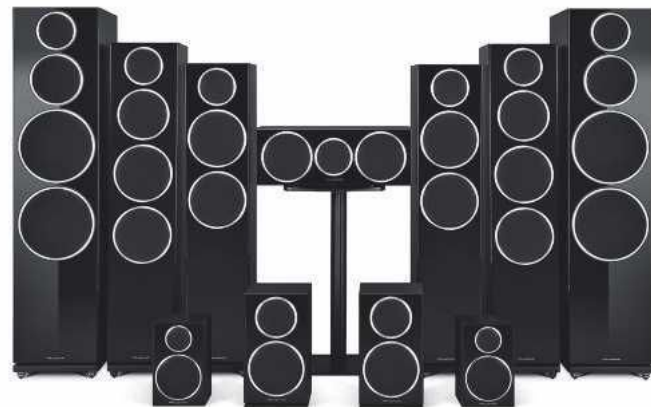
Behind this silk curtain lay a full-sized mock-up of Wilson Audio's new WAMM loudspeaker. Photography was banned, but *HFN* was among a very select group to witness this work in progress – a 6ft+ floorstander minus the original WAMM's 'static midrange. It looks more like a grand Alexandria XLF with modular, five-box (two mid/treble/two mid) D'Appolito array married to dual woofers in a bass enclosure. There's talk of a partnering passive sub too...

Wilson Audio, 0208 971 3909; www.wilsonaudio.com



Polished Diamonds

WHARFEDALE'S ICONIC RANGE IS REVAMPED



Over its 30-year history, Wharfedale's iconic Diamond bookshelf loudspeaker has long since morphed into a complete range. The latest Diamond 200 series comprises three floorstanders (from £500-£1000), two standmounts

(£150 and £200) plus a centre speaker for home cinema use. All benefit from better cabinets and crossovers, bigger bass driver magnet assemblies and enhanced LF 'slot loading'. **Wharfedale, 01480 447700; www.wharfedale.co.uk**

Amplification by numbers

NEW HIGH EFFICIENCY POWER AMP FROM LYNDDORF AUDIO



Described as a 'semi digital amplifier', Lyndorf's sleek \$2400 SDA-2400 marries both analogue and digital inputs with a synchronised PWM output stage. Sealed into a

mat black aluminium chassis the SDA-2400 is rated at a substantial 400W/4ohm with low excess power consumption. **Lyndorf Audio, +45 9614 5600; www.lyngdorf.com**

Mac's new digital hub

DXD AND DSD COMPATIBLE DAC/PREAMP



Inspired by its inaugural D100 DAC/preamp, McIntosh's new £3495 D150 'digital hub' includes five digital inputs – two coax and optical plus USB, the latter supporting DSD64,

DSD128, DXD 352.8kHz and PCM to 384kHz/32-bit. Balanced analogue outs are joined by a built-in 'phone amp. **McIntosh Lab, 01202 911886; www.mcintoshlabs.com**

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Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- 20-22 FEB** Sound & Vision Show, Marriott City Centre Hotel, Bristol; www.bristolshow.co.uk
- 09-12 APR** Hi-Fi & High End, Crocus Expo Centre, Moscow, Russia
- 14-17 MAY** High End Show, M.O.C, Munich, Germany; www.highendsociety.de
- 29-31 MAY** T.H.E. Show, Hilton Hotel, Newport Beach, CA, USA
- 04-09 SEP** IFA Berlin, The International Funkausstellung, Germany <http://b2c.ifa-berlin.de>

International CES 2015

Words & Pictures: **Paul Miller**



Every year the International CES, the world's largest consumer electronics show (ironically not open to 'consumers'), evolves to reflect trends in all areas of technology. This year the exit polls exceeded the numbers for CES 2013 and '14 with more than 3600 exhibitors and 170,000 attendees, including over 45,000 from outside of the United States.

While most visitors were focused on innovations from driverless cars and 3D printers

to life-saving body monitoring systems and connected homes, the 'High Performance Audio' exhibit at the Venetian Hotel, and breakaway suites at the Mirage Hotel, remained an oasis of calm thanks to the best sounds high-end hi-fi has to offer.

There were no great tech breakthroughs this year, no paradigm shifts, but both web-enabled streamers and high-end turntables were climbing higher in the musical charts.

Twenty years since the last 'Ed Meitner' amplifier, the EMM brand celebrates with the barely affordable \$130k MTRX monoblocks (price per pair, fortunately). Rated at 750W/8ohm and 1.5kW/4ohm these Class AB behemoths weigh 100kg each and promise state-of-the-art technical (ultra-low noise and distortion and wide bandwidth) and subjective performance. www.emmlabs.com



Powered by a pair of Krell Solo 375 amplifiers, the new MartinLogan Neolith hybrid electrostatics were delivering a suitably colossal sound. A combination of 15in and 12in woofers are married to a 48x22in mid/high frequency CLS XStat panel above 400Hz. www.martinlogan.com



First sight, and audition, of the much anticipated NightHawk headphones from AudioQuest. A semi-open backed design, the reinforced earcups are fashioned from 'liquid wood' (a sustainable mix of wood and plant fibre that's heated and liquefied) while the 50mm driver has a biocellulose diaphragm and compliant rubber surround rather than the more typical mylar film. Having donned a pair, they seem to lack any archetypal 'bass bloom' too. www.audioquest.com



Described by Antelope Audio as the world's first 'atomic ADC/DAC' – it uses a super-precise 10MHz rubidium clock – the Rubicon supports DSD128 and 384kHz/24-bit LPCM via its USB input. A transformer/J-FET based phono stage and headphone amp are also included. www.antelopeaudio.com

Manley Audio adheres to its own and very distinctive rulebook – who else could have dubbed its tube amps Mahi, Snapper and Stingray, the latter visible in the centre of my shot? But even by its own standards the Manley CES exhibit was eccentric if not hugely entertaining. 'I wanted to do something different this year' remarked company supremo EveAnna Manley. She succeeded, even though the 'framed' samples of heavyweights like the 'Neo-Classic' 250 and 500 were clearly straining those cables! www.manley.com



A time-honoured agreement between Michell Engineering and Germany's Transrotor has prevented the distribution of the latter's comprehensive turntable range in the UK. This huge machine is a Special Edition version of the Tourbillon and features an acrylic/alloy sandwich chassis with a chromed metal platter in place of the 80mm transparent acrylic platter used in the standard version. www.transrotor.de



Aurender has already made a name for itself with its high-end media storage/server solutions, but the brand is diversifying. Top box here is the \$2499 X725, an XMOS/ESS USB DAC with ASX250 IcePower amp on board while, below, is Aurender's \$2499 N100 streamer, inspired by high quality services like Tidal. There's no internal storage but up to 1TB may be accommodated via USB. www.aurender.com

D'Agostino amps are now instantly recognisable by their copper trimmings and watchface power meter, but what's with the 5in colour LCD display? This is the new MLife amplifier, based on the Momentum but with a wired/wireless network interface that brings AirPlay, Bluetooth and Tidal streaming. Cost will be about \$48k. www.dagostinoinc.com



Formerly known as Isophon, Gauder Akustik brought its \$175k Berlina RC 9 floorstanders to play with Air Tight's 3011 Reference monoblock tube amps with six KT120s per side. The 4-way speaker employs ceramic woofers and 'diamond' mid and treble units custom-built by Accuton. www.gauderakustik.com





A genuine 'floorstanding' turntable, Clearaudio's massive Statement has been updated with POM platters (drive and driven), a new belt and pulley system plus a dedicated version of its AccuDrive battery PSU. Panzerholz is now used throughout the pendulum stand, which has a piano black finish option. Price without TT-1 arm is \$200k. www.clearaudio.de/en



Not the Rogers of LS3/5a fame but Rogers High Fidelity founded in the US in 2009. Seen here are the \$7300 PA-1A MM/MC phono preamp (left) and \$15,900 EHF-200 Mk2 integrated amp. The latter boasts 112W/ch in ultralinear or 80W in triode mode via two pairs of KT150 tubes, while the phono amp comes with a choice of 12AX7 or 12AU7 triodes, trading noise, gain and 'colour'. www.rogershighfidelity.com

Here's the Krell Vanguard amp [HFN Feb '15] equipped with the digital module absent from our review sample. Coax and HDMI ins carry LPCM up to 192kHz/24-bit (opt. to 96kHz) while USB and network streaming supports MP3, AAC, WMA, WAV, FLAC/ALAC to 192kHz. Bluetooth supports A2DP, AVRCP, HFP, HSP. www.krellonline.com



VTL has updated its longstanding TL-2.5 tube preamp with 'audiophile-grade' parts, improved RF filtering and stiffer PSUs. The \$3k TL-2.5i offers six line inputs, one of which may be occupied by a plug-in MM/MC phono option, and comes with remote volume. www.vtl.com



Now firmly ensconced within the Fine Sounds group, Wadia has received a real boost – here we see the 321 digital preamp with media server below (awaiting a DSD update) and, in the smaller cases, the di122 DAC/headphone amp and 50W/8ohm Class D a102 power amplifier with switchmode PSU. www.wadia.com

While Burmester previewed its 151 'Musiccenter', little brother of the Reference Line 111 [HFN Dec '12], in an adjacent area, the 111 itself drove the rack of mirrored separates seen here. The floorstanders are the Ambience 71, a three-way bass reflex design with an AMT tweeter. Rated at 89dB sensitivity, they sounded awesome. www.burmester.de





CES wouldn't be CES without Josefina Lichtenegger (wife of Pro-Ject owner Heinz) sporting a new outfit alongside the latest addition to her EAT product range (see Pro-Ject, adjacent). Demo'd alongside Primare's 30-series amplifiers, pride of place went to the new low-profile EAT C-Sharp turntable and glitzy C-Note tonearm, the pair already premiered to the world in *Hi-Fi News* [HFN Feb '15]. www.european-audioteam.com

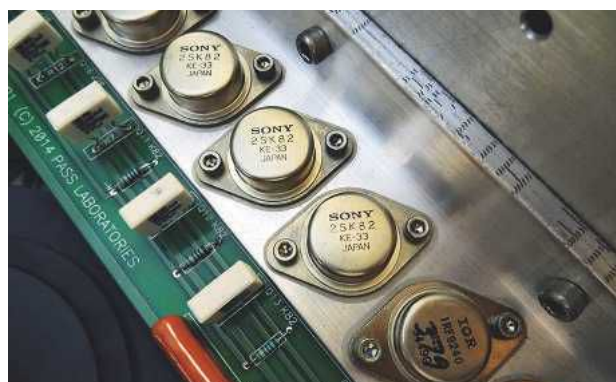


Take Pro-Ject's Xtension 9 turntable, enhance the MDF chassis with carbon fibre, add 'metal sand' damping and a heavyweight 10kg alloy platter and you've the €3k 'Silver 10'. Use a huge 30kg bronze/alloy platter with four super-strong neodymium magnets for support and you've the 'Bronze 10' seen here. www.project-audio.com



Seen either side of the Technics SE-R1 Class D power amp that featured on our front cover [HFN Feb '15] are the SB-R1 floorstanders [see p44] and, mounted on stands, the SB-C700s that typically accompany the more affordable 'Premium Class' system. Priced at £1200 these standmounts look a little like KEF's LS50 with their coincident two-way driver, although the design is entirely proprietary. www.technics.com

Building on its reputation for fine portable players, Astell&Kern launched its first standalone system comprising a CD ripper, wired/wireless Ethernet connection plus USB, S/PDIF and AES/EBU digital inputs. Up to 4TB of SSD storage is offered with support for 384kHz PCM and DSD128. The AK500N is priced at £9000. www.astellinkern.com



These original Sony V-FET power transistors come from a limited 1970s cache – enough for Nelson Pass to design and build six power amplifiers as a commemorative gesture. A total of 24 devices are used per channel in two balanced stages, drawing some 400W from the wall and offering 250W peak/4ohm. www.passlabs.com

Devialet joined the growing ranks of CES breakaways and set up shop in the Mirage Hotel (Magico brought its M-Project speakers too). This was the first large-scale unveiling of the French brand's Phantom and Silver Phantom all-in-one networked system [HFN Feb '15]. The 'Implosive Sound Center' certainly drew crowds. <http://en.deviallet.com/phantom>



SHOWBLOG Sights and sounds from around the globe



Demonstrated in far from production metalwork, this is one of a pair of prototype 'HD Amplifier' cubes from Nagra. Built around MOSFET transistors capable of 'delivering more than 1kW at low impedance' the amplifier hosts a 1.6kVA toroid weighing more than 18kg. Clearly a very capable design, the HD Amplifier drove Wilson Alexias with consummate ease. Launch in Sept '15. www.nagraaudio.com



With flagship speaker cable starting at \$65k and balanced interconnects at \$35k, Transparent Cable's 'Magnum Opus' is aptly named. (The in-line modules house low-pass RF filters.) Transparent also launched an entire range of affordable interconnect, speaker, USB, HDMI and network cables called 'Hardwired' starting at just \$35. www.transparentcable.com



Here, Prof. Edgar Choueiri demonstrates the BACCH-SP (Stereo Purifier). Before listening, the user is fitted with calibrated binaural microphones and the system computes an individual crosstalk cancellation filter that is applied, via DSP, to music playback. '3D sound' localisation is assured via an IR camera that tracks the head position! www.theoretica.us

Avantgarde reaches into a new market with this plug-and-play horn system. The moulded enclosure has 50W amps for its mid and treble horns plus a 400W amp to drive its ported 30cm woofer. Sources are connected to just one speaker, which syncs wirelessly with the other. Simple, huh? www.avantgarde-acoustic.de



Driven by two motors and no fewer than six belts, Hanss Acoustics' 20kg alloy platter is 128mm deep. This special edition version of the \$10k T-60 turntable uses Bakelite rather than standard acrylic in its alloy/polymer sandwich chassis. Metalwork is from China and the bronze/ceramic bearing from Germany. www.hanssacoustics.com

The D33 DAC (top left) we've reviewed before [HFN Apr '12] but the partnering £800 CDS27 network streaming-enabled SACD/CD player is new as are the whopping £3750 C49 preamp (centre) and £4000 P49 Class G power amps (below). The latter are rated at 2x200W/8ohm in stereo or 1100W/4ohm as bridged monoblocks. www.arcam.co.uk



Weighing 230kg each and standing 1.67m tall, Stenheim's Reference speakers house 4x32cm high excursion woofers (two at the rear) in independent closed chambers. The red mid section baffle features a motorised hinge that allows the 'diffusion angle' to be adjusted by remote control. www.stenheim.com



Sharing a room with Cabasse (the Pacific 3 floorstanders shown here), Esoteric offered up a wall of high-end 'Grandioso' components including the \$40k P1 SACD transport/PSU, the \$20k D1 monoblock DAC and \$80k C1/M1 pre/mono power amp combo. www.esoteric.jp

The fruits of Metronome's new capital investment were realised at CES with new products including the C8+ DAC, seen here atop three outboard PSUs. The '+' version employs 32-bit AKM DACs and supports DSD256 over USB. Also introduced was Metronome's Le (CD) Player. www.metronome-technologie.fr



Remember the three-box SAGA amp from Siltech [HFN Jun '13]? Much of its technology, including the novel 'Light Drive' power supply, is squeezed into this Cube System amplifier, with RF remote, from Crystal Cable. Rated at 100W/ch, the €12k Cube System offers six inputs. The lighting scheme is adaptable too... www.crystalcable.com



This combination of Accuphase separates was making some very sweet sounds indeed through a pair of Magico S3 floorstanders. From the top: the DP-720 SACD player, the C-2820 'precision' preamp and A-70 power amp. The latter weighs a full 44kg and is rated at 2x60W/8ohm (to 480W/1ohm) in pure Class A. www.accuphase.com

Nestled between these headphones is, appropriately enough, the soon-to-be-released ES9018-based Codex DAC/headphone amp from Ayre Acoustics, which features a pair of 3.5mm sockets to facilitate balanced drive (and XLRs at the rear). This new form factor promises support for LPCM to 384kHz and DSD128 over asynchronous USB. www.ayre.com



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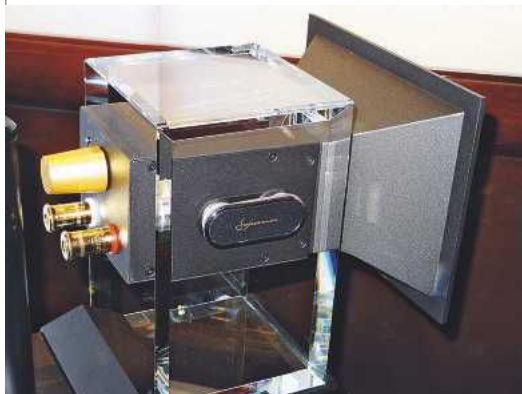
Nothing to hide – Dutch Kharma brand showed off its Exquisite P1000 preamp alongside a pair of 400W/8ohm Exquisite MP1000 monoblocks. The Reference versions of each cost \$40k while the Signature option, with ceramic PCBs and silver-wired transformers, are €80k apiece. www.kharma.com

A regular at shows across the world – including our own in Windsor – Peter Madnick was not only showing off the latest 'entry-level' Inspiration series amps from Constellation Audio but also most of its flagship separates including the final version of its long-awaited Cygnus media player/DAC and the new version of the Orion phono preamp (pictured here). The Orion offers continuously variable gain and loading via remote control – a tweakers delight! www.constellationaudio.com

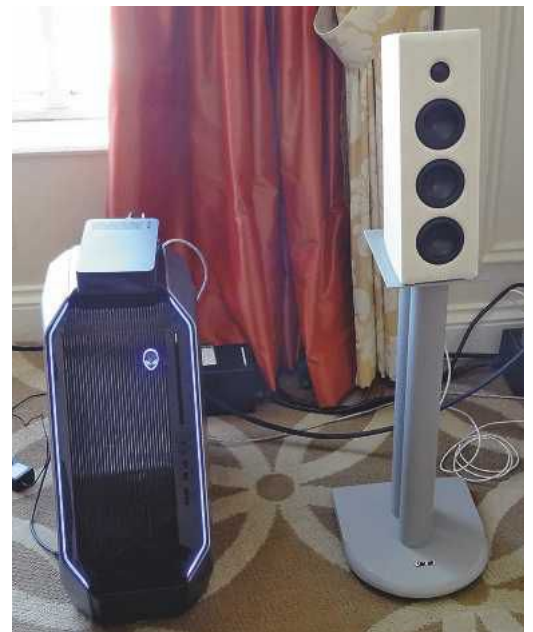


Combining a D'Appolito dipole mid/treble loudspeaker with 5.5in bass drivers in a 'Venturi' cylinder, this is the Linea Victor from Italian brand Pearl Evolution. The bass box is equipped with a DPG (Dynamic Pressure Guide) that aims to reduce cabinet resonances by orientating the greater proportion of the air flow toward its 'Cremonesi-Venturi port'. www.pearlevo.com

Described as an 'Ambience Restoration Device' the Sopranino is a self-polarising electrostatic super tweeter with switchable 8, 10, 12kHz high-pass crossover frequency. Its response is rated to 40kHz, sensitivity 90dB/4ohm. www.enigmacoustics.com



A chip off the family block? Brett D'Agostino (son of Dan) showed his S-5 75W Class A power amp and L-5 line stage (\$15k each). The S-5 encompasses four massive heatsink towers with six pairs of high current Sanken output devices. Unusually, it offers variable bias allowing it to run in cool Class A/B for parties! www.bscaudio.com



HRT's two-way Stage loudspeakers formed part of a \$1000 multimedia system driven by a DAC/preamp combining a 96kHz USB input with 70W/ch of Class A/B amplification. Source was an 'Alienware' gaming PC from HP, which also pumped 4K visuals to the accompanying TV. www.highresolution-technologies.com

Next month

Ken Kessler's 'alternative' CES Show Report!

Denman Horn reborn

Ken Kessler on the full-size reconstruction of the UK's largest loudspeaker

RIGHT: Aleks Kolkowski with the replica Denman Exponential Horn *in situ*, showing the scale of the loudspeaker



BELOW RIGHT: Illustration from the critical article, 'The Truth About the Science Museum Set', 19 October, 1929 in *Amateur Wireless*

Each year at the Munich High End Show, a die-hard anachrophile sets up a system using horn speakers that predate what we accept as 'hi-fi'. Usually unearthed from the ruins of decommissioned cinemas, such speakers tend to be comically immense, of incredibly high sensitivity, with looks in between steampunk and gothic.

Powered by modern, single-ended triode amps and fed with current sources, they blow everyone's mind. 'How could they sound so good?!?' or simply stunned silence are typical responses. Once experienced, you begin to understand what motivates audio authorities like our own John Howes. Or, in this case, that most august of bodies, London's Science Museum in South Kensington.

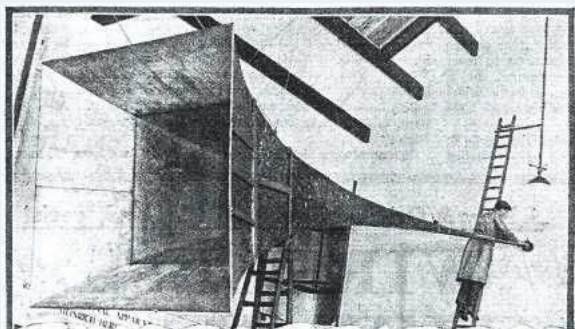
EAR-OPENING EXPERIENCE

I only managed to hear the so-called 'Denman Horn' shortly before the installation was dismantled. *The Exponential Horn: In Search of Perfect Sound* ran from the 20th May to the 27th of July 2014 in the Virgin Media Studio's Media Space at the museum, a cavernous 300m² hall that was just what was needed to contain this unfathomably gargantuan transducer.

This was an ear-opening experience to rank alongside such unique demonstrations as the binaural set-up in the JVC laboratories or Ambisonics demos by IMF: in each case, once heard, never forgotten. While this was a blast of limited bandwidth mono, the sensation was transcendent.

It started with the sheer size of the equipment, the largest horn I've ever seen. Described as 'A sound art installation by Aleksander Kolkowski', who collaborated with the museum's Curator of Communications, John Liffen, it was nothing less than an example of peerless audio archaeology.

Hannah Redler, Head of Media Space and Arts Programme explains their mission with words to warm the heart of any hi-fi enthusiast who loves the past. 'Kolkowski's work is characterised by a passionate



The exponential horn with the Western Electric drive at the South Kensington Science Museum



interest in refusing to allow the experiences of redundant technologies, as well as the habits we have formed in relation to these, to disappear into the archives of history unexamined. His resurrection of the Denman Horn has been a labour of love, both for Aleksander and the Museum Workshops team.'

ORIGINAL SPECIFICATIONS

Appropriately, Kolkowski is a former Sound Artist in Residence at the Science Museum.

His résumé shows him to be the anachrophile's anachrophile, as he has explored historical sound recording and reproduction

technology for more than 15 years.

Like those who still swear by 78s, Liffen is intrigued by 'the creative potential of obsolete technologies and media.' He is the 'archaeologist'

who rediscovered the Denman Horn saga, and who doggedly pursued its reincarnation, providing the technical expertise and historical veracity the project needed.

The Exponential Horn featured a reconstruction based on original specifications as designed in 1929 by R P G Denman (1894-1941), then the Science Museum's Curator of Electrical Communication. All I could think of upon seeing it were the horns that featured in movies

about the Vikings. Mario Nascimbene would be proud.

While of interest to hardcore audiophiles with a taste for vintage gear, the exhibition had

to appeal to a broader audience.

And though the size alone would draw crowds, the museum wanted the horn to serve as an illustrative stage in the 'historic quest for audio

'It seemed ready to blast through the Science Museum walls'



ABOVE:
Front view of
Demonstration
Receiver No 2,
September 1930

ABOVE LEFT:
The view from
the Science
Museum's Radio
Communications
Gallery in
September
1930, looking
west, with
Demonstration
Receiver No 2 in
the centre

perfection through newly created sounds, music and the spoken word.'

Amusingly described by the museum as 'an "audio dinosaur" alongside the results of today's vogue for miniaturisation', the Denman Horn measures 27ft in length, curves exponentially from $1\frac{1}{16}$ in to its imposing 7ft 1in square horn mouth. To demonstrate its prowess, the programme material, fed to the horn through the permanent control room's modern studio gear,

included live broadcasts, sound art, experimental music and archive radio broadcasts.

Contributors included BBC History, BBC Radio 3, the Royal College of Music, London College of Communication, the Archive of the Now and the Royal College of Art. To illustrate what an 85-year-old speaker could do with modern material, London's leading arts radio station, Resonance 104.4 FM, broadcast live from the Virgin Media Studio from 20 May to 15 June.


HIGHEST QUALITY AUDIO

It was, in effect, restating its original purpose: to demonstrate the highest quality audio reproduction to Museum visitors, which it did for a decade. One can only imagine what the reactions to this horn were in 1929, some 40 years before rock concert PAs made 'big' the norm.

Until it was dismantled because of the Second World War, it was a popular attraction at the museum, and part of the daily tours. Visitors would hear it demonstrated with material including broadcasts from the BBC's London Regional Service. Denman and his team calculated the horn's dimensions and acoustical behaviour to deliver the widest possible frequency range, as well as depth and clarity.

Thanks to Liffen's research, covered in detail in *The Bulletin of the British Vintage Wireless Society* Vol 31 No 4, Winter 2006, the Science Museum's Workshops team, led by Kolkowski, was able to rebuild the speaker over a period of eight months. The main section of the horn up to its mouth was reproduced in 12mm-thick fibreglass and connected to the lone, surviving

LEFT: The
Science Museum
Workshops team
rebuilding the
horn in 2014. Led
by Kolkowski,
they were able
to complete the
speaker over a
period of eight
months



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9ft section of the original. This component and the rest of the horn, now sadly lost, was made of what Percy Wilson described in his presentation to the AES in April, 1972, as 'terneplate.'

Terneplate was steel covered with a lead-and-tin mix (the 'terne') in a 80% lead/20% tin ratio. (In the modern era, where lead's usage is discouraged, it has been replaced with zinc, in a 50/50 ratio.)

PIQUED HIS INTEREST

Liffen, who became Curator of Communications at the Science Museum in 2003, had previously learned of the speaker as a 'junior grade' Museum Assistant.

He wrote that, 'One of the stories I was told when I first joined the Museum concerned the fate of an exceptionally large loudspeaker formerly displayed in the Radio Communication gallery in the 1930s.' This piqued his interest in finding out what had happened to the speaker... and why it was created in the first place.

With radio having the same effect on the public in the 1920s that the internet did in the 1990s, the Science Museum felt the need to expand the attention paid to the rapid development of radio communication technology. On the 23rd of November 1922, Roderick Peter George Denman BA MIMEE, an experienced radio engineer, was appointed Assistant to the Electrical Communication collections.

Following the museum's policy of appealing to the wider public, Denman thought that the

ABOVE: Aleks Kolkowski poses for the camera in the Media Space's control centre at the Science Museum

museum could use a permanent demonstration of 'high-quality distortion-free broadcast reception,' proposing it in December 1925.

According to Liffen, Denman 'was on friendly terms with H L Kirke, Senior Development Engineer of the British Broadcasting Company, and it was probably with his collusion that the idea was hatched.'

With the proposal accepted, and with the BBC's help, 'Demonstration Receiver No 1' became a reality, completed in the spring of 1926.

While researching his paper, 'Loudspeakers and their development' presented to the Royal Society of Arts in 1929, Denman was able to hear a new moving-coil speaker from the USA. Described by Wilson as 'that superb Western Electric 555W', it was designed by Edward C Wenthe and Albert L Thuras for cinema use. Denman demonstrated it during his lecture, with a 15ft exponential horn. Liffen says, 'he found the results very impressive.'

During the 1920s, 'amplifying horns' were much favoured because of their sensitivity, but research and experience showed huge horns were needed to reproduce even the entire spectrum offered by 78s. Collective wisdom suggested that the best solution was the exponential horn, prior to the arrival of Voigt's corner horns in the mid-1930s.

For the high-end audiophile of the day, the exponential horn 'was a benchmark aspiration for those who had the space and the money'.

Denman went so far as to build a massive exponential horn

fitted with the 555W in his own home in London SW3, in a manner foreshadowing the excesses of Japanese audiophiles in the 1980s. He used an entire room as the mouth of the 25ft horn, the escapade preparing him for what would come next.

According to Liffen, Denman set out his proposals on the 10th of June 1929 to his chief, Arthur J Spencer. While Denman acknowledged the excellence of the Science Museum's existing system, he declared it obsolete. Denman wanted to fit the 555W through an exponential horn, arguing that the demonstration would better serve 'the changed conditions that would come with the opening of the Brookmans Park regional transmitter in autumn 1929.'

Denman went further: 'The proposal therefore amounts to this, that a sum not exceeding £180... be sanctioned for the purpose of putting the Museum receiver again in a position of national importance as the standard of excellence by which all others should be judged.' [£180 in 1929 is the equivalent of £10,000 in 2015.]

COPPER AND TERNEPLATE

With the proposal approved, and using the metalworking firm, Clubley and Nichols, that built the horn in his home, Denman proceeded. It charged £35 to build a straight exponential horn 27ft long with a 7ft 1in square section at the mouth. Liffen wrote, 'The first 8ft 8in was of sheet copper, going from circular where the loudspeaker unit was

RIGHT: The refurbished Western Electric 555W drive unit. It was designed by Edward C Wenthe and Albert L Thuras in the US and was originally built to be used in cinemas





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attached, to square cross-section at the other end. The remaining 19ft was of terneplate covered with pitch and bound with hessian to extinguish unwanted resonances. Though slightly less efficient than a wholly circular cross-section, it is probable that the square cross-section was decided upon for practicality of construction.'

It was intended to reproduce frequencies from 32Hz up to about 6000Hz, from the lowest note on the piano up to the highest occurring in music.'

The work was completed in August 1929, when the horn was installed with its mouth over the entrance to the west end of the Radio Communication gallery. The rest of it protruded rather incongruously a long way into the adjacent Agricultural Implements gallery.'

MAKING IMPROVEMENTS

Demonstrations included comparisons with commercially-available domestic horn speakers. The horn gave 'reasonably good results... but the quality was affected by the rather poor acoustics of the gallery. Some improvement was made when layers of canvas were placed over the entrance at the other end of the gallery, directly opposite the mouth of the horn.'

While the public was in general dazzled, some members of the

specialist press were not. Modifications were undertaken, with the BBC even making a special broadcast ('not billed in the *Radio Times*') to allow the museum to test the speaker.

According to Liffen, Denman stated 'that the output power of the receiver was fixed at 40W. The safe power-handling capacity of the 555W was about 13W, but he argued that efficiency took second

place to frequency response and tests showed that only about 10W were transferred to the horn unit.'

There were daily demonstrations of the receiver until the museum

closed for the duration of the Second World War early in 1940. All exhibits were removed for storage elsewhere. Because the horn was built into an end wall of the gallery, it had to be left in place. Although the buildings survived the war, they were demolished in 1949.

Liffen was told that in the course of demolition, the horn was taken down and laid on the floor for removal to storage. During the night, the wind blew down a nearby wall in the already weakened building, crushing the speaker sections beyond viable repair. The 555W driver survived 'and was rescued unharmed, but the rest was fit only for the scrap heap.'

'The speaker sections were crushed beyond viable repair'



ABOVE: John Liffen with the sole surviving element of the original Denman horn

BELOW: Aleks testing the exponential horn at Blythe House prior to installation

Liffen never forgot these tales of the Denman Horn. In the early 1980s, he was 'asked to assist in the clearance of an "unofficial" attic store room in the museum.' He came across 'a curious black metal tube, almost 9ft long, about an inch diameter at one end tapering to about 3in square section at the other.'

His colleague, Geoff Voller, identified it as part of the Denman Horn. Liffen assumes that it was 'squirrelled away by a predecessor unhappy to see it scrapped and who kept it as a private souvenir.' Soon afterwards, Liffen was promoted to a post in another department, but he had salvaged the sole surviving section of the horn.

It would be incorporated into the reproduced horn, providing a direct physical link to the original, along with the 555W. Once the installation was completed,

Aleksander Kolkowski was able to comment, 'This audio leviathan, seemingly primed and ready to blast through the museum walls, instead offers up a uniquely immersive aural experience, one in which sounds and voices from the past and present converge.'

Liffen summed up this audio adventure thusly: 'The wonderful original horn was lost in an accident in 1949, so its re-creation is, for me, the fulfilment of a long-held wish.'

HARD TO MATCH

Those fortunate to experience the Denman Horn in 2014 enjoyed a sensation similar to other once-in-a-lifetime occurrences, such as the tasting of a legendary wine, or driving a rare supercar that lives up to its reputation. The Denman Horn was overwhelming as much because of the realisation that the transducer used 85-year-old technology as it was for the sound itself. In terms of sheer scale, presence and grandeur, it remains hard to match.

But the last word goes to Percy Wilson and his son Geoffrey, recollecting the speaker in 1972 in their AES paper, 'Horn Theory and The Phonograph': 'In the authors' opinion, no superior loudspeaker has to date been demonstrated in Britain.' For any speaker to have maintained that status for Wilson for over four decades more than justified its reincarnation. ☺



Ming Da Dynasty Cantabile-Grandé MC998-A

Continuing the trend for monster vacuum tube power amps is this Chinese designed and built behemoth, using the rare yet surprisingly inexpensive FU80 RF power triode
 Review: **Nick Tate** Lab: **Paul Miller**

Things can only get *bigger...* there's a gilded sector of high-end hi-fi that lives in its own rarefied bubble, appealing to a select, monied and style-conscious clientele, hungry for ever larger and more outlandish products. Certain manufacturers have produced vast 'statement' designs for many years now, and valve amplifiers are no exception. For example, the beautiful Audio Research Galileo series [HFN Jan '15] shows that there is no shortage of demand for ever more mammoth flagships.

But we're now witnessing the birth of a fascinating new sub-species of valve amplifier – the high-end audio equivalent of a monster truck. From the NAT Se1 MkII [HFN Aug '10] to the Kronzilla SXI [HFN Aug '13], extremely expensive products based on massive and ultra-niche tubes are now appearing. These are quite distinct from conventional high-end valve amps, which use the usual complement of four or so sizeable but not huge power valves, such as 300Bs, EL34s or 845s. To this select new club, we must now add the gigantic, two-box £34,950 Ming Da Dynasty Cantabile-Grandé MC998-A monoblocks.

It's hard to get a real sense of its positively Broddingnagian proportions without regarding it in the metal, so to speak. Photographs do not convey its

cathedral-like scale, while crude metric measurements cannot evoke its sheer sense of physical drama.

ALMOST TOO IMPOSING

Indeed, in both size and appearance it doesn't look recognisably 'hi-fi' at all. More steampunk than stereo, it looks like the sort of contraption Alan Turing would have used in his cryptology laboratory, rather than an instrument with which to play music. If we're honest, the mighty Ming Da precludes itself from most high-end audio buyers' shopping lists by virtue of this sheer physical bulk – a typical D'Agostino customer would surely find it too imposing and impractical.

Each monoblock amplifier comprises two boxes that together weigh some 70kg, split to make transportation and setting-up more practical. The lower box is the power supply, and the upper one the amplifier itself, where you will see the massive FU80 tube punching into the air like a Shanghai skyscraper. A single JJ ECC83 and Tung Sol 6L6 ride shotgun. Personally I would not call it beautiful, but it's never less than visually arresting. Paradoxically though,

as we shall see, in sonic terms it is one of the least intrusive valve amplifiers I have yet encountered...

Ming Da's founder (and the amplifier's designer) Jigui Xiao says the two-box design is necessary because of the huge power output. 'The output is 80W in Class A – this is a powerful pentode that requires a strong and reliable power supply.'

The juice for the plate/grid negative voltage and the filament voltage comes from separate power transformers, and that's why a two-chassis per channel model was used. With

450W of anode dissipation, there's no underestimating how serious this is. While the amplifiers are also split to minimise hum and noise generated by the power supply 'there's also the consideration of weight and ease of installation to take into account,' Jigui Xiao says.

He adds that the FU80 RF

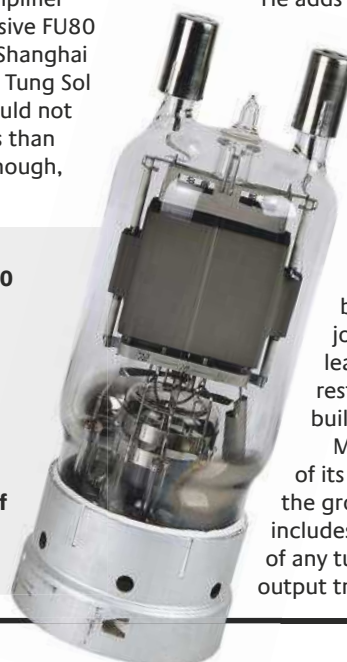
Pentode has a power output that few other valves can match, especially when considering price and reliability [see boxout]. It may not be the most beautiful glass bottle ever to have glowed, but it does a great job inexpensively, and leaves budget for the rest of the amplifier to be built better.

Ming Da makes all of its products from the ground up, and that includes the key components of any tube amplifier – the output transformers. These

'It's like the sort of contraption Alan Turing would have used in his lab'

FU80 RF PENTODE

Very similar to the Russian GU81 transmitter valve, the huge Chinese FU80 power triode is in surprisingly plentiful supply in China, costing a mere £50 or so in its domestic market. It was originally intended for military telecommunications purposes, but subsequently began to appear in medical equipment too. It was designed and produced in the People's Republic of China in the 1950s and '60s, with the help of Russian experts and with reliability a key consideration, and it benefits from that to this day, particularly when run in relatively unstressed applications such as the Cantabile-Grandé. Ming Da's Jigui Xiao says it should give a lifespan of over 5000 hours in this power amplifier, adding that: 'run as a pentode it has a full, rich, fast sound with excellent dynamic headroom.'





LEFT: Looking more like a contraption from a steampunk novel than a piece of domestic hi-fi, this sturdy two-box (mono) amplifier is well finished and crowned by its striking FU80 tube

past one rather than being assaulted by it. The slightly grey midband often heard with solid-state amplifiers is also notable for its absence, and this further heightens the sense of occasion.

However, valve amplifiers don't just bring good things to the party. And even the decent ones have problems in the bass. Feed them powerful rock music and you begin to hear the sound of an amplifier struggling. The output transformers can saturate all too easily. In the early stages, this is a subtle sensation, as the music feels slightly squashed, but it will soon have you lowering the volume as the amp descends into harshness. This is something you simply do *not* hear with this Ming Da.

MUSIC WITHOUT COMPROMISES

The Cantabile-Grandé is accommodating for a valve amp in its ability to play pretty much any kind of music you choose – at almost any reasonable volume, through (I'd guess) practically any loudspeaker – with no apparent ill effects. Most tube amplifier fans enjoy valve amps despite their obvious limitations, yet in normal domestic use the Ming Da appears to have none. Instead this amplifier makes sweet music without obvious compromise, certainly by archetypal tube amp standards.

You get no sense of it struggling to drive the loudspeaker it is hooked up to, no feeling that the internal limitations of the amplifier are adversely interfering with the music. It's an uncanny and liberating sensation – a tube amplifier without tears.

Confirmation comes when you cue up some classic rock music such as Dire Straits' 'Money For Nothing' [from *Brothers In Arms*, Vertigo 824499-2]. This quintessentially 1980s track isn't the sort of thing you would automatically expect any valve amplifier to do well with, however the Ming Da didn't so much as break into a sweat, serving up a punchy and powerful groove.

This recording was mixed at the Power Station in New York, and is instantly identifiable as such, with snare drums tight and well damped, bass guitar taut and tuneful, and lead guitar raw and cutting. This monster amp shared all this with the listener, throwing out a wide and powerful soundstage with real depth too. Tonally the recording came over as dry and lean, just as it should be. Such fine clarity was underlined by Sting's backing vocals, ➔

are bespoke and wound on-site in the factory so the company can keep control of such an important part of the product; they're said to use 'the best Japanese steel laminations available, along with the best oxygen-free copper wire we can find'.

Careful consideration is paid to the inter-winding capacitance, inductance and the correct air gap within the core to eliminate transformer saturation at high currents. Each transformer is dried in a vacuum oven and then encapsulated in resin to avoid moisture and improve long-term reliability. Care has also been

paid to the passive componentry, which is specifically selected. Jensen and Sic Safo capacitors are used, along with Mills Audio, AMRG and Takman Rex resistors. Jensen pure silver wire and high quality bronze rhodium-coated input RCA connectors and output binding posts are fitted to the amp.

BREAKING THE MOULD

The normal experience of listening to a valve amplifier involves hearing a number of things, some good and some bad. Most listeners generally enjoy the pleasing tone – that smooth, silky sense of music wafting



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ABOVE: Ming Da's hard-wired input and driver stages are visible inside an illuminated bay – Jensen electrolytics and Jinvina resistors partnering an ECC83 double-triode and Tung-Sol 6L6 tetrode

which remained unusually intelligible throughout the course of the track.

One quickly realises that this is a valve amp for which the usual excuses are not needed, nor indeed are they offered. Instead, you find yourself listening to the music in a wonderfully matter-of-fact way, perfectly able to focus on what is going on in the performance. George Benson's loving cover of 'Rainy Night In Georgia' [*Songs And Stories*, Concord MMU 79032 RPL-10 107433] was a case in point.

This recording sounded wonderfully exuberant, powerfully atmospheric and yet tonally silky-smooth. The Ming Da doesn't sandpaper down the music's rough edges in any obvious way – if they're there then it will communicate them – but on a superlatively sweet and slick recording such as this, it proved fully able to convey the brilliance of the sound that was achieved in the studio. And it was delivered with a confidence and authority the like of which you practically never hear from tubes.

SO WHO IS BOSS?

Moving on to some iconic electronic music in the shape of Jean Michel Jarre's 'Oxygene 4' [from *Essentials And Rarities*, Sony Music SB227], I was immediately struck by the epic size of the soundstage. The Cantabile-Grandé appeared to be toying with the B&W 802D reference loudspeakers we used in the Ed's media room – normally these will swiftly remind any valve amplifier being asked to drive them who is boss.

Completely unfazed by the huge scale of the recording, it took the speakers by the scruff of the neck and commanded them to punch out an almighty, Phil

Spector-like 'wall of sound'. Within this, there was a wonderful sense of proportion, with excellent image placement and uncannily realistic depth perspective.

The Ming Da gave a breathtakingly three-dimensional sound, separating out all the respective layers of the instruments within the mix with nonchalant ease, and locating them in space with total authority. The result was a magnificent performance of a track I've heard hundreds of times, but never quite like this.

EFFORTLESS POWER RESERVES

Bass is strong but not overpowering; like a large-engined luxury car, the power is there if you want it, but it isn't flaunted. Many valve amplifiers appear to have great grunt, but this can often be put down to their output transformers losing control and slurring things, giving a sense

of artificial weight to the bottom end. The Cantabile-Grandé certainly does not suffer from this phenomenon, as it appears to have effortless reserves of low end power, delivered in a way that doesn't swamp the music. If there is a strong bassline present, then this amp will play it, if not, it generally leaves well alone.

For this reason it's able to give a taut and propulsive sound, with no slurring of rhythms. This extends right up to the treble, where hi-hat cymbals present in a wonderfully smooth and spacious way, yet they still have a lovely floaty, natural quality that powers the song along like a metronome. In short, this amplifier provides a brilliantly cohesive sound that works on so many levels, not least because it commits so few sins. ➔

'It gives a taut and propulsive sound, with no slurred rhythms'

MR JIGUI XIAO

Mei Xing is the company behind the Ming Da brand name. Located in a historic village on Qi Ao Island, on the outskirts of Zhuhai city in Guangdong Province, southern China, the factory sits on the banks of the Pearl Delta – about an hour away from Hong Kong by ferry.

Now in its 23rd year, it sells to over 30 countries, including North America, Europe, and South East Asia. Founder and chief designer Jigui Xiao tells me that it has always specialised in valve amplifiers, making integrateds, preamplifiers, monoblock power amps, headphone amplifiers, phono stages and even home theatre amplifiers.

Previously a teacher and then a local government employee, Mr Xiao has had a love of valve amplifiers since he was a schoolboy, which has led him to what he now does. He believes that his company should cover a good cross-section of the market, which is why there is such a multiplicity of Ming Da products, although he says he has reduced it 'quite considerably over the past couple of years', to bring a greater cohesion to the range.

'We are now primarily concentrating on the aluminium chassis-based products [*Dynasty* in the UK, and *Anniversary* in China]. Even our smaller and less costly amplifiers are built with the same care and attention as the Cantabile series, offering great value for money with quality.'

He's proud that Ming Da UK can now offer a three-year warranty on its complete range of amplifiers.





Asimi Ultra RCA Interconnect

hi-finews
EDITOR'S
CHOICE

“Reflecting the mood of the music, the Asimi Ultra allows the very best hi-fi systems to sing – sing loud, sharp and clear when required or soft, slow and relaxed as the recording demands. It’s a true flagship cable.

*HiFi News,
December 2014*

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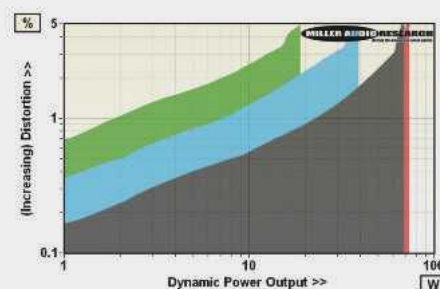
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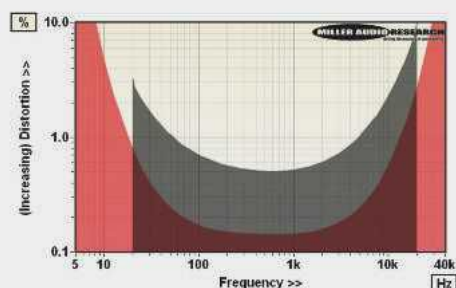
MING DA DYNASTY CANTABILE

As is typically the case with exotic big-tubed amplifiers, power output rather depends on what level of distortion you consider acceptable and, in the case of manually-biased designs like the Cantabile-Grandé, the anode current. Biased at a conservative 140mA, these huge monoblocks achieved 1W/8ohm at 0.17% THD, 10W at 0.6% and then 24W/1%, 48W/2%, 59W/3% and 66W/4%. The rated 80W/8ohm was achieved at 6.1% THD although a lower distortion might well be anticipated at the highest specified 155mA bias current. The profile of distortion versus power output into 8ohm (via the 8ohm tap) and 4, 2 and 1ohm loads (via the 4ohm tap) is almost identical under continuous or dynamic conditions [see Graph 1, below].

Distortion necessarily increases at the frequency extremes, reaching 2.8% at 20kHz at 1W/8ohm and 10% at 10W/8ohm [see Graph 2]. The Cantabile-Grandé's response is also tailored at the frequency extremes while its output impedance – max'ing at 3.05ohm/23Hz down to 0.77ohm/17kHz – brings about a further modification in response 'shape' according to swings in the attached speaker's impedance trend. Into a flat 8ohm load, and via the 8ohm taps, the response has a +9dB boost at a worryingly low 10Hz (beware LP-playing systems) before flattening out by 60Hz (+0.1dB) and rolling away at HF (-1.5dB/20kHz). This treble rollout is more pronounced into lower impedances, falling to -1.9dB/20kHz into 4ohm and -3dB/20kHz into 2ohm. Noise is low but not exceptionally so – the A-wtd S/N is 81dB (re. 0dBW). Readers may view a comprehensive QC Suite test report for Ming Da's Dynasty Cantabile-Grandé MC998-A by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads up to 5% THD



ABOVE: Distortion versus frequency at 10W/8ohm (20Hz-20kHz, black) and 1W/8ohm (5Hz-40kHz, red)

HI-FI NEWS SPECIFICATIONS

Power output (<4% THD, 8/4ohm)	66W / 71W
Dynamic power (<5% THD, 8/4/2/1ohm)	70W / 75W / 40W / 19W
Output impedance (20Hz-20kHz)	3.05-0.77ohm
Freq. response (20Hz-20kHz/100kHz)	+1.6dB to -1.5dB/-11.0dB
Input sensitivity (for 0dBW/80W)	222mV / 2145mV (balanced)
A-wtd S/N ratio (re. 0dBW/80W)	80.9dB / 99.9dB
Distortion (20Hz-20kHz re. 10W/8ohm)	0.50-10.2%
Power consumption (Idle/Rated o/p)	475W/460W
Dimensions (WHD) / Weight	440x860x455mm / 65kg

LEFT: HT and LT supplies are routed via the lower enclosure to the amplifier via umbilicals. The amp also offers bias and hum adjust points, plus single-ended and balanced ins with 4mm speaker outputs via 8ohm and 4ohm taps



Indeed, many traditional tube amplifiers can often sound lovely with some types of music but fall flat on their faces when asked to reproduce orchestral music convincingly. Mozart's March, K189, played by the Scottish Chamber Orchestra [Linn Records AKP305] showed just how inherently open and neutral this amplifier is.

Again, it served up a fantastic sense of scale, from front to back and left to right. Image placement was excellent, and the recorded acoustic was conveyed brilliantly. More than this however, it caught the natural jauntiness of the orchestra – strings soared and brass stabbed, giving a great sense of the music's dynamic direction.

There was also a gorgeous tone to the strings: raw, lustrous and slightly screechy even, but never grating, grey or opaque – so this product reminds one how a really good tube amplifier can preserve the texture of a recording, when so

many solid-state designs seem to let it fall by the wayside. Overall, where bad valve amplifiers are often most challenged – playing classical music at concert hall volumes – the Ming Da actually shone the brightest, while also proving to be a consummate performer on rock. ☺

HI-FI NEWS VERDICT

This seminal power amplifier sounds excellent across all types of music, appears less intimidated by loudspeakers than many an esoteric valve amp, and needs absolutely no excuses made for its bass performance. However, along with the price, its vast physical bulk will deter many prospective purchasers. Overall then, this unique, exotic design warrants serious consideration if you think big is beautiful.

Sound Quality: 86%



T+A PDP 3000 HV

A DAC with a built-in disc drive, T+A's new SACD player for its flagship HV Series contains individual PCM and DSD decoding engines – with separate analogue outputs!

Review: **John Bamford** Lab: **Paul Miller**

Ever since specialist record labels began offering downloads of their high resolution 'master' files the hi-fi market has witnessed a parade of new D-to-A converters and network music players boasting increasing capabilities. Such rapid progress affects manufacturers as well as we consumers.

Take Germany's T+A Elektroakustik for example. Its £7900 flagship MP 3000 HV media player [*HFN* June '13] is a hugely capable heavyweight source component by any stretch – CD player, FM tuner, network audio player (with internet radio) and hi-res-capable USB DAC all incorporated in its elaborate chassis.

For most listeners in the 'real world' that's everything one might need. But it was developed at a time when USB interfaces maxed out at 192kHz/24-bit PCM and couldn't accommodate DSD.

TICKING ALL THE BOXES

Enter T+A's latest 'HV' source component: the £11,200 PDP 3000 HV designed to tick all the boxes required by today's most demanding audiophiles. It's the company's latest 'statement' D-to-A converter, fitted with a programmable USB input module from Italy's Amanero Technologies which supports asynchronous data transfer of PCM up to 384kHz/32-bit and DSD64/DSD128. Moreover with a supplied ASIO driver, PC users running Windows can also play back DSD256 and even DSD512!

And as it's fair to assume that many audiophiles will have a substantial number of SACDs nestled among their CD collections, T+A has built in an SACD rather than simply a CD drive. There are six additional digital inputs to accommodate all manner of sources: one AES/EBU (XLR) and five S/PDIF (two Toslink, one RCA, two BNC). The optical inputs are limited to 96kHz/24-bit; the others are 192kHz/24-bit-capable.

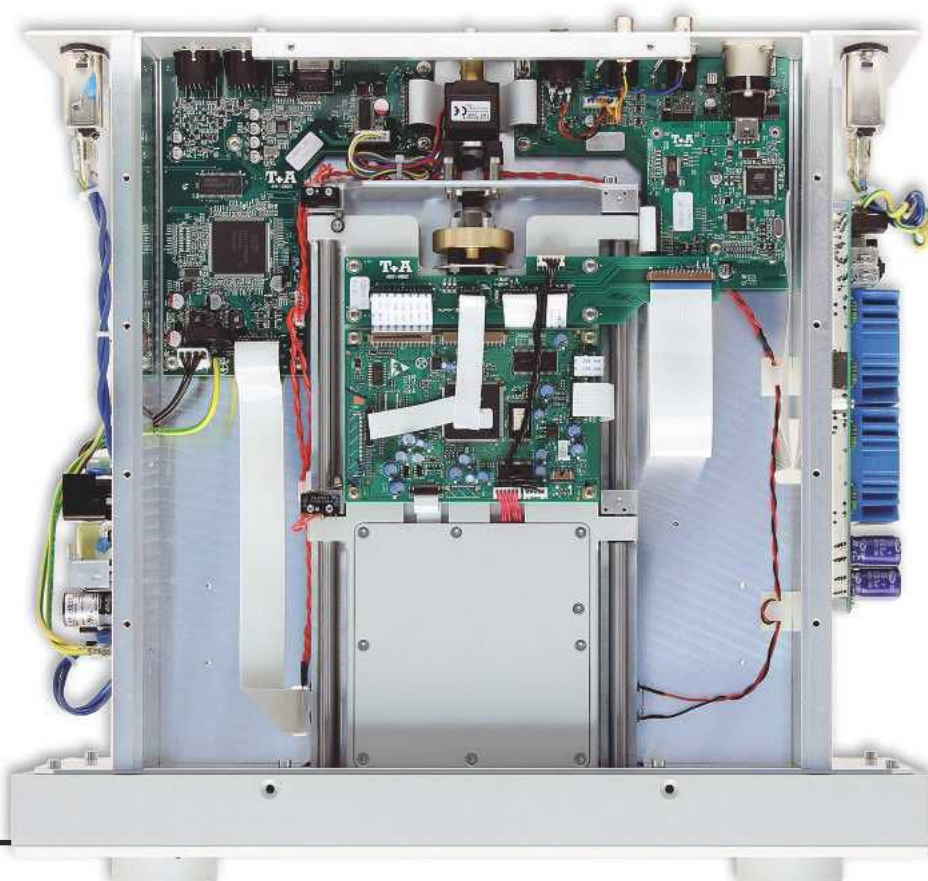
RIGHT: Top-loading SACD mechanism, which glides out like a tray-loader, is cocooned in an aluminium case machined from a solid block to shield it from the rest of the player

The construction of the PDP 3000 HV is nothing short of superb, built around a pure aluminium chassis and boasting complete symmetry and channel separation throughout. Substantial twin power supplies feed the PDP's analogue and digital sections separately, the design's no-compromise approach including two IEC connectors on the rear panel for individual AC power cables.

The player's SACD mechanism, shielded in a separate housing, is a bespoke design which glides out seductively like a tray-loader... but is in fact a top-loader incorporating an anti-resonance puck which you place on top of the disc. The disc carrier is mounted on just two close-tolerance pushrods in order to divorce it from the heavy outer case, a high-torque synchronous motor moving the block by means of a decoupled spindle.

To reinforce the company's no-compromise design approach, DSD data fed into the PDP 3000 HV's USB input from a computer source is handled entirely separately from PCM data, thereby 'sticking up two fingers' to competing manufacturers who claim PCM and DSD compatibility in their DACs while employing delta-sigma DACs which – DSD evangelists might rightly maintain – do not replay DSD in a purist manner.

Says T+A's chief design engineer Lothar Wiemann: 'We do not do a DSD to low-bit PCM conversion. Rather than use an integrated converter chip we have built a real 1-bit converter using discrete parts, so that the DSD signal is preserved without any alterations. It's based on a "weighted sum of delayed samples" technology, with a structure similar to a FIR filter with a 1-bit delay line, the taps of this line





driving signal switches. The output of the switches is summed via weighting resistors (representing the filter coefficients) and *voilà*, there's our analogue output signal together with [first stage] high frequency noise filtering. The structure is simple but the devil is in the detail. For example, it's vitally important to have literally a jitter-free clock for the switching stages.'

NO-COMPROMISE FILTERS

For conversion of PCM sources the PDP's DAC section is largely identical to that featured in the company's MP 3000 HV media player, except that here the DAC's analogue filter and output stages work with higher supply voltages. It employs eight of TI's Burr-Brown 32-bit/384kHz delta-sigma DACs in a 'double symmetrical' quadruple arrangement, with oversampling carried out by a 56-bit DSP and with four digital filter options that can be selected via remote control [see boxout].

The PCM DAC and DSD decoder employ individually-tailored output sections. Lothar Wiemann again: 'We wanted filters that precisely match the requirements

of each format. The output stages differ in their analogue filter response – filter order, slope, cut-off frequency, *etc.* A "combination filter" would have been too big a compromise and a filter with switched characteristics would have meant additional circuit parts – switches, *etc.* – adding noise and distortion. So to avoid deteriorating the performance we've included separate and independent filter and output sections.'

As befits a high-end source with a price tag exceeding £10k, both balanced (XLR) and single-ended (RCA) analogue outputs are provided on the rear panel. But as if to reinforce the fact that the PDP treats PCM and DSD signal sources individually both the XLRs and RCAs are doubled up: one set labelled 'DSD', the other 'PCM'. Since you might not have two vacant line inputs on your (pre) amplifier, or are baulking at the expense of another set of high-end interconnects, the two analogue outputs can, however, be

'The bass served up by the organ's largest pipes was seismic'

ABOVE: Rotary source selector and menu/media navigation controls flank the unit's large VFD which incorporates touch-sensitive controls for standby on/off and disc drawer open/close

commoned (to the DSD-labelled sockets) via the PDP's comprehensive setup menu. You can also configure all manner of default playback options and custom-name each digital input to personal preference.

It's important to note that for SACD playback (and 'standard-rate' DSD64/2.8MHz DFF and DSF files) the PDP 3000 HV routes DSD signals through the Burr-Brown DAC stage by default in

order to minimise the high frequency 'hash' endemic in DSD and avoid stressing your amplifier and your monitors' tweeters.

For playback of audio files via USB this default can be overridden by selecting 'True DSD for DSD64' in the setup menu. Four further DAC Mode settings determine how DSD data is handled depending on a recording's native sampling rate. You *will* need to study the manual!

IT SOUNDS JUST RIGHT...

As with any disc player or D-to-A converter with myriad filter options, you'll have endless hours of fun experimenting with the PDP 3000 HV's different settings while you explore your digital music collection. I could write a book about how each setting subtly affects the subjective sound quality of *this* disc, or *that* CD-quality or hi-res file... but as well as reading like an Excel spreadsheet it would only conclude with the inevitable statement: 'Whichever you prefer will be determined by the character of your system and the recording itself...'

Describing the PDP's sound quality in broad brush strokes, however – whether

FILTER FEST

Although the PDP 3000 HV has an entirely separate D/A chain for DSD replay, right through to individual RCA/XLR outs, T+A's 1-bit DAC only operates with **USB** inputs of DSD64/2.8MHz or higher. In practice, and regardless of whether the output configuration is set to DSD+PCM or DSD/PCM, DSD64 (SACD) bitstreams are downsampled to 88.2kHz. With LPCM inputs, T+A's custom filters come in two flavours – FIR 1 and 2 being 'traditional' linear-phase FIR (Finite Impulse Response) types while BEZ 1 and 2 are minimum-phase filters based on Bezier polynomials. FIR 1 is a default filter with equal pre/post ringing and a brickwall roll-off. Phase distortion is low and rejection of aliasing images superb but the ringing is not ideal. FIR 2 is a shorter filter, trading less pre-ringing for poorer rejection of out-of-band images. BEZ 1, an interpolation filter, has almost no pre-ringing but neither does it suppress ultrasonic images. This filter serves 96/192kHz inputs best as 48kHz data is left with a treble peak and increased phase distortion. BEZ 2, an IIR (Infinite Impulse Response) type, offers almost perfect time domain behaviour – no ringing – but with a gentle HF response. **PM**

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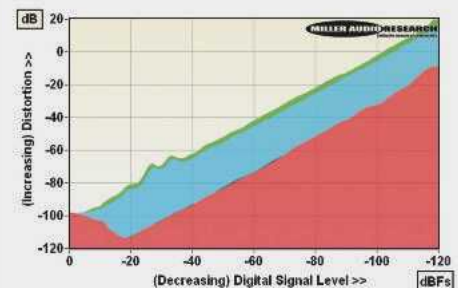
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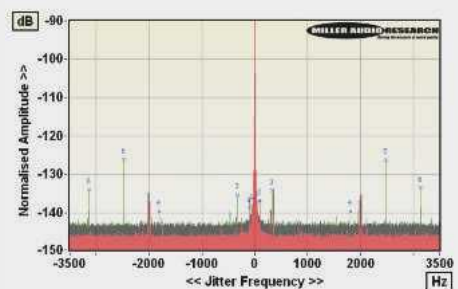
T+A PDP 3000 HV

The PDP 3000 HV's (LPCM) DAC and analogue stages are clearly derived from T+A's MP 3000 HV media player [HFN Jun '13]. The 4.6V maximum (balanced) output is joined by a wide 114-5dB A-wtd S/N ratio, the 45ohm output impedance confers broad compatibility and low-level linearity is good to ± 0.1 dB over a huge 100dB dynamic range. As before, the response of all sample rates at or below 96kHz is determined by choice of digital filter [see boxout, p37]. With CD or 48kHz digital inputs this varies from -0.33 dB/20kHz to -4.6 dB/20kHz while 192kHz/24-bit inputs via S/PDIF or USB are fixed at -7.2 dB/90kHz regardless of filter. T+A's SACD DAC Mode 1 and 2 options offer slight differences in extreme HF (-1.5 dB/20kHz to -68 dB/50kHz in Mode 1 and -0.5 dB/20kHz to -45 dB/50kHz in Mode 2).

Regardless of input (incl. SACD), correlated jitter varies from just 10 to 35psec – a fabulous result [see Graph 2, below]. Furthermore, distortion is very low at 0.0008% at its peak 4.6V (balanced output) falling to 0.0005% at -10 dBFs and 0.0004% at -30 dBFs [red trace, Graph 1 below] and only fractionally higher via USB 2.0 [black trace] although our sample showed a uniformly higher THD via the left channel through bass and low midrange. We saw exactly the same pattern with the MP 3000 HV. There's also an increase in odd-order THD at higher frequencies (0.0009% at 1kHz to 0.015% at 20kHz/ -30 dBFs) as illustrated by the blue (USB)/green (CD) traces in Graph 1. For more detail, readers may download full QC Suite reports for the T+A PDP 3000 HV's CD/SACD, S/PDIF and USB performance (including filter options) by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: THD vs digital level – 1kHz at 24-bit/48kHz over S/PDIF (red) and USB (black); 20kHz via USB (blue) and 20kHz at 16-bit/44.1kHz via CD (green)



ABOVE: High res. jitter plots using 24-bit/48kHz data (S/PDIF, red; USB, black; SACD, green with markers)

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	4.60Vrms at 44-50ohm
A-wtd S/N Ratio (SACD / S/PDIF in / USB in)	114.9dB/114.1dB/114.5dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0008% / 0.00045%
Distortion & Noise (20kHz, 0dBfs/-30dBfs)	0.00085% / 0.015%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0dB to -0.37/-0.5/-7.2dB
Digital jitter (SACD / S/PDIF in / USB in)	33psec / 10psec / 12psec
Resolution @ -100dB (SACD / S/PDIF input)	± 0.1 dB / ± 0.2 dB
Power consumption (Digital/Analogue)	10W / 15W
Dimensions (WHD) / Weight	460x170x460mm / 26kg



ABOVE: Seven digital inputs cover all flavours, RJ45s facilitate home automation, there's an S/PDIF output, and separate analogue outs for the DSD and PCM sections

playing a CD or pushing data into its USB input – it just sounds 'right'. There's no dramatic colouring or augmentation to musical events, rather it sounds 'pristine' and squeaky-clean.

Familiar high resolution downloads of audiophile-quality recordings, for example from 2L (352.8kHz/24-bit PCM – aka 'DXD') and Channel Classics (native DSD64 recordings), sounded as holographic and breathtakingly realistic as I've ever experienced in my home, the sound so obviously unsullied I found it impossible to determine that the unit has any 'character' whatsoever.

SIMPLY MORE LIFELIKE

I re-visited Channel Classics' beautiful recording of Haydn's String Quartet in D-minor performed by the Dutch Ragazze Quartet, which I recall describing as sounding bold and richly-coloured when I played it via the USB input of T+A's MP 3000 HV media player all those months ago. But, of course, back then I would have been listening to a 192kHz/24-bit file of the recording, not the native DSD64 DFF file (which the media player couldn't handle).

I listened to both files via the new PDP's USB input and was transfixed by the manner in which it portrayed the players' instruments with such vivid three-dimensional body and precise image focus – especially when playing the native file with the PDP's playback mode set to 'DSD 4' and 'True DSD for DSD64' enabled.

And I'd swear this player sounds less 'colourful' (in a positive sense), with each instrument's rich timbre more natural and lifelike. I thought this when playing the 192kHz PCM file as well, although it appeals to my audiophile sensibility to play recordings unsullied in their native form rather than format-converted.

Meanwhile the 1976-vintage analogue recording of 'Julsång' from the Proprius label's *Cantate Domino*

[88.2kHz/24-bit download, HDtracks] similarly appeared exquisitely 'open' and unvarnished, the massed voices in the chorus remaining clear and unforced even during the loudest climaxes. And the powerful bass served up by the organ's largest pipes was utterly seismic.

As well as listening to the PDP 3000 HV feeding my succulent-sounding vintage Mark Levinson No383 100W integrated, I was able to audition it with T+A's flagship 'HV' pre/power combo, complete with additional PS 3000 HV power supply bolstering the A 3000 HV's power stages [HFN Sept '14]. What was clearly apparent, even when listening to run-of-the-mill CD-resolution recordings, was that the player/DAC's unadorned deadpan delivery is precisely what the amplifier components require to give of their very best.

Hearing the three bass guitarists, Stanley Clarke, Marcus Miller, and Victor Wooten, resolved with such poise and startling clarity on SMV's 2008 album *Thunder* [Dreyfus Jazz FDM 46050 369212] was a revelation as the trio pumped out the riffs in the medley 'Lopsy Lu – Silly Putty'. The PDP 3000 HV just tells it how it is. ☺

HI-FI NEWS VERDICT

Expensive? Well, yes... but as with all of T+A's HV Series components build quality is fabulous and meticulous attention to design details second-to-none. Weighing the PDP's top-notch sound, along with the fact you're getting **three** high-end components – an SACD/CD disc transport, DSD and PCM DAC – for less than many boutique brands' standalone DACs, it's unquestionably an audiophile bargain.

Sound Quality: 89%



Simaudio Moon Nēo 430HA

Respected Canadian builder Simaudio is really shooting for the Moon with this costly high-end headphone amp. Can it really justify its maker's 'world's best' claim?

Review: **Steve Harris** Lab: **Paul Miller**

Only in the last few years has the high-end audio industry begun to offer really high-quality dedicated headphone amplifiers, with or without a built-in DAC. Now Simaudio offers both options with the fully-balanced Moon Nēo 430HA, which is priced at £2700 in analogue form, or £3300 with a built-in DAC and a full range of digital inputs.

If you're already the happy owner of a Moon DAC/CD transport, you'll obviously choose the DAC-less version. Otherwise, you might well think that a digitally-equipped headphone amp makes more sense. We were given the DAC-equipped version to review, so we were able to have it both ways.

TRICKLE-DOWN TECHNOLOGY

As the newest addition to Moon's extensive Nēo series, the 430HA comes with a pedigree [see boxout] and a long-established visual identity. Its solid, machined casework has a luxurious feel, and the front panel features Moon's distinctive curved side cheeks – the right-hand one is cut away to accommodate a comfortably-sized volume knob.

This brings us to what's inside. As with other Nēo models, the 430HA draws on technologies developed for Moon's very high-end Evolution series, for example the over-the-top M-eVOL2 volume control system. This gives no fewer than 530 volume level steps and a claimed channel matching accuracy of 0.1 dB.

Also Evolution-derived is the M-LoVo (Moon Low Voltage) DC regulation circuit, giving a power supply with a 'virtually unmeasurable' noise floor. In the 430HA, this power supply sustains a fully-balanced amplifier section using discrete components and with a rated output of 667mW/600ohm or 8W/50ohm, which of course is more than ample for any

headphone, or headphone listener [see PM's Lab Report, p43].

User features include high and low gain settings, to suit headphones of differing sensitivity, and a switchable crossfeed setting. This partly blends the two channels and can give a more relaxing 'out of head' stereo effect on many recordings.

As for the digital section, the DAC is described as 32-bit, fully asynchronous, and intended to accept virtually any digital source, from computer music streaming to satellite TV to Blu-ray player.

Clearly, Moon has set out to cover all the bases in terms of connectivity and facilities, and accordingly the front panel is well populated with control buttons. Layout and labelling is the same whether or not you have the built-in DAC, and a 'digital' 430HA won't look any different until you switch it on, when the digital input settings are revealed by the display.

In the left-hand button group, there's a standby switch that brings the product to

life, lighting up the large display window with an indication of the selected input and the volume setting.

XLR HEADPHONE SOCKETS

If receiving a digital input, the display will briefly show the sampling frequency before reverting to the volume figure. However, you can use the Display button (below Standby) to have the sampling frequency showing at any time. A longer press on this button turns the display off. Completing the left-hand array is one button to toggle between low and higher gain amplification, and another for crossfeed – an LED shows when this is on.

Over to the right is a pair of buttons for input selection, and it is indeed arguably more convenient to have two buttons to take you up or down the list, rather than having to press a single button repeatedly to cycle through it.

Anyway, there are two unbalanced analogue inputs, displayed as A1 and



RIGHT: In addition to Simaudio's dual-mono PSU and 'M-LoVo' four-stage voltage regulation (left-most PCB) our sample has the ES9018-based DSD256/384kHz DAC board fitted



A2, and one balanced, appearing on the display as 'b1'. For the DAC-equipped 430HA, there are also four digital inputs. D1 (displayed as 'd1') is a Toslink optical, while D2 and D3 are RCA phonos, for use with a CD transport, or any network player or music server that has an S/PDIF digital output. These accept LPCM audio up to 192kHz/24-bit.

Finally, the D4 input is a USB port,

which is where the Moon's 32-bit DAC really comes into its own if you are pursuing the outer reaches of high resolution. This input accepts LPCM digital sources with sampling rates up to 384kHz and DSD signals at 2.82MHz, 5.64MHz and 11.28MHz (DSD256).

Here, of course, it's really helpful to be able to have the sampling frequency shown on the display, as this confirms what's actually being processed.

Of the two remaining buttons, one is the always-useful Mute switch, while the other, labelled 'MP' for 'music player' switches between the 6.35mm headphone socket output and a 3.5mm mini-jack socket *input* seen below. However, the 430HA also provides balanced outputs. By putting a finger on the scalloped right-hand end of

the display window, you can slide this to the left and reveal a pair of three-pin XLRs and a single four-pin XLR socket, which provide for the two main possibilities of balanced headphone connection.

All the controls are neat and nicely laid out, even if the legends are rather small. But in practice, you will find yourself using the 430HA's compact remote control, which duplicates all the fascia's functions.

Not surprisingly, the 430HA's rear panel looks pretty packed. Apart from the analogue and digital inputs there are connections for Simlink system control and a 12V trigger input and output for remote operation, and an RS-232 port to facilitate future firmware updates.

OPEN AND RELAXED

So, with great anticipation I put on a pair of Sennheiser HD650s to put the 430HA through its paces. Listening first of all to the 430HA via its analogue inputs, I was soon won over.

Starting at the top, the treble was clear and clean, not sparkling or fizzing in any exaggerated way, but allowing the headphones to bring you enticing musical nuances without effort. The treble

ABOVE: Along with comprehensive controls, the front panel offers a ¼in headphone socket, plus balanced XLR output connectors revealed by sliding back the display panel


blended seamlessly into a neutral midrange that again seemed to foster musical communication in an unassuming but tremendously effective way. Down below, the bass end was clean and unfettered, so that acoustic bass instruments appeared to breathe with a natural presence.

Listening to the grooving 'Miss Sun' from *Boz Scaggs' Greatest Hits Live* [Gray Cat GCD 4001] the whole sound of the band was captured in an open, relaxed way that made for compelling listening. When it came to details, I was arrested more than ever by the way Scaggs' guitar echoes each phrase as the great Ms Mone't lets go in her soulful vocal obbligato.

On a recording like Diana Panton's *Red* [Inakustik INAK 9129 CD], where lush strings complement a jazz group, there was a great sense of space and perspective to this lavish instrumental setting. And when the singer entered on the opener 'Say It Over And Over Again', there seemed to be no barrier to the emotional message.

To listen to 'Snow' from Patricia Barber's *The Cole Porter Mix* [Blue Note 50999 5 01468 2 6] was to hear a familiar track coming up fresh in new sonic glories. At the start of the track there was a depth and sonority to the piano sound that exceeded anything I'd heard before on headphones and, tellingly, it retained every bit of its character when the guitar bass and drums came in around it.

At this point, I tried Moon's crossfeed facility. Most people, I think, wouldn't choose to use this on a good modern studio recording like the Cole Porter, although even here some might think it more relaxing. It had the effect of flattening the stereo image behind or across the top of your head and reducing its spread around the sides.

An example of crossfeed working as intended was my old favourite *Art Pepper Meets The Rhythm Section*, recorded 

'Bass instruments appeared to breathe with a natural presence'

MOON RISING

Quebec-based Simaudio was founded in 1980, but the company's Moon brand name first appeared only in 1997. It was introduced by Jean Poulin, who had joined Simaudio in the early 1990s and become its owner in 1995. A committed audiophile, Poulin had previously worked in the transformer industry, developing high-tech products for Nortel and other major clients. Now he led Simaudio through a period of expansion that saw it move from a 3000ft² industrial unit to its own 46,000ft² facility, and grow to employing around 40 people. In 2013, when Poulin decided to retire, he maintained continuity by selling the company to a group of long-term employees who had already contributed much to its success. Costa Koulisakis had served 13 years at Simaudio, while Thierry Dufour had been chief engineer for almost 20 years. The newest member of the team, Louis Lemire, was also an engineer, with business acumen too. Today, as always, with work that cannot be done in-house going to local Quebec subcontractors, the Moon products are entirely built in Canada.

Your listening room and jet engines share a problem – What?!

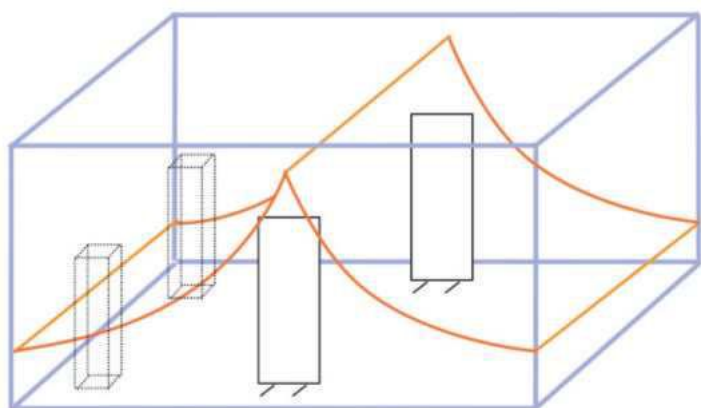
*“Wow” and
“That’s amazing”*
LISTENERS SAY WHEN
WE DEMONSTRATE
THESE PANELS

Both create a lot of troublesome noise but science has the answer:– panels with thousands of carefully calculated holes.

When you play music “old” **sound waves** slop between the walls in your room – like water in a fish tank – but absorb that energy with special panels and your music will blossom.

As you listen the speakers project new sound into space still resonating with music from a few milliseconds earlier. New and old clash and **intermodulate**. Result: *your room destroys an amazing amount of fine detail.*

You are propagating “new” music signals into “old” air. Think of the interference between fresh waves that break on a beach and meet the previous retreating wave.



Air movement reaches peak **velocity** in the middle of the room where the panels absorb energy across the full spectrum, not just at specific frequencies

The solution – When you energise the room with a music signal thousands of carefully-calculated micro-perforations in the **LeadingEdge** panels create turbulence as the air, slopping to and fro between walls, passes over their surfaces.

And jet engines? Similarly, in the Airbus compressor noise from the front fan is cut down with a special micro-perforated lining for the air intake.

We hear air pressure changes as excess bass at the room boundaries, where the air is at zero *particle velocity* and maximum pressure change. It reaches maximum velocity (and zero pressure change!) in the centre of the room where the perforations create **aerodynamic drag** and the panels absorb this velocity energy into an internal honeycomb.

Aerodynamic drag removes unwanted energy *across the spectrum* and is far more effective than conventional foam-filled panels that work only at narrow frequency bands.

Significantly, *the drag increases with the square of the velocity – when the velocity doubles, drag increases four times!*

In this way, the LeadingEdge panels are “reactive” – the more loose energy bouncing round the room, the more effective they become.

At shows and in their homes listeners have been truly astonished at the changes brought by the panels, revealing greatly more musical realism.

Every time we hear reactions like “Wow” and “That’s amazing!”

Panels are available in different sizes and three standard finishes: Cherry, White, and Light Oak though almost any finish can be ordered to match décor.

Panels may be free-standing and moved away when not required or fastened to the walls and made into a feature, perhaps finished in an exotic high gloss veneer.

An ideal solution is to place panels on the ceiling, where they absorb energy from all directions. In this room with 60% glass windows and hardwood floors the panels are a feature, with recessed lighting. The result is a quiet, comfortable room despite all those hard surfaces.



Thousands of micro-perforations create aerodynamic drag and absorb energy into the internal labyrinth



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Just listen and you’ll know

Digital: Aurender, Bel Canto, dCS, Resolution Audio, Vertex AQ dac. **Vinyl:** ClearAudio, Graham, Spiral Groove, Transfiguration.

Tuners: Magnum Dynalab. **Amplifiers:** Aesthetix, Bel Canto, CAT, Gamut, Sonneteer, Storm Audio, VTL.

Loudspeakers: Avalon, Kaiser Acoustics, NEAT, Totem. **Cables:** Chord Co., DNM, Nordost, Siltech, Tellurium, VertexAQ. **Mains:** Aletheia, Vertex AQ.

Supports: Arcici, Black Ravioli, Hi-Fi Racks, LeadingEdge, Stands Unique, Vertex AQ. **Room acoustics:** LeadingEdge

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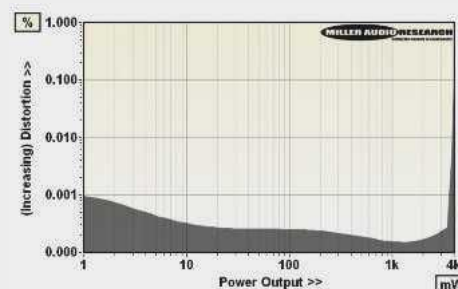


SIMAUDIO MOON NĒO 430HA

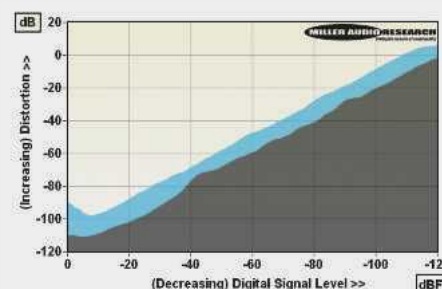
In certain respects the Moon 430HA's analogue headphone/preamp is a stronger contender than the add-on DAC which is less (technically) impressive than Simaudio's standalone models [see NĒo 260D, *HFN* Apr '14]. There's some variance in the specification with our measured results – I'd have expected more than 4.2W/25ohm [see Graph 1, below] from Simaudio's 8W/50ohm rating unless the 430HA has an inbuilt current limitation (suggested from the maximum *unloaded* voltage output of ~13V). Either way, 4W is absolutely more than sufficient to destroy your hearing with almost any headphone!

Similarly, the rated 0.22ohm source impedance is more like 1ohm in practice once the headphone cables are taken into account, but this is still impressively low and will maintain the hugely extended response (+0.06dB/100kHz) into any headphone offering anything close to this range. The A-wtd S/N ratio is very wide too at 98dB while the low 0.0018-0.00012% distortion is maintained almost regardless of load or practical output. Unlike some headphone amps, all these performance indicators are unaffected by your choice of high (+16dB) or low (+10dB) gain setting, measured in balanced mode.

The DAC stage is less outstanding – distortion is low at 0.0009%/1kHz and 0.003% at 20kHz and 20Hz [see Graph 2], the response very wide at -4dB/100kHz (192kHz media) and jitter very low at <30psec (all sample rates) but there's some interference popping up 10-15dB above the noise floor that limits the A-wtd S/N to just 96dB. Readers are invited to view comprehensive QC Suite test reports for Simaudio's Moon 430HA headphone preamp and DAC by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Continuous power output versus distortion into 25ohm 'headphone' load



ABOVE: Distortion versus 48kHz/24-bit digital signal level over a 120dB dynamic range (S/PDIF input 1kHz, black; 20kHz, blue)

HI-FI NEWS SPECIFICATIONS

Maximum output (re. 1% THD into 47kohm)	12.5V
Max. power output (re. 1% THD into 25ohm)	4208mW
Output impedance (20Hz-20kHz)	1.10-1.18ohm
Maximum gain (High/Low setting)	+16.1dB/+10.1dB (balanced)
A-wtd S/N ratio (re. 0dBV)	97.8dB (balanced)
Frequency response (20Hz-20kHz/25ohm)	-0.0dB to +0.1dB
Distortion (20Hz-20kHz, re. 40mW)	0.0018-0.00012%
Power consumption	22W (2W standby)
Dimensions (WHD) / Weight	429x89x351mm / 9kg



ABOVE: At the rear are balanced and unbalanced analogue inputs and, if the unit has the optional built-in DAC, a set of digital inputs including Toslink optical, two coaxial (S/PDIF) connections and USB. The RS-232 port allows for firmware updates

in severely left/right stereo in 1957. I actually like the way this comes over on headphones, but pressing the crossfeed button successfully removed the 'hole in the middle' effect. It shifted Pepper's sax from its position outside the left ear to a point well inboard of that extreme and it similarly regrouped the piano trio behind my right ear rather than outside it. Although (unlike Chord's Hugo) the Moon offers only one level of crossfeed, it's a well-judged and really useful option.

OPEN AND EFFORTLESS

Generally, the 430HA could be characterised as open and free-sounding. With the title track from Eric Bibb's *Get Onboard* [Telarc CD-83675], bass and drums had a lightness and bounce that really had your feet tapping. Glen Scott's organ phrases shone through to perfection and even tiny elements in the mix were delineated clearly.

For example, Bibb's characteristic distant answering background vocals can sound quite anonymous, but this time you could very easily hear which of those little vocal licks came from keyboardist Scott and which were Eric's own contributions.

A seamless, organic quality that I'd begun to appreciate in the sound of the 430HA was really evident in classical recordings, where subtleties of timbre and inner detail could make all the difference. Putting on the 2003 Barbican recording of Brahms's Symphony No 1, by the LSO under Haitink [LSO Live LSO0045], the textures of strings and woodwinds were beautifully realised, and sounds could hang in the air in the most natural and enticing manner.

After this, I tried the 430HA's built-in DAC, first with some familiar CDs as the source. With Eric Bibb's 'Get Onboard' the sound via the

430HA's DAC was still excellent, although compared with the Chord DAC I'd been using before I felt that there was a slight loss of detail and of sheer openness in the stereo picture. The impression was of a big, expansive sound, but it didn't seem to have quite the last bit of foot-tapping life and bounce that I'd heard before. On the other hand, with the LSO Brahms recording, I felt that the Moon was actually a little smoother on the big climaxes.

Finally, though, I hooked up the computer to listen to downloaded high-res via iTunes and Pure Music, with sample rates from 88.2kHz to 192kHz. Among the classical recordings I tried were two Naim recordings, the RPO's Mozart Wind Serenades [naimcd 118] and cellist Tim Hugh's Wigmore Hall recording *Hands On Heart* [naimcd 118]. With the 430HA in charge, the wind music was appealingly clear-toned yet forceful, while Tim Hugh's account of the Kodály sonata was truly gripping.

When I turned yet once more to female vocals, with the lovely Marta Gomez track 'Lucia' from HDtracks [Entre Cada Palabra, Chesky JD301], the 430HA revealed the most subtle shimmer in the singer's voice while guitar, percussion and accordion all had real attack and believable presence: an effortless sound. ☺

HI-FI NEWS VERDICT

Built to last and supplied with a 10-year guarantee, the 430HA offers useful facilities as well as balanced operation and great sound. Sonically, as an amplifier, it gets out of the way and lets the music come through with freedom and aplomb. While the DAC section can't, perhaps, claim the same supremacy as the amp part, its inclusion helps make this a truly practical, admirable, and desirable product.

Sound Quality: 84%



"I have to say,
I was blown away by the
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**John Bamford –
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Reviewer quotes:

"It's easily the best DAC I've ever heard in my system, making digitally-recorded music sound better than I've ever heard it"

Vade Forrester – *The Absolute Sound*

"I witnessed the best sound quality I've ever heard from these DSD recordings"

**John Bamford –
*Hi-Fi News***

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Marja & Henk – *6moons*

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Hi-Fi News

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Technics SB-R1

These massive – and massively expensive – speakers could be the star turn in Technics' new line-up

Review: **Andrew Everard** Lab: **Keith Howard**

If making a 'Reference class' network controller and amplifier, selling for just short of £18,500 [see *HFN* Feb '15], could be seen as a brave move by a major Japanese consumer electronics brand that's been out of the hi-fi game for over a decade, adding to it a pair of massive floorstanding speakers selling for the same kind of money might be viewed as a sign that company is either very confident in its abilities or entirely unfettered by the concept of risk.

Technics, as part of the huge Panasonic company, is neither foolish nor carefree in the choice of products it launches, yet the SB-R1 speakers, at £18,599 a pair, are certainly a bold move, given the strength of the market at this level, not to mention the huge range of very good loudspeakers available for far less.

That's without mentioning the number of 'statement' speakers launched by major Japanese brands that have proved to be somewhat underwhelming, though there have been notable exceptions, including the recent Sony flagship models such as the SS-AR1, and the products of Pioneer offshoot TAD Labs, whose CE1 speakers we've reviewed [*HFN* Jan '15].

AN IMPOSING 'BOX'

The SB-R1, as the usual Technics model designation suggests, is a 'Speaker Box' – just a very large and heavy one. Standing 1.26m tall, finished in high-quality piano gloss black and weighing 72kg apiece, they're certainly imposing.

Technics describes them as a Point Sound Source Speaker System, and it might be tempting to wonder how a design with a total of six drivers could be viewed as a 'point source'.

Much of this claim is based around the use of the company's coaxial driver for the midband and treble, combining as it does a 160mm midrange unit and 25mm tweeter, which is then flanked by a pair of 160mm

long-throw woofers, with two more of these drivers further down the baffle.

The coaxial driver is what Technics calls its 'Phase Precision Driver', and combines a flat-panel midrange using a diaphragm made from a carbon fibre skin over an aluminium honeycomb core, behind which is a coupling cone. The whole thing is driven by a short voice coil/large magnet motor system using edgewise coil winding, and designed to maintain an accurate piston motion up to and beyond the 3kHz crossover to the aluminium dome tweeter, which is said to be good for frequencies up to 100kHz.

The coaxial driver hands down to the four long-stroke woofers at 300Hz, these claiming a bass extension down to 28Hz at -10dB [see Lab Report, p49]. These use

a diaphragm made by laminating a carbon fibre weave onto a pulp cone mixed with aramid and bamboo fibres, and what Technics describes as a push/pull edge, or 'Symmetrical Surround

Technology' to reduce secondary harmonic distortion. Separate crossover boards are used for the treble, midrange and bass sections of the speaker, to prevent interference and minimise vibration effects. Technics also says that the crossovers were developed in the classic way 'through processes of designing and listening'.

The drivers all use cast baskets, and are compliantly mounted into the 50mm-thick front baffle using a ring of lossy material, while the side panels of the cabinet are made from eight layers of MDF, allowing the curved form Technics calls its 'Entasis' cabinet (from the Classical architectural practice of slightly curving columns from the top and bottom) to remove parallel

RIGHT: Point-source, but not so simple: the statuesque SB-R1 loudspeakers use a coaxial treble/mid driver complete with flat midrange diaphragm, and no fewer than four pulp/carbon fibre-coned woofers

'You wonder how
such a design
could be viewed as
a "point-source"'





SUPER SPEAKERS

Technics has previous form in the exotic speaker arena with its late-1980s SB-AFP1000, an ultra-slim large-diaphragm design combining eight 30x80cm planar panels, four 13x32cm panels for the low midband, four 8cm mid-high drivers and the same number of 2.7cm tweeters – per channel. Traditional materials abounded in these speakers: chitin, a natural polymer made from the shells of crustaceans; Japanese indigo dyes; plus multiple layers of lacquer and even diamond coating on the tweeters. Truly huge at 2.2m wide and 2.25m tall, they weighed 320kg, boasted a 93dB sensitivity, and were designed to handle amplifiers up to 600W. Not surprisingly Technics later made smaller versions of the technology, including the ‘featherweight’ SB-AFP10, at 117x100cm and 73.5kg. The AFP-1000 sold for ¥1.5m a pop when introduced – around £21,000 in today’s money.

surfaces, and thus discourage internal resonances.

An internal partition is used to stop standing waves travelling top to bottom in the cabinet, and the entire enclosure is hand-finished in multiple layers of piano lacquer, which gives the speakers their high-quality look as well as suppressing vibrations on the cabinet surface.

The speakers sit on hefty plinths, stabilising them by spreading the footprint – though with that weight they tend to stay put, once positioned! – and spikes and spike cups are provided in the box, along with a cleaning cloth for the high-gloss finish. No forklift, though...



BASS CONVICTION

The Technics speakers certainly look imposing: there are much bigger and heavier speakers out there, but the SB-R1s have the air of meaning business. And though they are clearly designed to be used as part of the Technics Reference system, giving an all-up fighting weight of some £37,000, I was intrigued to find out how they would fare on the end of a more familiar high-end system – in the Ed’s media room with Devialet 800 amplifiers fed from a laptop running foobar2000, and connected using Atlas speaker cables.

With Bette Midler’s simple, torch-song cover of ‘Will You Still Love Me Tomorrow’, from *It’s The Girls* [Warner 2564621533], the Technics speakers focus the voice with real ‘reach out and touch’ solidity,

with the piano accompaniment nicely balanced and a warm studio atmosphere – even though the sibilance of Ms M’s voice is somewhat emphasised and a little splashy.

That’s about as simple a track as you’re going to get, and the SB-R1s handle it with confidence, but they can kick up their heels pretty well when playing ‘Ships In The Night’ from Bill Nelson And The Gentleman Rocketeers’ set recorded live at London’s Metropolis Studios [Salvo SVX 001]. There’s that touch of politeness about the sound – which vanishes to a great extent when you give the volume control a bit of welly – but the live ambience comes over well, and the instruments, from Nelson’s characteristic guitar to the organ and piano down in the mix, sound realistic and convincing.

It’s not exactly Japanese-style close-miked audiophile stuff, but it shows the Technics speakers do just as well when asked to shift some air, as they did with the appropriately-titled ‘Got Some Rock & Roll Thunder’ from AC/DC’s latest set, *Rock Or Bust*, in 96kHz/24-bit [Columbia 88875034841]. There’s no shortage of bass conviction here, provided you exercise the speakers well.

One noticeable trait of the SB-R1s is that despite their ‘point source’ design, they’re a little sensitive to the relationship between the listener’s ear-level and that of the mid/treble drive. Having done some listening during which I found them sounding a bit flat, I moved to a very slightly higher seat, which I guess lifted my ear-level by all of about 10cm, and found the sound snapped into focus to an appreciable degree, both in terms of treble quality and the definition of the soundstage image.

That was true whatever I played, from the precise interplay of the Brodsky Quartet’s reading of Shostakovich’s Waltz No 2, from their enchanting *Petits Fours* encores CD [Chandos CHAN 10708] to ➤

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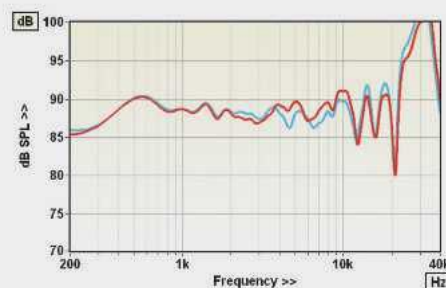
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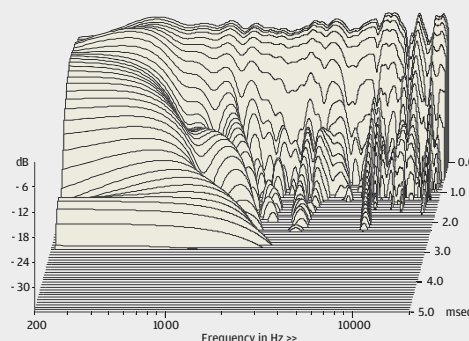
TECHNICS SB-R1

Technics' preliminary specification for the SB-R1 doesn't include a sensitivity figure but our pink noise result of 88.5dB – backed up by a value of 88.4dB using a music-shaped spectrum – indicates that 88 to 89dB is appropriate, perhaps a little lower than you might expect of a speaker this size (but watch this space). Nominal impedance is specified as 4ohm and that accords well with our measured minimum modulus of 3.3ohm. Impedance phase angles are well controlled but the EPDR (equivalent peak dissipation resistance) still falls to a low of 1.7ohm at 54Hz, suggesting that the SB-R1 is no more challenging to drive than many a much smaller floorstander.

Forward frequency response [Graph 1, below], measured on the tweeter axis, shows a slight presence band dip before – typically of coaxial units – the treble displays a series of switchbacks. Despite this treble unevenness, response errors are modest at ± 3.5 dB and ± 3.7 dB for the pair (200Hz to 20kHz). As the responses show, pair matching is a little loose through the treble resulting in a somewhat disappointing overall figure of ± 2.1 dB but below about 3.5kHz the matching is impressive at ± 0.5 dB. Payback for the medium sensitivity comes in the form of impressive bass extension, our diffraction-corrected near-field measurement indicating a low 25Hz (-6 dB re. 200Hz). With the outputs of five drivers and two ports having to be combined for this measurement there is some uncertainty over the exact figure but the SB-R1 clearly has bass output that's well maintained down into the last audible octave. The cumulative spectral decay waterfall [see Graph 2, below] indicates the presence of some treble resonances. KH



ABOVE: Treble ripples are typical of coaxial driver geometries – listen off-axis for the flattest response



ABOVE: Cabinet resonances are very well controlled but there are (driver) modes at 4kHz and >10kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	88.9dB/88.5dB/88.4dB
Impedance modulus min/max (20Hz–20kHz)	3.3ohm @ 99Hz 8.9ohm @ 39Hz
Impedance phase min/max (20Hz–20kHz)	-41° @ 20Hz 19° @ 2.7kHz
Pair matching (300Hz–20kHz)	± 2.1 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	25Hz / >40kHz / >40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.3% / 0.2% / <0.1%
Dimensions (HWD)	1260x408x522mm

LEFT: Rear view with bi-wire terminals and lower of twin ports: the upper one (not shown) serves a chamber containing coaxial driver and two of the woofers, the lower one a second chamber for the other two bass units

even with the loudest sections of the music, and allowing it simply to flow through its moods.

You may gather by now that I was pretty much enjoying the SB-R1s, so much so that I took a swift blast of The Who's 'I Can't Explain' in its original mono from *The Who 50* compilation [Universal UICY-15349], and was pleasantly surprised at how well it sounded here, with Townshend's driving guitar set against a suitably grumbly Entwistle bass and Moon's high-power drumming, perfectly underpinning the lead vocals. Just as The Beatles' mono remasters sound particularly good, so these old Who tracks benefit from 'back to mono' when it comes to impetus and slam.

On a bit of a roll, I finally chanced some Young People's Music from Wu-Tang Clan's *A Better Tomorrow* [Warner 936249 3233], and found the

Technics speakers doing a fine job of revealing all the layers while still ensuring the bass stormed ahead in fast, unstoppable fashion.

Not sure this was quite what the Technics engineers had in mind when they talked about 'rediscovering music', but it's a sign of the all-round ability of the SB-R1s that they not only took the track entirely in their stride, but also raised a slightly silly grin. ☺

HI-FI NEWS VERDICT

Blimey! 'Japanese high-end speakers in really quite good shocker'. It would have been understandable if Technics had stuck to developing new electronics, and left the speakers to companies specialising in that field, but its stubbornness has paid off in the SB-R1. It may not be in the first flight of ultra-high-end speakers, but provided its rich, slightly polite sound is to your taste, there's much to like here.

Sound Quality: 84%



the grumbling bassline opening Bryan Ferry's cover of 'Johnny And Mary' [Avonmore, BMG 538013692], which sounds about as New Romantic as any recording released in 2014 should! The voice, somewhat thickened by age, sounds warm and characterful, while the slightly overblown arrangement is revealed in all its glory.

THE BENEFITS OF MONO

Switch to the Count Basie Orchestra live in Japan (in 2005) on *Basie Is Back* [Eighty Eights VRCL 18833], and 'April In Paris' powers out of the Technics speakers, the trumpet solo soaring and the massed brass lush and smooth against taut, simply recorded percussion.

The Technics speakers also shine with Ingrid Fliter's Chopin 'Rainbow' Prelude, from her recent complete set [Linn CKD 475], in a typically dynamic and well-realised hi-res recording. The piano has both excellent power and fine detail, while the studio wraps around the recording to give a real sense of the instrument in front of you, the speakers showing no sign of distress

Benchmark AHB2

An ultra-compact power amplifier from a company until now best-known for its DACs. Is this a miniaturisation step too far, or proof of good things coming in small packages?

Review: **Andrew Everard** Lab: **Paul Miller**

What's the common image of an audiophile power amplifier? Something massive, American and extremely heavy? A unit capable of heating a room with its excess energy, and almost impossible to move without enlisting the help of a couple of friends? Or a big, glow-in-the-dark forest of valves, complete with hefty transformers, usually delivered on a pallet?

In all of those descriptions there are common threads: size, impossible weight and the ability to save on your central heating bills. It seems that with great power comes not responsibility, but the ability to tolerate electronics that are unwilling to make any concession to domestic acceptability.

Benchmark's £2895 AHB2 power amplifier doesn't conform to any of those stereotypes: it's very small, light and designed to be cool-running without any recourse to forced air-flow, only warming up when working really hard.

XLR INPUTS ONLY

And I mean small: this may be a stereo amplifier claiming 100W/8ohm, and up to 480W/6ohm as a bridged monoblock, but it weighs less than 6kg, stands just 9.75cm tall complete with feet, and is not much more than half the width of usual hi-fi components, at 28cm including its substantial side-mounted heatsinks.

In fact it's so small that with an eye to the professional applications for which it's also been designed, it can be bought with a standard 485mm (19in) wide rack-mount faceplate, but this looks almost comical with the little amplifier attached to its rear, at least until you slot it into the rack and the effect of the amp's diminutive dimensions is lost.

And this clearly is an amplifier designed with dual functionality in mind: the inputs are only on XLR sockets, so

suitably terminated cables or adapters will be required if you're using it with a preamplifier or source only having RCA phono outputs. Similarly the speaker outputs are provided on both combination binding posts and Neutrik SpeakON terminals, these extending to separate L/R outputs, plus a single central connector for use when the amplifier is bridged.

That bridging is set using a simple stereo/mono switch on the fairly tightly packed rear panel, which also carries a three-position sensitivity selector and 12V trigger sockets – for example allowing multiple AHB2 amplifiers to be switched on and off together, or controlled by one of Benchmark's DACs, which have variable-level outputs and can thus be used straight into the power amp.

Front-panel controls are – well, actually just one control, to turn the amp on and off, while indicators for muting, clipping

and over-temperature are provided for each channel.

So, small, light and powerful – and another way in which the Benchmark differs from its more monstrous brethren is that there are no warnings in the manual about extended run-in or warm-up for optimal performance. Instead you read: 'Unlike most power amplifiers, the AHB2 reaches its full rated performance very quickly. Full rated performance is reached in less than one minute. For this reason, there is absolutely no reason to keep the AHB2 powered on when not in use.'

Clearly something unusual is going on here... And there is: this is an amplifier using elements of Class A/B and Class H design as part of its implementation of THX-AAA, the Achromatic Audio Amplifier technology developed by the company best-known to most for its work in movie sound [see Investigation, *HFN* Feb '15]. The



RIGHT: Incredibly compact for the rated power output, thanks to Benchmark's combination of THX's AAA feed-forward Class H amplifier technology with a switchmode power supply



result is said to be an amplifier with Class A-like characteristics, including freedom from crossover distortion, and the ability to run the output devices with very low bias, thus reducing waste heat and power consumption. Key to all this is the THX-patented 'AAA' technique that employs a feed-forward error correction amplifier running in parallel with a higher-power main amplifier.

Furthermore, a switching power supply is used in the AHB2, with tight active regulation rather than banks of electrolytics. Benchmark claims that the peak power output of the amplifier is unaffected by mains input voltage or the speaker load [see Lab Report, p53], the power supply rails maintaining constant voltage, and also that the very high-speed switching used means any effects it may have are well out of the audio band.

Indeed, Benchmark claims its power supply is quieter and cleaner than a conventional linear supply, and says the high-frequency transformers and coils used are much smaller than a conventional power supply set-up, helping keep the

size of the amplifier down. And why AHB2? Well, Benchmark says it indicates the combination of Class A/B working with Class H tracking power supply rails, but also that the model designation remembers company founder Allen H Burdick, who died in 2013.

BIGGER THAN IT LOOKS

As already noted, the AHB2 is both small and light, and that combined with its very modest heat output makes it an ideal amplifier for use in applications where it's tucked away – for example, you could use a pair of them in monoblock mode, one behind each speaker, in the classic 'long interconnect, short speaker cables' configuration.

If you wanted to get really hilarious, you could use the amp with a DAC with variable output and a suitable pair of speakers to build a seriously overkill desktop system. OK, I admit I did consider doing just that!

'I was struck by just how much focus and clarity was on offer with the AHB2'

ABOVE: Just over 11in in width, the AHB2 is available with either a silver or black fascia (a 19in face plate is optional). A row of LEDs shows muting, clipping and over-temp fault conditions

Eventually I settled on some more conventional set-ups, using an adapter cable to hang the Benchmark off my Naim Supernait 2 integrated, as well as experimenting with a range of preamps from the little Trends Audio PA-10 tube pre/headphone amp to the much heftier Marantz HD-DAC1 DAC/headphone amp/preamp. I also pressed into service the excellent, if slightly, elderly Marantz SC-22 line preamplifier from the company's celebrated Music

Link Series of the 1990s. Why? Well, its jewel-like qualities seemed to suit the AHB2 rather well, and it's still one of the sweetest-sounding preamps I've encountered for sensible money – although now they're getting rather collectible, and the prices of the Music Link components seem to be on the up.

Anyway, the SC-22 was mainly used with my Naim NDS/555PS as a source, while the HD-DAC1 was used straight into the power amp using its variable outputs, all cabling from The Chord Company, and speakers including my usual PMCs, the Sonus faber Olympica 1s also reviewed in this issue [see p58] and – just to see what would happen – my desktop pair of Neat lotas. Umm yes, I did eventually try the Benchmark in a desktop/nearfield system, after all...

What emerged almost from the off – well, as long as it took the AHB2 to fire up, extinguish its muting indication (a matter of a few seconds), and be ready to play – was that this is both an amplifier capable of delivering a much bigger sound than ➔

SETTING THE BENCHMARK

To date best-known in the professional field, where it supplies A-to-D and D-to-A converters – the latter running up to 16 channels – as well as microphone preamplifiers, cables and the SMS1 speakers, Benchmark has of late been discovered by hi-fi enthusiasts. It's all part of a process of the blurring of lines between pro and enthusiast equipment. That the AHB2 is principally designed as a piece of pro studio equipment is entirely in line with the roots of the company: founded in 1985 by Allen H Burdick, it was all about making products for the pro sector, and specifically television studios and broadcast facilities. Before long Benchmark was making recording studio equipment, including headphone and mic amplifiers and metering systems. In the mid-'90s Burdick had decided to expand from making purely analogue products to adding digital products, and brought on board John Siau. His first design for the company was a 20-bit four-channel ADC. He took over the running of the company's operations when Burdick retired in 2006, and remains its chief designer. All the company's products continue to be built in New York, USA.

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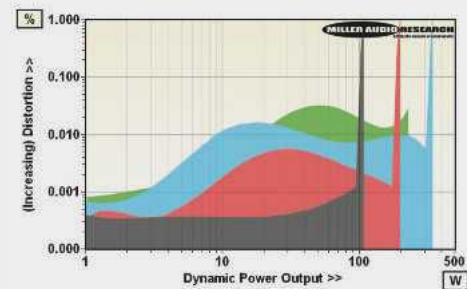
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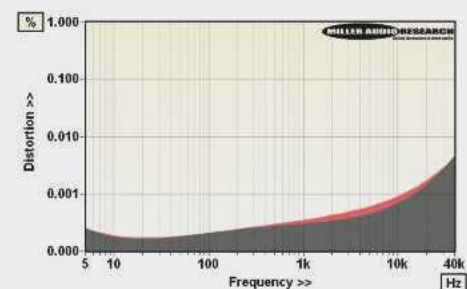
BENCHMARK AHB2

This is not an exact implementation of THX's Class H Achromatic Audio Amplifier which eschews switching operation in either the amplifier or the power supply, for the AHB2 employs a 'tightly regulated resonant switching PSU'. (Incidentally, Class H is the US designation of what we, in Europe, call Class G.) Either way, Benchmark has avoided any obvious ingress of switching noise into the audioband as its AHB2 has quite the widest A-wtd S/N ratio of any amplifier I've measured in some 30 years – 106dB re. 0dBW and 126dB re. 100W/8ohm. These are exceptional figures. Power output is also bang-on specification at 106W/200W into 8/4ohm with, as expected, almost no further headroom under dynamic conditions where 108W, 200W and 346W are achieved into 8, 4 and 2ohm with protection at 230W/1ohm [see Graph 1, below]. This suggests a current limit of 15A rather than 18A.

This graph also very clearly illustrates an increase in THD into lower impedances under *dynamic* conditions – Benchmark claims a greater tolerance into sub-8ohm loads albeit under *continuous* conditions. Nevertheless, THD remains extremely low at 0.0001% (1kHz/10W/8ohm), increasing to just 0.001% at 20kHz [see Graph 2, below]. This is lower than achieved by any conventional Class D design although the AHB2 does share the latter's occasional response vs. load sensitivity. Again, bang-on specification, the AHB2 drops to –0.18dB/20kHz (–0.96dB/100kHz) into 8ohm, –0.32dB/20kHz (–1.4dB/100kHz) into 4ohm and –0.62dB/–1.1dB at 20kHz into 2/1ohm. Readers may view an in-depth QC Suite report for Benchmark's AHB2 power amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion up to 1% into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads



ABOVE: Distortion vs. frequency from 5Hz-40kHz at 10W/8ohm (left = black; right = red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	106W / 200W
Dynamic power (<1% THD, 8/4/2/1ohm)	108W / 200W / 346W / 230W
Output impedance (20Hz–20kHz)	0.034–0.17ohm
Frequency response (20Hz–100kHz)	+0.01dB to –0.93dB
Input sensitivity (for 0dBW/100W)	204mV / 2035mV (Balanced in)
A-wtd S/N ratio (re. 0dBW/100W)	106.0dB / 126.0dB
Distortion (20Hz–20kHz re. 10W/8ohm)	0.0001–0.0014%
Power consumption (Idle/Rated o/p)	19W / 305W
Dimensions (WHD) / Weight	280x98x237mm / 5.7kg



ABOVE: Symmetrical rear panel has binding posts each side of its IEC mains input; below are sensitivity/mode switches, 12V trigger and outputs for bridging, etc

the unimaginative might expect, given the compact dimensions, and one capable of serious level, speed and dynamic attack.

Opening up listening with some classic Police tracks, from the hi-res release of *Ghost In The Machine* [A&M 606949364625], the Benchmark immediately impresses with the punch with which the bass and drums are delivered on 'Spirits In The Material World'. This is an amplifier with very serious slam, and – even better for those with less sensitive speakers, big rooms or just a hankering for 'just in front of the PA stack' listening levels – it keeps it all together however loud you decide to play things.

ALWAYS IN CONTROL

Yes, it's one of those classic 'just gets louder' amplifiers as full control and definition is maintained even at the kind of listening levels I'd never normally try, and this little powerhouse just keeps on motoring.

That's not just something for the rockers: it also allows the Benchmark to make clear every syllable and nuance of Billy Bragg's 'Handyman Blues' [from *Tooth & Nail*, Cooking Vinyl COOKCD580] to striking effect, and with the atmospheric Sun Studios recording of The Dodge Brothers' *The Sun Set* [Weeping Angel Records DB1003] it does a superb job with the pounding, foot-stamping, hand-clapping percussion of 'Mr Jones' while keeping the laconic lyrics, Mike Hammond's banjo and Mark Kermode's plaintive harmonica very much to the fore.

The track really slams into action with its sparse instrumentation, gradually picking up guitars and bass along the way, and with the Benchmark in the driving seat every instrument is clear and vibrant, as is the warm, rich studio ambience.

What's more, when I loaded up some hi-res tracks from one of the many re-releases of Bowie's *The Rise*

And Fall Of Ziggy Stardust... [RCA LSP-4702] I was struck by just how much focus and clarity was on offer. It's not one of those 'oh, I never heard that before' things: instead it's just a delicious sense of the music having more presence and vitality about it, 40+ years falling away to make it sound as good as memory suggests it did all that time ago (but of course it didn't).

Bowie's voice is close-focused and packed with character, the music has real weight and substance, especially in the title track, and that ability to listen in to the elements of the mix is as appealing as ever.

Mind you, that speed and dynamic ability is also deployed to good effect when playing classical music, its handling of microdynamics keeping the elements of a small string ensemble beautifully tight and well-realised, while the amp still has all that power in reserve for those big orchestral works to burst forth when required.

This is an amplifier seemingly impossible to wrongfoot, and capable of delivering a quite remarkable sound from a seemingly impossibly small package. If that doesn't make you smile every time you listen, I don't know what will. ☺

HI-FI NEWS VERDICT

This is a rather extraordinary amplifier, not just in the way it sounds, but because it is so compact and user-friendly. It hits its stride straight from the box, and is ready for immediate use, delivering an entirely involving and seductive sound seemingly designed to grab the attention and hold it for many hours of listening. And it does all this while remaining cool and unflustered, adding to its considerable appeal.

Sound Quality: 86%



Clearaudio Absolute Phono Inside

Clearaudio puts some innovative electronic thinking into the art of the moving-coil preamplifier with the introduction of its two-box Absolute Phono Inside phono stage
 Review: **Adam Smith** Lab: **Paul Miller**

On the face of it, the phono stage is a fairly simple thing and you might think that there isn't a great deal of fiddling that one can usefully apply to such a device. After all, the RIAA curve is a given and the only things that can really be altered are gain and cartridge loading. However, German analogue maestro Clearaudio has taken a fresh look at the concept of cartridge amplification and come up with the rather remarkable pairing that are the Absolute Phono and Absolute Phono Inside moving-coil preamplifiers, both retailing for £8995.

CURRENT AMPLIFICATION

The Absolute Phono is the more unusual of the two, but it requires the use of a Clearaudio arm since the first amplification stage fits into the headshell itself [see boxout]. Under consideration here, though, is the rather more straightforward two-box Absolute Phono Inside.

Based around the same key circuitry as the Absolute Phono, this is laid out conventionally and permits the user to employ any tonearm of his or her choice. Clearaudio does stress that the somewhat awkwardly-named Absolute Phono Inside is no poor relation and that it 'almost matches the headshell-mounted Absolute Phono's 10dB improvement' in noise.

When it comes to amplification, we generally refer to the increasing of the signal's voltage, but it is *current* that Clearaudio has chosen to utilise for the first amplification section of its new phono stages. The idea of amplifying current is not a new or especially revolutionary concept – in fact, considered in their most basic terms, transistors operate by using a small input current to control a larger

output current. Furthermore, while voltage amplifiers are typically engineered with a high input and low output impedance, a current amplification circuit requires the opposite. As an MC phono input needs an equally low impedance for optimal matching with the cartridge, current amplification topology would seem to lend itself naturally to this application.

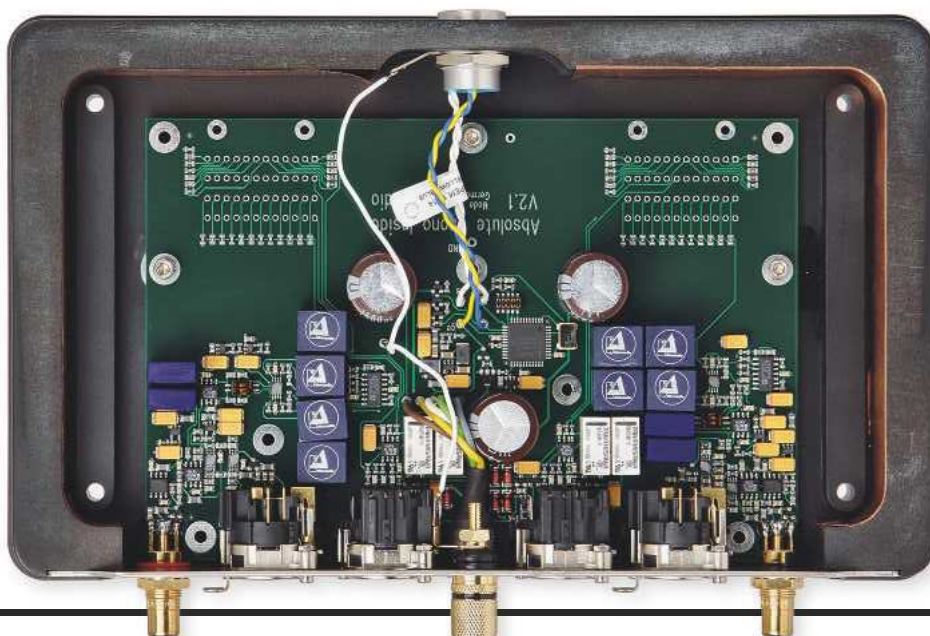
Clearaudio states that an additional advantage of this circuit type is that resistors and capacitors at certain critical stages within the signal path can be eliminated. One claimed result of this is a reduction in noise – always a useful thing when it comes to moving-coils. A further bonus with the current amplification method is that the naturally low input impedance obviates the need for precise input resistance matching.

In an ongoing effort to keep noise levels as low as possible, all subsequent circuitry after the current amp input section is configured in balanced mode. Naturally, resistors and capacitors are required in

the RIAA equalisation network but these are specially chosen precision items, and include non-magnetic Vishay Dale resistors and Clearaudio's custom-built 'Silver Glimmer' capacitors.

The Absolute Phono Inside comes in two boxes that are relatively small but surprisingly weighty – 3.2kg for the Power Supply and 3.25kg for the phono amplifier itself. While the size of the overall packaging seems initially at odds with the units' price tag, any such doubts vanish instantly on unpacking. Clearaudio has always delivered products that are a joy to behold and use and the Absolute Phono Inside upholds this tradition superbly.

Both PSU and amplifier units consist of upper and lower machined aluminium halves that sandwich a centre layer of Panzerholz wood. Black or silver finishes allow a perfect stylistic match with any of Clearaudio's turntable units. Build quality is, naturally, impeccable and a single silver touch control on the amplifier unit provides all operation. There does appear



RIGHT: Dual-mono and fully balanced, Clearaudio's current amplification is based around OP275/OP484 op-amps with quality passives for the RIAA equalisation stage



to be a second silver switch on the front of the PSU but this is merely to match the styling of the amplifier – it's nothing more than a pleasing design feature.

The amplifier's touch control is pressed once to switch the unit on, pressed again briefly to mute the output or pressed and held to switch off. A blue LED ring around this switch glows steadily to indicate the unit is on or flashes when mute is selected. Another nice touch is the provision of adjustment for the front panel illumination. I enjoy blue LEDs as much as anyone but they can tend to be too bright. The rear panel dimmer control is just another example of the thought that has gone into this beautifully made product.

Connectivity-wise, pairs of female XLR and RCA phono sockets offer balanced and unbalanced inputs, alongside a single pair of male XLR sockets for output. No

dedicated unbalanced output is offered, although this can obviously be obtained via the XLR connections with a suitable lead.

A SILENT BACKGROUND

With the Absolute Phono Inside thoroughly warmed up and connected to my Michell Gyro SE and SME 309, I began listening using the Charisma Audio MC-2 cartridge [*HFN* Feb '15] and it did not take very long to realise that the new Clearaudio really is something very special.

The first thing to strike me was the impressive silence of the unit with no record playing. Even the best MC phono stages emit some hiss as the volume is advanced but I found myself having to wind my Naim Supernait's volume control

ABOVE: Simple front panels on both units mask the technology behind. Operation is via the single switch on the [top] amplifier box

much further than usual before noise became obvious. Clearaudio's new circuit topology clearly pays dividends here.

Of course, those advantages are equally useful when music is playing, as the Absolute Phono Inside has an uncanny ability to retrieve detail – I can honestly say I have heard very few phono stages, if any, that do better in this respect. While there are many fine

'It suggests a
"soundproof
curtain" around
the studio'

units out there that can put you right in the heart of the musical action, only the Clearaudio seems to give the impression that it has closed some 'soundproof curtains' around the recording studio, or temporarily stopped the traffic outside the live venue you are listening to. There is no unwanted distraction to accompany your listening, the Absolute Phono Inside simply draws you into the music and excludes all else, in a most captivating manner.

Across the top end and upper midrange, the Clearaudio has a purity and silkiness that is most alluring. This means that strings are vivid and gloriously lifelike but never uncomfortable or hard. Spinning the track 'Fell Down Hard' from Kathryn Williams' 2000 album *Little Black Numbers* [Snowstorm STORM008LP] was a perfect showcase for the Clearaudio's abilities. The backing cellos were gloriously textured ➔

HEADSHELL PHONO STAGE

Partner to the Absolute Phono Inside is the Absolute Phono and this differs in one crucial area. In this latter unit, the initial amplification stage is located on a tiny (9x21mm) PCB that is fitted into the arm's headshell itself. This provides an initial boost to the signal, the balanced feed rendering it less susceptible to interference and noise as it passes along to the main preamp/RIAA unit. Thanks to the presence of this PCB, eight fine solid-core silver wires are required to pass along the armtube and this limits its use to Clearaudio arms only. All current Clearaudio arms are compatible with the system and owners of older models can have their arms sent back to Clearaudio for modification on purchase of the unit. Both the main amplifier and the PSU of the Absolute Phono are subtly different from those of the Absolute Phono Inside. The preamp accepts input from the arm via a nine-way D-Type connector which also carries power to the arm-mounted PCB. This unit also adds unbalanced phono output sockets to the XLR option.

“I don’t know these
guys from Germany
but the sound was
fantastic...”

*Michael Fremer Stereophile,
T.H.E. Show Newport 2013*



BERLINA-SERIES

EDITORS' CHOICE.

We are happy to receive a very special award at the end of this year: Besides the Editors'-choice-award in "The Absolute Sound" this year the major award was reaching the top of the all-time-ranking of our BERLINA RC 9 in Germany's "Audio" like the RC 11 did in "Stereoplay"!

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CLEARAUDIO ABSOLUTE PHONO

Bearing in mind the overall gain required to accommodate an MC headamp and RIAA network, Clearaudio has still achieved a combination of good sensitivity and exceptionally low noise in its Absolute Phono Inside. It specifies an overall gain of 60dB but my measured figure of 67.2dB (balanced in/out) is both more accurate and appropriate for an MC stage, this requiring an input of 440µV to raise 1V from the output. The unbalanced RCA input loading of 120ohm is also almost universally compatible. In practice, this sensitivity will ensure low output MCs may be used to good effect – important because while the preamp offers a mammoth maximum output of 18.1V, its input margin is slightly less generous. Inputs in excess of 8.4mV will cause it to clip, this equivalent to +25.6dB over its nominal sensitivity or +24.5dB headroom re. the IEC reference level of 500µV. Another factor in favour of lower-output MCs is the Absolute Phono's exceptionally low noise: a residual of just -88dBV (40µV) and an A-wtd S/N ratio of 94.5dB (re. 500µV) – this is the sort of figure typically associated with the very best MM stages and sets a new state-of-the-art for MC performance.

Distortion falls with increasing frequency, the 'maximum' of 0.018% at 20Hz reaching 0.0017% at 1kHz and a minimum of just 0.0005% at 20kHz at 1V output [see Graph 2, below]. No MC pick-up will match this, so the stage is essentially 'transparent' from the perspective of THD. Its equalised response is just a little adrift from Clearaudio's ±0.5dB specification, its generalised bass uplift of +0.9dB married to a gentle treble roll-off of -0.75dB/20kHz [see Graph 1, below]. Readers may view a QC Suite test report for Clearaudio's Absolute Phono Inside MC preamp by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



ABOVE: Both balanced and single ended inputs are provided but only balanced outputs are offered. The rotary control on the PSU rear adjusts front LED brightness

and the acoustic guitar more clearly defined than I have ever heard it before. Equally, in imaging terms, the Absolute Phono Inside again played a master card, by locking Ms Williams right at the centre of the performance, guitars just to the right and cellos behind. The track was built solidly on the foundations provided by the double-bass and percussion, and apart from this there was glorious silence... no vinyl roar, no hiss, hum or interference.

DIGGING OUT THE DETAIL

At the lower end of the spectrum, the Clearaudio served up a bass performance that was beyond reproach. It dug deep and pulled magnificent levels of detail from within recordings but avoided the trap of ever becoming either over-zealous or wallowy.

If the track you are playing has a good bass line then the Absolute Phono Inside draws it effortlessly from the mix and pounds it out with gusto and precision. However, if the low end is somewhat curtailed, then it gently lets you know, but at the same time making sure that the music, as a whole, never suffers.

With Jessie Ware's 'If You're Never' from her *Devotion* LP [Cherry Tree B0018230-01], the Clearaudio aptly proved my point by setting up a gloriously strong and tight synthesiser bass line. Simultaneously, though, Jessie's vocals were beautifully articulated and almost intimate – completely at odds with the pace of the track in some ways. However I realised quickly that the Clearaudio phono stage was simply pulling out every single aspect with surgical precision, yet without sounding sterile or mechanical.

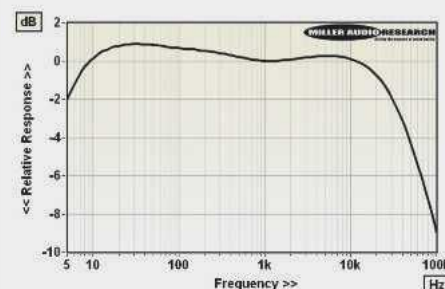
Even poorer recordings failed to cause the Absolute Phono Inside to break into a sweat. Todd Rundgren's 1978 album *Hermit Of Mink Hollow* [Bearsville BRK6981] is a superb example of an ambitious (perhaps over-ambitious) multi-layered recording and while it's an absolute musical delight, in sonic terms it's perhaps more than a little untidy. So while the Clearaudio made it obvious that this was no audiophile delight, it still managed to dig out little inflections and subtleties buried deep within the mix that I had not heard before.

Poor recordings *can* make a good test of the equipment. As the system becomes more revealing, such pressings can often sound worse, but continue on up the upgrade path and suddenly they become listenable again. Truly capable equipment allows you to listen through recording defects, and the Clearaudio manages it better than nearly all other phono stages I have so far heard, at a price. ☺

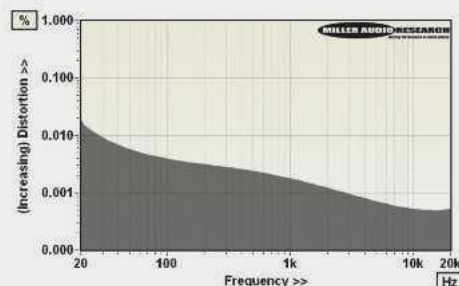
HI-FI NEWS VERDICT

The Clearaudio Absolute Phono Inside is arguably a landmark MC phono stage design, albeit a costly one. Ostensibly simple on the outside, the two-box solution is intelligently conceived and expertly executed. The result is a truly captivating sound quality that is difficult to criticise on any level. That the Absolute Phono version could be even better holds a tantalising prospect for all owners of Clearaudio tonearms.

Sound Quality: 88%



ABOVE: RIAA-corrected frequency response from 5Hz-100kHz (within ±0.9dB from 20Hz-20kHz)



ABOVE: Distortion versus frequency from 20Hz-20kHz at 1V output. Typically <0.01% through audio range

HI-FI NEWS SPECIFICATIONS

Input loading (MC)	120ohm (unbalanced)
Input sensitivity (re. 0dBV)	439µV
Input overload (re. 1% THD)	8.4mV
Max. output (re. 1% THD) / Impedance	18.1V / 31ohm
A-wtd S/N ratio (re. 0dBV)	94.5dB
Frequency response (20Hz-20kHz)	+0.90dB to -0.75dB
Distortion (20Hz-20kHz, re. 0dBV)	0.0185-0.0005%
Power consumption	6W
Dimensions (WHD)	240x56x145mm (each unit)

Sonus faber Olympica I

Classic Italian style meets innovative design: but can Sonus faber scale down the success of its Olympica IIIs?
 Review: **Andrew Everard** Lab: **Keith Howard**

The past few years have not only seen Sonus faber grow its range to encompass several complete lineups of speakers, but also parent company Fine Sounds expanding to encompass a number of high-end brands. More on that in our boxout panel, but the £3998 Sonus faber Olympica I speaker is something of a return to the company's roots: it's relatively small, exquisitely finished in solid wood and leather, and uses in-house components and design to make it unmistakably a product of the company's Italian factory.

A two-way design, standing just over 350mm tall, the Olympica I is the smallest model in a four-strong range taking as its inspiration Palladio's Teatro Olimpico in Vicenza, Sonus faber's home town. The design of the speakers is said to reflect the sonic characteristics of the theatre, known for its remarkable acoustics as much as its aesthetic qualities, Sonus faber having long placed an emphasis on the abilities of its speakers to create a credible three-dimensional soundstage.

DEDICATED STANDS AVAILABLE

Reviewing the Olympica III, the range-topping floorstander [*HFN* May '14] Ken Kessler was clearly very taken with both the design and the sound, describing this as 'commanding yet capable of great delicacy, the soundstage huge, yet the imagery specific and precise'.

Can Sonus faber repeat the success story with the much smaller and less expensive standmount model? Well, all the *anatre* – the wood, the leather, the characteristic drivers – are lined up, just as they are in the flagship model; it's just that these smaller speakers will require the use of some speaker stands in order to make the most of them.

Sonus faber can supply a pair for an additional £849, which may sound a bit on the hefty side, but hefty is just what these

stands are. Made from anodised aluminium, and with a design derived from the Guarneri stands, they give the speakers just the right upward tilt, and come complete with stainless steel feet for stability. The tops of the stands bolt into the speakers, giving a solid single assembly with none of that messing about with upward-pointing spikes, Blu-tack or the like.

The speakers themselves use Sonus faber's 29mm silk 'Arrow Point' DAD (Damped Apex Dome) tweeter, said to combine the benefits of classic dome and ring transducer designs, while the mid/bass driver is a 150mm unit combining an 'eddy current free' voice coil with a 'dynamically linear' magnet assembly. The cone is made from an air-dried non-pressed blend of cellulose pulp, kapok and other natural fibres, coated with a viscous damping layer.

As well as Mundorf Evo oil capacitors and Jantzen inductors, the crossover uses Sonus faber's 'progressive slope' design, handing over between the drivers in a range centred on 2.5kHz. Twin sets of terminals, usually linked with jumper bars, are provided for bi-wiring, the screw-down clamps having a neat flanged design to make them easy to loosen or tighten.

Sonus faber calls this a 'Paralaminar "stealth ultraflex" vented loudspeaker', the enclosure itself following the company's 'Lyre' profile – in plan view it follows the shape of the classical instrument much-sporting by assorted nymphs, shepherds and vase-bound deities – with the curved walls being of progressive thickness to enhance the natural damping and prevention of internal standing waves.

The asymmetrical cabinet design is specific to the Olympica I, with one side of the speaker slightly longer than

RIGHT: Walnut and graphite finishes are offered, with leather top and baffle facings. Dedicated stands are available styled to match speaker detailing





FINE SOUNDS' GROWING STABLE

Sonus faber's flagship speaker launch in Venice a few years back was the kind of glitzy event almost unprecedented in high-end hi-fi, but when it was later announced that the name chosen for the product was having to be changed from 'Fenice' to simply 'The Sonus Faber', there were some mutterings about hubris. Similarly, there was later some grumbling from the faithful when it became clear its Venere range was being made in China. No such confusion with the Olympica models, which are made in Italy: this time it's the company behind the Sonus Faber brand that's left home! Having expanded in recent years to encompass Audio Research, McIntosh, Sumiko and Wadia, the Fine Sounds group was recently the subject of a management buyout by Mauro Grange, formerly CEO of the Italian speaker manufacturer, and Charlie Randall, President of McIntosh since 2001. So Fine Sounds is no longer that Italian audio company with some American high-end brands on its books – following the buy-out, it's now headquartered on Madison Avenue in New York.

the other, giving a narrow, offset rear panel (more of which anon). The cabinets, braced with solid walnut vertical clamps and available in either natural walnut or graphite finish, have maple joints between the panels providing a subtle pinstriped effect, and all the wood is coated with medium gloss lacquer.

Leather is used on the front baffles, as on the top and rear panels; and to one edge of the rear panel is the vent for the speaker's reflex port-loading, covered by an intricately detailed anodised stainless steel mesh grille. With the speakers in situ you'll never see these vents, but that's the kind of attention to detail involved here – the construction, fit and finish is a delight throughout, right down to the 'stringed' grilles, which echo the ribbing on the stands.



THE SONUS FABER MAGIC

Used with a range of amplifiers from the Technics SU-C700 integrated to the little Benchmark AHB2 power amp [see p50], but mainly with my Naim Supernait2/HiCap, fed from the Naim NDS/555PS and with all cabling from The Chord Company, it was immediately apparent that the old Sonus faber magic is very much present and correct here.

Following the suggestion of the comprehensive user manual, I positioned them well clear of side and rear walls (70-80cm is suggested, but of course this will vary from room to room) and with the characteristic Sonus faber toe-in to achieve the best soundstage focus. These aren't really speakers designed for 'straight down the room' firing: things really snap into place when you have them set up so you

can get a good sight of the 'outer' panels from the listening position, at which point you'll find them capable of really quite extraordinary imaging.

One intriguing set-up possibility comes about due to the fact that the speakers are 'handed', in that the reflex slot only exits on one side of the speaker. Thus it's possible to tune the bass by having the vents facing either inwards or outwards. Again, the effect will vary from room to room, and so some experimentation is recommended, but I found the 'outward' set-up gave a subtle lift to the bass, while inward kept things good and tight. After a few hours of listening

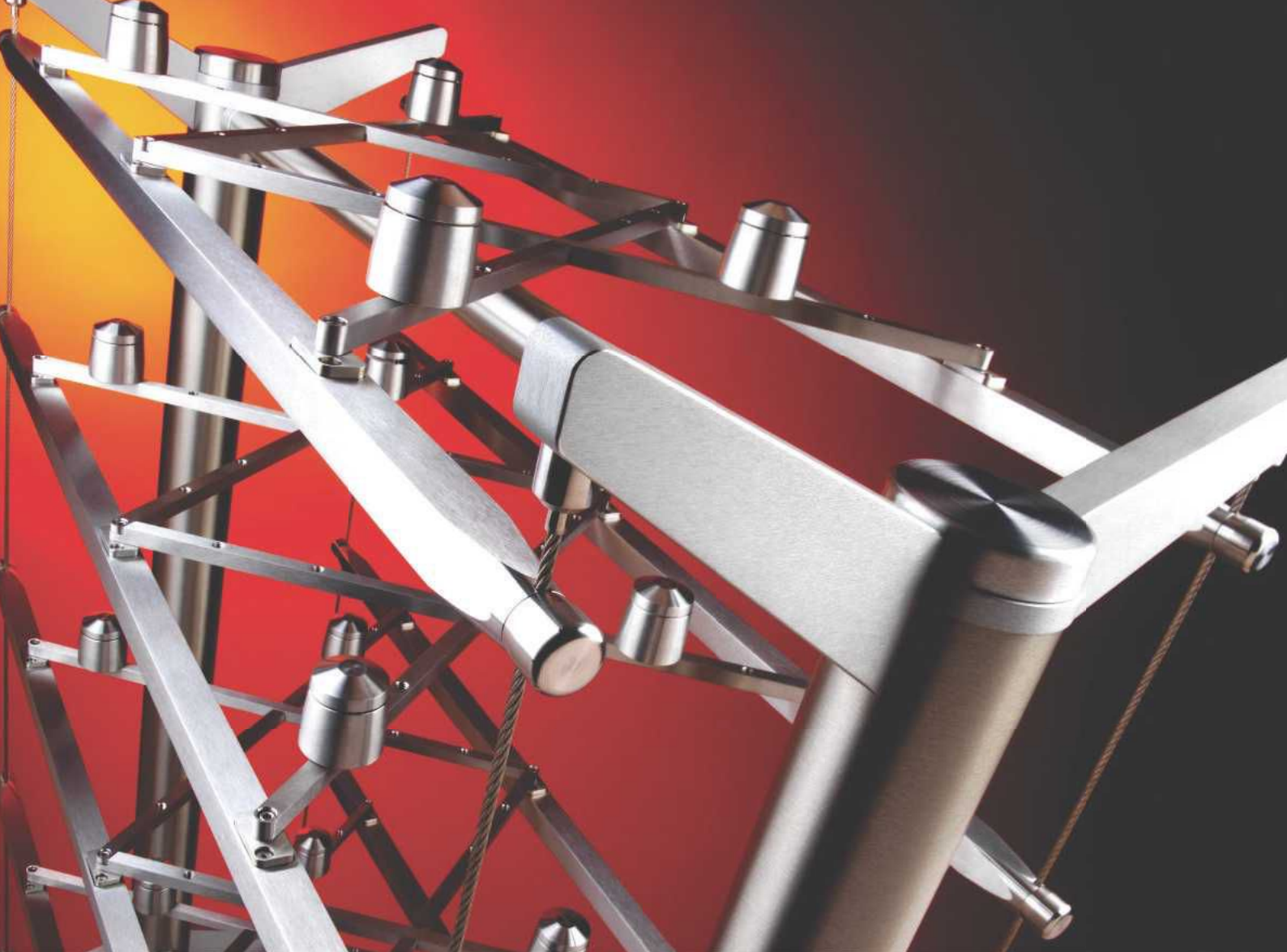
'And they kept
pace with the
Philthy Animal's
flat-out drumming'

either way, I found I preferred the latter.

Playing the country rock of Carrie Underwood, from her *Greatest Hits: Decade #1* album [Arista Nashville 500876], the Olympicas immediately impressed with the 'rightness' of their sound, even with very commercial material such as this. Both vocal tonality and clarity were excellent – impressive given the scale and warmth these little speakers can deliver, and handy when a song like 'Two Black Cadillacs' has a story to tell – while bass and drums had plenty of heft along with tightness and real pace.

Anyone labouring under the misconception that Sonus faber speakers are best with string quartets and forensically-recorded jazz needs to have a rethink: these speakers can be driven hard when required.

Mind you, they 'do gorgeous', too: loading up the ever-reliable jaw-dropper *Buddy Holly: From the Original Master Tapes* [MCA MCAD-5540] the Sonus fabers glide through 'True Love Ways' in a ➞



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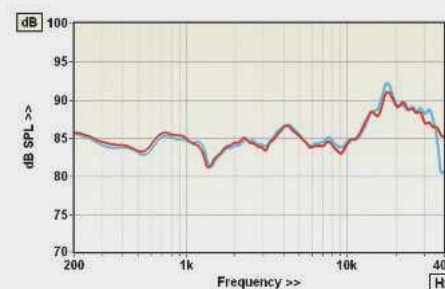
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LAB REPORT

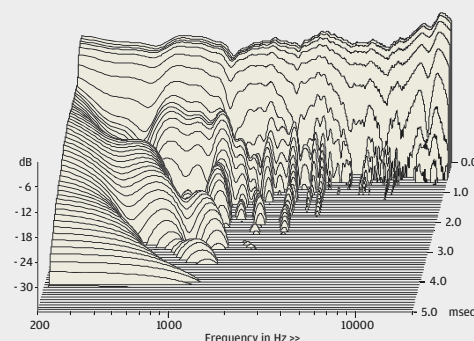
SONUS FABER OLYMPICA I

Sonus faber claims 87dB sensitivity for the Olympia I which corresponds well with the 87.3dB we recorded by simply averaging the response data but less well with our pink noise result of 85.3dB. Given that 84.8dB was the outcome with a music-shaped spectrum, 85dB is a more realistic figure. This has been achieved while maintaining an amp-friendly impedance: we measured a minimum modulus of 4.2ohm – well in keeping with the nominal 4ohm figure – and although impedance phase angles are high, the EPDR (equivalent peak dissipation resistance) fell to a low of 2.3ohm at 125Hz, comfortably above the 1.7ohm often recorded by competing floorstanders.

Forward frequency response [Graph 1, below], measured on the tweeter axis, is essentially flat in trend until output begins rising above 10kHz. Up to this point the response errors are within ± 3 dB but the treble lift increases this to ± 5.0 dB and ± 5.5 dB respectively for 200Hz–20kHz. Pair matching over the same frequency range is good at ± 1.0 dB. Nearfield measurement of the bass response is complicated by the area of the rectangular reflex port being difficult to determine but weighting the driver and port outputs so as to align their infrasonic contributions resulted in a diffraction-corrected bass extension of 51Hz (–6dB re. 200Hz), a fair figure for this compact cabinet. At the opposite frequency extreme ultrasonic output is maintained to above 40kHz. The cumulative spectral decay waterfall [Graph 2] evinces fast initial energy decay but there is indication of a resonance associated with the dip in response at about 1.4kHz, and a few more low-level resonances are visible higher in frequency. KH



ABOVE: The Olympia I's response has a slight boost >10kHz but is essentially flat. Pair matching is good



ABOVE: Fast decay and only a few low-level (driver) resonances at 1.4kHz and through the higher treble

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	87.3dB/85.4dB/84.8dB
Impedance modulus min/max (20Hz–20kHz)	4.2ohm @ 184Hz 34.5ohm @ 85Hz
Impedance phase min/max (20Hz–20kHz)	–55° @ 98Hz 50° @ 29Hz
Pair matching (200Hz–20kHz)	± 1.0 dB
LF/HF extension (–6dB ref 200Hz/10kHz)	51Hz / >40kHz/>40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	1.8% / 0.4% / 0.1%
Dimensions (HWD)	354x222x368mm

LEFT: The Olympia I is ported down one side only. A quartet of multi-way binding posts at the bottom allows for bi-wiring. Terminals are Sonus faber's own flanged type – easy to tighten

impetus. Similarly they even respond well to a spot of Mr Kilminster's finest overdriven thrash: these might not be the first speakers I'd suggest to a Motörhead fan, but whack them with a bit of amp power and they can thunder out 'We Are The Road Crew' [from *Ace Of Spades*, Sanctuary 929065] and then go on to keep pace with the Philthy Animal's flat-out drumming on 'Fire, Fire' in suitably room-filling fashion.

Well, small room-filling, anyway: these aren't speakers to use in massive spaces but will be more than sufficient for the average UK domestic room, and won't prove too onerous a load for most amplifiers.

Rest assured that these are very much classic Sonus faber speakers in smart new clobber, but much more than just an exercise in Italian styling. Fed by the Technics ST-C700 network music player via the Naim amp, and streaming the Engegård Quartet's new 2L recording of Britten's String Quartet No 2 [2L-105, DSD128 download], they delivered a wonderfully balanced, insightful yet rhythmically acute view of the music, placed in a credible acoustic.

It's a sound much more about a performance spread before you, rather than something being recreated by circuits and computers and magnets and cones and wooden boxes, however lovingly crafted they all may be: the Sonus fabers are all about delivering music. ☺

HI-FI NEWS VERDICT

This is a small speaker as sumptuous and seductive in its sound as in its looks, with a wonderfully cultured, yet expressive balance sufficient to make you forget your hi-fi system and become immersed in the music. The optional stands really are a must-have, and absolute bass extension is limited, but this is still a remarkable, and very tempting design – and not just for fans of jazz and string quartets.

Sound Quality: 86%

0 - - - - - 100



manner that's lush and rich and warm while at the same time super-detailed, really dragging the listener into the recording studio by making the most of every vocal nuance, and revealing the breathiness of the saxophone to striking effect.

SPEED AND IMPETUS

So these are small speakers – you're not going to get any bass, right? Well, play something driven by a solid bass-line, such as The Pretenders' 'Talk Of The Town' [Pretenders II, MFSL UDSACD2056] and they keep the rhythm section motoring away behind the vocal, giving the track real speed and

Phonon SMB-02

This apparently ordinary, run-of-the-mill closed-back headphone comes from a company with an otherwise extraordinary product line-up. Does it break the mould?
 Review & Lab: **Keith Howard**

Did Phonon Inc of Japan choose its name because it saw some significance in the quantum mechanical description of vibrations in solids? If so I'm afraid my knowledge of phonon theory is much too tenuous to grasp it, so let's just suppose it was chosen for its obvious connection to the familiar 'phono' and thereby the Greek word for sound.

That said, Phonon Inc's product line-up is an undeniably eclectic mix of the conventional and unconventional. While the £299 SMB-02 on review here – the only headphone Phonon currently lists (although there's a variant, apparently tweaked for use with the Korg DS-DAC-100) – gives every impression of being a pretty typical closed-back design with earpads slightly too small to be truly circumaural for most adult ears, elsewhere in the Phonon range lurk odder offerings.

There are, for examples, Phonon Liquid, a contact-enhancing fluid containing diamond nanoparticles, the Kamome feather-shaped paper loudspeaker, which looks like a young, size-zero palm tree, and – weirdest of all – the PHD ('a boldly innovative device', says Phonon) which sits atop a box loudspeaker and compensates 'for the waveforms that speakers physically cannot replicate, by precisely conveying them before the speakers have actually emitted such sound'.

I haven't the foggiest what that means or what the PHD actually does – apparently it vibrates and emits ultrasound, but whether it's a supertweeter as such isn't stated. With the SMB-02 we are on safer, more familiar ground but the PHD enigma isn't entirely irrelevant in that the technology is, according to Phonon, also applied here, although how is not explained. SMB, by the way, stands for Subtonic Monitor Basic – terminology which is not explained either.

Headphone manufacturers tend to be much less effusive about the design of their products than their loudspeaker equivalents and it's no different with Phonon and the SMB-02. The company was founded, we are told, by three veteran Japanese audiophiles and three people from Japan's pro audio field.

RESTRICTED USE?

One of those old-school audiophiles and mastering engineer Isao Kumano were responsible for the design of the SMB-02 headphone. It incorporates a 40mm drive

unit about which nothing else is said, has a nominal impedance of 25ohm and a 3.4m Litz wire connecting lead in which each OFC (oxygen-free copper) strand is

individually insulated.

Intriguingly, in addition to exhorting users to 'use the SMB-02 at a moderate sound level for safety and ear protection' Phonon also says, 'In public spaces, please be considerate

and keep the volume at a level that does not affect other people' – likewise sensible advice but not a homily that most headphone manufacturers, even Japanese ones, would dare deliver publically.

Although it is clear that the SMB-02 is intended for use outside as well as inside the home, it makes none of the usual concessions to convenience on the move. Yes, the connecting lead is terminated in a 3.5mm jack to allow connection to hand-held devices – a screw-on sleeve adapter is provided for use with 6.35mm (¼in) jack sockets – but that 3.4m lead is likely to trip you up. Moreover, the capsules neither twist flat nor fold up into the headband for easier carrying, and no carrying case, soft or rigid, is provided. All told, then, I can't imagine the SMB-02 appealing strongly to habitually peripatetic music listeners.

So it is a pity that the capsules and earpads weren't dimensioned a little larger to make them truly circumaural. Headphone comfort is a thorny issue in that we each have differently shaped and sized heads as well as pinnae, so what is uncomfortable for one wearer may not be for another. But my ears were squashed rather by the SMB-02, the more so because the head clamping force is quite high, so in my case at least it proved less benign to wear than a genuine circumaural design such as the (now sadly discontinued) Sony MDR-MA900.

Comfort of the well-padded headband was not an issue on my thinning pate but, in common with many headphones, it is not entirely vibrationally

*'It's called the
 "presence band"
 for good reason –
 it puts you there'*



RIGHT: Fitted with a long lead terminated in a 3.5mm jack plug, the SMB-02 doesn't fold for easy transport: it's best reserved for use as part of the audio system

inert. When, as usual, I wore the SMB-02 for the impedance test I could distinctly hear a carry-over of low frequency sound from the active left capsule to the inactive right capsule, which was lessened if I reached up and held both tightly in my hands. In other words, the SMB-02's headband appears to have an audible LF resonance.

MEASURING RESPONSES

As I have said many times before in these pages and will doubtless go on to say *ad nauseam*, frequency response plays a critical part in our perception of headphone sound. The same is true of loudspeakers, of course, but the range of tonal balances purveyed in the modern headphone market is far wider than could ever be sustained among loudspeakers. Plus the situation is complicated by headphone frequency response being more difficult to measure – *HFN* is one of very few magazines to do this – and not giving a 'flat is right' result.

On the contrary, headphone frequency response measured on an artificial ear should certainly *not* be flat because the frequency response at the eardrum when listening normally is not flat either. So a correction has to be applied to achieve a result in which a flat response equates to a neutral perceived tonal balance.

Controversy over exactly what that correction should be muddies the waters further, but my experience of having measured and listened to many tens of headphones now is that the long-

established diffuse-field correction, suggested by Gunter Theile of IRT in the 1980s, is pretty close to right. Not exactly so but then exactitude in this context is probably illusory, given that we each have differently shaped ears and thus

LEFT: Ear cups and headband are finished in a synthetic leather. Our reviewer found the side pressure slightly uncomfortable over extended listening periods

have somewhat different frequency responses at our eardrums.

Personally I am no fan of the new target responses suggested by researchers at Harman International and Canada's NRC because I find the resulting tonal balance manifestly bass-heavy.

This aside on the subject of headphone measurement and the interpretation of the results is relevant to the SMB-02 because it is not a headphone that espouses a flat diffuse-field-corrected response, as is clear from the accompanying Lab Report. On the contrary, viewed from 1kHz in the DF-corrected response, it has bass excess peaking at around 80Hz coupled with a shortfall in presence band output. On this basis the SMB-02 should sound overly full in the bass and lacking in some vitality – and that is just what you hear playing music through it. But behind that less than neutral tonal balance there is a headphone that, in the right circumstances, is more enjoyable to listen to than some others I've experienced with similar performance on the artificial ear.

OPENNESS COMPROMISED

For the listening I used both the Teac HA-501 [*HFN* Apr '14] and the Aurorasound Headphone amplifier [review next month] with similar results, the signal source comprising a Chordette QuteHD fed S/PDIF from a TC Electronic Impact Twin connected by FireWire to a second-generation Mac mini. J River Media Center v17 was used as the software player.

Robin Ticciati's stylish interpretation of the *Adagio* from Schumann's Symphony No 2 [Linn Records 192kHz/24-bit download] was an example of a track that suffered badly from the SMB-02's skewed tonal balance. It wasn't the bass excess that was the problem here – although the LF bloom was there to be heard – more the ratcheting back of presence band output that took the major toll.

The lightness of the playing and airiness of the recording acoustic were both significantly compromised as a result, while the stereo image shrank and the sumptuous interplay of the harmonies lost its hypnotic power. Ticciati's particular, distinctive 'take' on this music – which has garnered this recording such critical



KEEP IT DOWN

Given Phonon's exhortation to listen to its headphone at moderate SPLs and the World Health Organisation's view that loud music is the biggest cause of preventable hearing loss, what constitutes sensible headphone use? The most important thing is to be conscious of your listening level relative to everyday sounds. If you are wearing open-back headphones, say, and you can't hear your own hands clap then you are listening too loud. But it isn't just SPL that matters, it is time of exposure and time for recovery afterwards. If you keep loud listening sessions short with plenty of quiet time thereafter, the chances of permanent hearing loss are diminished. There are also lifestyle issues to bear in mind: you are less likely to suffer hearing loss if you don't smoke and there is some evidence that antioxidants such as vitamin C can provide some protection. But the key advice is to use headphones episodically, for short periods not long sessions.



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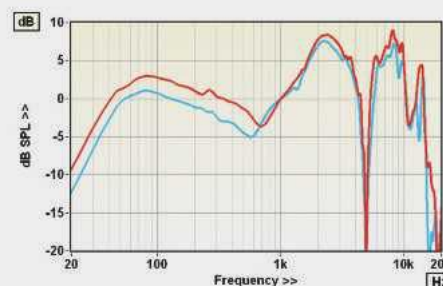
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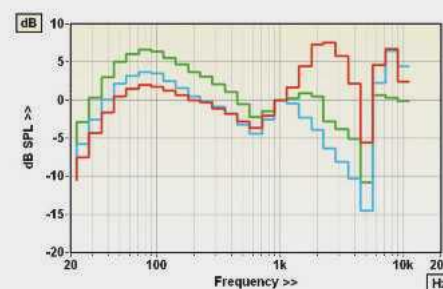
PHONON SMB-02

Phonon claims a sensitivity of 100dB SPL for an input power of 1mW, equivalent to 116.0dB for 1Vrms at the specified impedance of 25ohm. This is extremely close to the 115.7dB we recorded for 1V at 1kHz, averaged for the two capsules. But the stated impedance itself is well out of kilter with our measurements which recorded a range of 43.0 to 52.7ohm across the audible spectrum (20Hz to 20kHz). This is quite a low level of variation for a moving-coil design, resulting in just 0.3dB of frequency response modification with a preamp offering 10ohm source resistance or 0.7dB with 30ohm. As described in the main text, some transfer of vibration through the headband was experienced subjectively in the impedance test, where the left capsule alone is fed pink noise. This was at low frequency, suggesting an LF resonance within the headband itself [see Investigation, *HFN* Jun '14].

Readers familiar with interpreting uncorrected headphone frequency responses will note a number of interesting features in the SMB-02's [Graph 1, below]. First of these is the peak in the bass at about 80Hz; second, the minimum at 700Hz; third, the less than fully developed peak between 2kHz and 3kHz; and last, the obvious cancellation notch at 5kHz, almost certainly caused by an undamped reflection within the closed-back capsule. The effect on the diffuse-field-corrected third-octave response, averaged for the two capsules, is shown in the green trace [Graph 2, below] and represents an approximation of the perceived tonal balance, where a tonally neutral headphone would have a flat response. This suggests that the SMB-02 will have, subjectively, excess bass output coupled with a paucity in the presence band. Happier news from the response testing is that capsule matching was unusually good at ± 3.8 dB and the bass extension fair at 28Hz (-6 dB re. 200Hz). The sealing of the earpads was also quite consistent. KH



ABOVE: Not without some 'character' the SMB-02 has a notch at 5kHz and peaky bass at 80Hz [see below]



ABOVE: 3rd-octave freq. resp. (red = uncorrected; cyan = FF corrected; green = DF corrected)

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL at 1kHz for 1Vrms input)	115.7dB
Impedance modulus min/max (20Hz-20kHz)	43.0ohm @ 3.1kHz 52.7ohm @ 78Hz
Capsule matching (40Hz-10kHz)	± 3.8 dB
LF extension (-6 dB ref. 200Hz)	28Hz
Distortion 100Hz/1kHz (for 90dB SPL)	0.3% / $<0.1\%$
Weight (inc cable and 3.5mm connector)	294g

ABOVE: Phonon is reticent about its 40mm drive units, or its applied 'innovative PDH technology'

SMB-02 better suited to rock/pop than classical programme, you're dead right. I tried the 88.2kHz/24-bit download of Daft Punk's 'Giorgio By Moroder' from *Random Access Memories*, 'Hello Cruel World' from Gretchen Peters' *Blackbirds*, Peder Af Ugglas's 'Beyond', ripped from the SACD of the same name [Opus 3 CD 22072] and converted to 88.2kHz/24-bit PCM, and the 96kHz/24-bit download of the title track of Wings' *Band On The Run*.

There were some oddities apparent like the obviously coloured sync clicks on the Moroder track, the bass heaviness was persistent, and the SMB-02's less than explicit presentation was unshakeable. But there are enough headphones of broadly this character on sale for it to be clear than these characteristics appeal to some listeners. If you're one of them, then the SMB-02 may well do so too. ☺

HI-FI NEWS VERDICT

I can't, in all conscience, recommend the SMB-02 for listeners whose musical diet comprises in large part classical music because its thickened tonal balance does such programme no favours. If rock music is more to your taste then Phonon's principal headphone model acquits itself better, for though it could never be called 'transparent', you might not only forgive but even come to relish its overstated bass.

Sound Quality: 75%



praise [see *HFN* Jan '15, p100] – was consequently diluted.

The SMB-02 was much happier with Dire Straits' *Once Upon A Time In The West*, converted to 88.2kHz/24-bit PCM from a rip of the Communiqué Japanese import SACD [Vertigo UIGY-9635]. Let's face it, there's a lot less subtlety at stake here, both in the playing and in the stereo image. The bass was a deal too insistent for my taste but in other respects the sound was enjoyable, arguably even benefiting a little from taking a step back from explicit lower treble. This also seemed to benefit the clarity of the cymbal sound – or was PHD working some arcane magic here? Whatever, with a means of de-enthusing the bass I'd have been pretty content.

RETICENT PRESENCE

Matters took a step backwards again with the *Allegro con brio* from Enescu's Violin Sonata No 3, 'in Rumanian folk style' [Wilson Audio 176.4kHz/24-bit download]. The 'con brio' tells you everything you need to know about what the SMB-02 failed to elicit from this chamber music piece. The left hand of the piano was a bit too weighty, yes, but what really bled the brio from this piece was the Phonon's undernourished lower treble output.

This region of the spectrum is called the presence band for good reason: it conveys a sense of being there – or *not*, if it is pegged back. Because the SMB-02 is reticent in this region, and because the rump in output below 700Hz only compounds this, Enescu's vivacious piece lost a big slice of its energy and sparkle.

If you're beginning to suppose at this juncture that I consider the

ONE BOX..... that's all



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Black Rhodium Duet DCT++ CS

UK-designed and built, Black Rhodium's new Duet DCT++ CS speaker cable features a host of proprietary technologies. Review & Lab: **Paul Miller**



Few cable companies are as prolific as Graham Nalty's Black Rhodium brand (BR for short). The range caters for MP3 players and musical instruments, HDMI and video products, IEC and figure-of-eight power connectors in addition to interconnects and speaker cables. This last category is almost bafflingly extensive, the new Duet DCT++ CS model featured here residing near the top of BR's current crop.

Inspired by its earlier Twist, Twirl and Samba cables (I can feel my feet tapping already...), the Duet is a substantial and yet surprisingly flexible design. The signal and return conductors comprise a pair of multistranded (19x0.3mm) silver-plated OF-copper cores, thickly insulated in grey silicone rubber and twisted to provide a degree of self-shielding. Silicone rubber is usefully pliable but it's not a perfect dielectric, possibly explaining the moderate parallel capacitance of 87pF/m (260pF over our 3m test length).

KEEPING COOL

In common with other progressive cable designs [*HFN* Oct '14], the Duet's conductors are (deep) cryogenically treated – the DCT in its name – but also subject to a surface treatment called 'Crystal Sound Processing'. The latter is shrouded in

mystery but the former most certainly contributes to the cable's impressively low 8.7mohm/m loop resistance. This is equivalent to a subjectively undetectable power loss of just 0.0094dB/m.

'Additional RFI/EMI filtering is applied directly to the conductor wire' says the literature which, I would suggest, refers to the ferrite clamps fitted to each end of this directional cable. These rings are buried under the heat-shrink tubing where the conductors are screwed into BR's 4mm plugs and shouldn't be confused with the much larger metal barrels, which are proprietary 'GN Legacy VS-1 vibration stabilisers'.

Interestingly, and bearing in mind the geometry of the cable, its 1.65µH/m inductance is definitely on the high side – far closer to what I might expect from a parallel, spaced-conductor layout like DNM's speaker cable. Graham Nalty, BR's chief architect, is known to favour rhodium as a conductor and its ferromagnetic properties have increased the inductance of earlier cables from his stable. In this instance, however, rhodium is only present in the luxurious hard-plating of the 4mm banana plugs.

RHODIUM RADIANCE

The Duet DCT++ CS's flexibility and sleek 4mm connectors ensure it's a breeze to install in tight spaces – including under the rear 'hatch' of my Devialet

ABOVE: Substantial *and* flexible – Duet DCT++ will fit into the tightest corners of your system

800 monoblocks. The exceedingly low resistance of the cable is the perfect complement to the infinitesimally low output impedance of this amplifier – the combo delivering tight, deep bass from my B&W 802Ds, allied to a rich midband quality that suited the percussive electronica of Yello's *Touch* [96kHz/24-bit download] to a 'tee'.

The busy atmosphere of the all-star re-imagining of Dylan's lyrics, *Lost on the River: The New Basement Tapes* [96kHz/24-bit] was just a little too busy at times, its poignancy overshadowed by some excess grunge, but then this is no pristine recording! Keep it clean – the music, that is – and the Duet DCT++ CS offers a clear highway to your system responding in kind. ☺

HI-FI NEWS VERDICT

Compared to many high-end cables whose bulk and rigidity (or fragility) seem contrived to make their installation as arduous as possible, Black Rhodium's Duet DCT++ CS is a positive joy to hook up. But while the cable is unusually 'bendable' its sound has real spine – its bass powerful and robust while the treble is smooth rather than incisive or biting. Certainly one for the shortlist, the Duet's warm quality is suited to sharp-sounding systems.

Sound Quality: 78%



LEFT: A bi-wire version of Duet DCT++ CS is available with twice as many 4mm plugs at the speaker end of the cable



Musical Fidelity Round Table

Part of a new Musical Fidelity compact system, the Round Table is only the company's second LP player model in as many decades. Can it break new ground in its price class?

Review: **Steve Harris** Lab: **Paul Miller**

We're accustomed to seeing a prolific flow of new products from Musical Fidelity, but it's a bit of a surprise to see the company entering the sub-£1000 turntable market. This is a product area that's dominated by two major players, Rega and Pro-Ject. But now Musical Fidelity has plunged in with the £599 Round Table.

Rega has ploughed its own furrow since 1973, and all its turntables and arms are still made, as well as designed, in the UK. Pro-Ject got started in 1990, when its Austrian founder Heinz Lichtenegger bought his first turntables from the formerly State-run turntable factory at Litovel in the Czech Republic [see Investigation, *HFN* Aug '14].

MANUFACTURED BY PRO-JECT

Over the years Rega has supplied countless thousands of arms for other companies to use with their own turntables. And in the past, Rega has also supplied some complete turntables to other brands. But more recently, Pro-Ject has really become Europe's major OEM supplier of these. So perhaps it shouldn't be any surprise to learn that Musical Fidelity has turned to Pro-Ject to manufacture its Round Table. But the Round Table is clearly a Musical Fidelity design, as it includes many features not seen in Pro-Ject's own models.

However, according to the company's blurb, 'Musical Fidelity has a long heritage of designing exceptional turntables and the Round Table is no exception'. In reality, the Round Table is only the second turntable design in its history [see boxout].

The new Round Table reflects Musical Fidelity owner Antony Michaelson's latest thinking on what the market needs. Or rather, it reflects part of that. This neat and unpretentious player is just one component in Musical Fidelity's 'Merlin Multi Format' system, which also includes loudspeakers

that employ the interesting BMR full-range driver technology.

These are driven by a diminutive remote-control amplifier, which provides USB, Bluetooth and coaxial digital inputs, plus one pair of analogue inputs, which can be switched for use either with line-level sources or as a phono input (moving-magnet only) to accommodate the Round Table player's AT95E pick-up. So while the Merlin amplifier will handle all your digital needs, the partnering Round Table adds the analogue dimension.

Musical Fidelity isn't the first audio company to use Arthurian-legend product names. There is a thriving Merlin loudspeaker company in the US, and the record player's name isn't so new either. In the Transcriptors Round Table of the mid-'70s, now a rare collector's item, the arm was actually contained within a circular clear lid over the platter.

However, even if the Musical Fidelity Round Table isn't actually round, it does come nicely turned out in the red finish seen here (or in black). Underneath that

smooth gloss lacquer skin the plinth is made of 25mm-thick MDF. It sits on three quite tall feet each containing a bell-shaped elastomer 'spring' – but the knurled housings aren't adjustable for levelling.

STATIC BALANCE

One special feature claimed for this design is that the components are placed to ensure that 'the product is perfectly statically balanced and that its centre of gravity is at the pivot point of the main bearing'. This is achieved by the addition of a metal weighting plate under the plinth, forward and left of the main bearing, to counterbalance the weight of motor/arm.

Like the plinth, the platter is made from MDF, this time 30mm thick. It weighs around 1.6kg, and runs on a conventional bearing, using a 6mm diameter hardened steel shaft that fits into the brass journal set in the centre of the plinth.

The shaft's end is ground flat to run on a ball which is fixed into the bottom end of the journal. The bearing parts are well finished and it runs without play, while the



RIGHT: A rigidly-mounted motor drives the MDF platter via a peripheral belt. Speed change is effected by manually shifting the belt, the larger pulley giving 45rpm



MDF platter is also accurately made and runs true. It carries a thin felt mat.

Fed by a 15V DC plug-top power supply, the motor drives the platter via a very long round-section belt. There are two pulley diameters, so you can switch between 33.3 and 45rpm by manually repositioning the belt. The on/off switch is concealed under the front left corner of the plinth.

Despite its origins, Musical Fidelity's tonearm doesn't have a direct equivalent in Pro-Ject's own range. It uses steel-point bearings 'housed in zirconium with rubber damping, not dissimilar in principle to the Incabloc shock protection system on watches', while the bearing for lateral movement is a ballrace.

While the vertical-movement bearings showed no play, just a slight compliant 'give', there was some play in the rotational lateral-movement bearing.

Also decoupled to some extent is the counterweight, which can be moved along its stub to set the tracking force, after loosening the locking screw. The arm has magnetic bias compensation. So, a fundamentally simple turntable that's

easy to assemble and set up. It comes with a ready-fitted Audio-Technica AT95E cartridge, and you also get Pro-Ject's neat alignment protractor-cum-stylus balance. If you're new to vinyl you won't need to buy any extra bits.

A SENSE OF PERSPECTIVE

Equipped with that basic Audio-Technica, the Round Table gave a sound that was easy on the ear, warm and perhaps a little soft but not uncontrolled in the bass,

and with quite good imaging apparent in the midrange. The top end seemed reticent or a little dulled, but this probably just helped the overall impression of a sound that was quite well-balanced and free of

fatiguing hard edges.

On that great old concert recording, Albert King's *Live Wire Blues Power* [Stax 1002], the Round Table gave you most of the big picture. The bass guitar was weighty and convincing, and the happy sounds of the audience spread behind the speakers convincingly. Rhythmically speaking, though, there wasn't quite the

'The Elgar string sounds were mellow and easy on the ear'

ABOVE: Designed so that its centre of gravity is at the turntable centre, the MDF plinth is supported on compliant feet. Tonearm comes complete with Audio-Technica AT95 cartridge

driving edge to the sound that I would have liked.

There was a big warm bass sound again on Eric Bibb's *Natural Light* [Pure Pleasure PPAN 018], reflecting the producing skills as well as the great electric bass playing of Bibb's longtime bassist Dave Bronze. In fact it was a fine, comfortable sound, perhaps a little soft round the edges, but little the worse for that here.

On a classic recording that highlights the role of the acoustic double-bass is Jennifer Warnes' 'Ballad Of The Runaway Horse' from Rob Wasserman's *Duets* [GRP 97 121]. On this track, Wasserman's bass seemed almost leisurely, rather than measured and precise. Again the top end seemed a little subdued, and though there was quite a good sense of perspective between Warnes' lead and her exquisitely-added background vocals, you didn't quite get that thrilling sense of a singer in front of the microphone in real space.

Turning to classical music, I put on that favourite EMI recording from 1963, Sir John Barbirolli with the Sinfonia of London and Allegri String Quartet in *English String Music* [EMI ASD 521]. With the Elgar *Introduction and Allegro* the Round Table created a good impression, conveying the interplay between the main string orchestra and the quartet well, with a fair sense of space and distance in the recorded acoustic. Overall, the string sounds were mellow and easy on the ear, rather than notably analytical.

I also warmed to the Round Table and AT95 combination on another atmospheric Kingsway Hall recording, this time with just a chamber group. With the Gabrieli →

TURNING TABLES

In late 2003, Musical Fidelity launched its first turntable, the luxurious-looking M1. Made in the UK, it had a double-deck plinth in clear acrylic, the upper part forming a suspended subchassis that was supported on elaborate compliant feet. The impressive frosted acrylic platter was also in two 30mm-thick parts, sandwiching between them eight round spacer weights that increased the platter mass to around 5.7kg. A substantial motor fed by a large outboard power supply drove the platter through a peripheral belt. The M1 retailed at £2999, including the newly-introduced SME M2 straight tonearm, which was then priced at around £580. But while the M1 made a very pretty cover picture when it was exclusively reviewed in *HFN* [Mar '04], it seems that relatively few were actually sold. It would be more than a decade before MF offered another LP player.

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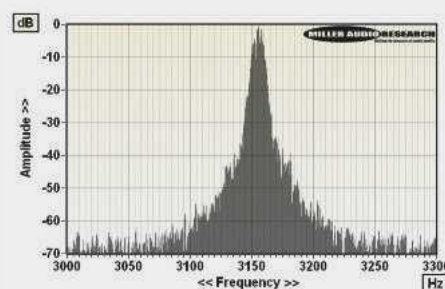
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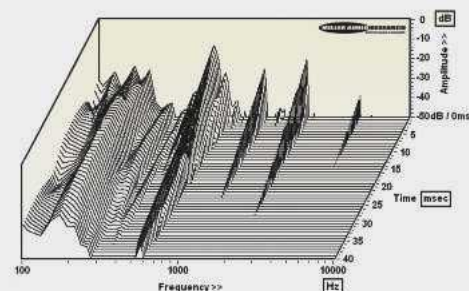
MUSICAL FIDELITY ROUND TABLE

Built by Pro-Ject in Litovel to Musical Fidelity's specification, the Round Table uses a familiar set of ingredients. The bearing is a straightforward polished steel shaft running in an oil-filled brass bushing on a ball bearing, and offers a slightly below-average -61.5dB through-bearing rumble, improving to -62.5dB through-the-groove. The figure would be closer to a more respectable -67dB if it were not for an uncommonly high 200Hz peak (from the PSU/motor) punching its way through the DIN-B weighting curve. Absolute speed is good – running fractionally fast at +0.22% which gives the deck an adequate 'head start' should the motor begin to slow with age. Peak-weighted wow and flutter is comparable with models like the Pro-Ject 1 Xpression Carbon [HFN Mar '14] and Pro-Ject Xtension 9 [HFN Aug '14] at 0.09% with low-rate wow the dominant speed variation [see Graph 1, below].

The partnering tonearm features an alloy main tube with an alloy headshell press-fitted/glued into its end. Built to a cost, the tube has some internal foam damping but this appears to have little impact on its main resonant modes – the main bending mode is deferred to a high 180Hz but there are three harmonic/torsional modes at 570Hz, 1.18kHz and 2.22kHz that appear as high-Q breaks on the cumulative resonant decay spectrum [see Graph 2, below]. At least the highest frequency modes are attenuated with 25-30msec. Similarly, the gimbal bearings exhibited quite a bit of play on our sample but friction was adequately low at ~20mg in both planes. Readers are invited to view full QC Suite reports for Musical Fidelity's Round Table turntable and tonearm by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ± 150 Hz, 5Hz per minor division). Wow is comparable with other budget Pro-Ject decks



ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.41rpm (+0.22%)
Time to audible stabilisation	4sec
Peak Wow/Flutter	0.07% / 0.02%
Rumble (silent groove, DIN B wtd)	-62.5dB
Rumble (through bearing, DIN B wtd)	-61.5dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-53.1dB
Power Consumption	4W
Dimensions (WHD) / Weight	482x100x342mm / 6kg



ABOVE: Wall-mount power supply plugs into the motor housing. Hidden under the plinth at left are connections for the detachable RCA phono signal leads

Quartet in Schubert's G major String Quartet [Decca SDD 512], the recorded sound can become larger than life – too much so for some tastes, and for many systems. But if you set the volume carefully, the Round Table could give a believable and appealing presentation.

Here the richness of the string sounds seemed to be augmented, rather than overwhelmed, by the contribution of the hall acoustic. In the long first movement, for example, those extreme transitions from the mysterious to the dramatic were spine-tinglingly effective.

A CHANGE OF CARTRIDGE

Moving once again to rock, and from studio recordings to a punchy concert set, I put on Grateful Dead's *Dead Set*, recorded live at a big San Francisco stadium in 1980 [Arista DARTY 11]. Here the Round Table did manage to convey some of the impact of the live band in a big space, but although the bass guitar sound was strong, it really needed to be more explicitly detailed.

After this, I really thought it was time to move up to a better cartridge, and so I installed the Ortofon 2M Red. Listening again to the Jennifer Warnes track, the sound was transformed. Wasserman's bass now had resonance and subtlety as well as weight, while Warnes' vocal was now much better presented, and you were once again marvelling as she uses all her resources to tell the story, easing from semi-recitative to beautifully shaped melodic phrasing, sometimes effortlessly changing up to a harmony part.

With the Round Table/2M Red combination, my Gabrieli Quartet Schubert recording also took on a new character. Here the contribution of the hall acoustic was less prominent but, paradoxically, the overall result was more realistic.

There was a sense of finer detail in the string sounds generally and the low notes of the cello seemed more controlled and more genuinely woody in character.

From the sublime, then, back to the Grateful Dead. When I put on *Dead Set* with the Round Table/Ortofon 2M Red set-up, the sound was immediately more focused, with much more depth and texture to the stereo image. Starting with 'Samson And Delilah' again, there was more detail and rhythmic sense to the percussion, and while the bass seemed at first less generous, it was more informative, as you could now relate to the way the bass line worked with the drums.

On 'Friend Of The Devil', for example, the vocal came into focus much more satisfactorily and no longer seemed buried in the mix.

To come full circle, I returned to Albert King and the Fillmore West. And yes, now there was more depth and reality to the performance, solid depth and guts to the guitar tone and to King's vocals, while the bass and drums had focus and precision. Here I felt that the Round Table was revealing its true potential. ☺

HI-FI NEWS VERDICT

While it extracted a fairly pleasing result from the low-cost AT95 cartridge supplied, with a warm if slightly veiled sound, switching to an Ortofon 2M Red proved that the Round Table could do justice to better cartridges. It faces very tough competition from various Pro-Jects and the bomb-proof Rega RP3. But even so, it clearly has its place in the market, both as a standalone deck and as part of the Merlin system.

Sound Quality: 82%



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BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Richard Strauss *Four Last Songs*

These postwar settings of poetry include one that mirrored his contented marriage of 55 years. **Christopher Breunig** has been listening to significant recordings

In 1945 when US troops entered Garmisch on their way through Germany, an elderly man came out of his house. 'I am the composer Richard Strauss,' he said, and they agreed to ring-fence his property. But he did have one other visit from a soldier: John de Lancie, an oboist who asked if Strauss would write a concerto for him. Strauss did so, with some initial reluctance.

But 1945 had also brought a true masterpiece, *Metamorphosen*, a work for 13 strings ending with a quote from Beethoven's *Eroica* funeral march. This was a lament for the destruction brought about in Germany, not least of its opera houses. And three years later came a group of four songs for soprano voice with orchestra, three settings of texts by Hermann Hesse and – the poetry that Strauss worked on first, during winter 1946-7 – Joseph von Eichendorff's *Im Abendrot* [At

➔ The highly acclaimed EMI stereo recording by Elisabeth Schwarzkopf has now been reissued by Warner Classics

⬅ The 1950 world premiere of the *Four Last Songs* was conducted by Wilhelm Furtwängler



Sunset]. In this he saw a reflection of his life married to the singer Pauline de Ahna and its inevitable close (Strauss was then 84), to which he responded by quoting the transfiguration theme from his tone poem *Death and Transfiguration*. Softly trilling flutes, the 'two larks soaring alone' in the second stanza, bring this autumnal work to a close.

A GIFT TO FLAGSTAD

The posthumous title *Vier Letzte Lieder* was his publisher's (a fifth song had been left as an unfinished sketch) and the order was (i) *Frühling* [Spring], (ii) *September*, (iii) *Beim Schlafengehen* [Falling Asleep] and (iv) *Im Abendrot*. The writer Michael Kennedy suggests that the composer would have preferred the sequence (iii) (iv) (ii) (i). However, he did not live to hear the first performance, which was broadcast by the BBC on the 22nd of May 1950.

This was sung by Kirsten Flagstad (just as Strauss had wished) as part of Wilhelm Furtwängler's first public concert with the Philharmonia Orchestra, given at the Royal Albert Hall. You can hear the programme

– mostly Wagner excerpts – on a Testament CD [SBT1410] in poor sound from surviving acetate discs originally in Lord Harewood's private collection. Interestingly, Furtwängler who had made recordings with the orchestra was not in EMI's studios at that time: the classic *Tristan und Isolde* sessions did not begin until June '52 and his debut 78s (with Flagstad) came from 1948.

Keen discographers may like to read an article in the Autumn '14 *Classical Recordings Quarterly* which dispels the idea that a 'dress rehearsal' was separately recorded, and notes that various crackly transfers have been issued with the last song cut short. My heavily

'Karajan allows space for vocal and solo parts to flourish'

filtered, badly edited Japanese LP copy [Cetra/Seven Seas] indeed does this, with abrupt applause doubtless sourced from elsewhere; and it also

wrongly gives the orchestra as the London Philharmonic! It's barely listenable but at least confirms Flagstad's dedication, while *Beim Schlafengehen*'s horn postlude is presumably given by Dennis Brain.

Published by Decca as a 10in mono LP in 1953 we had one of the most durable (and still available) recordings with Lisa della Casa and the Vienna Philharmonic under the eminent Straussian Karl Böhm. The songs there were in the original order (iii) (ii) (i) (iv). Della Casa sings with calm assurance, her timing always in accord with orchestra. For many, this version remains unsurpassed – the 12in Ace of Clubs transfer had the best sound.

Given the involvement of Walter Legge in the premiere, it is hardly surprising that his wife Elisabeth Schwarzkopf should record the

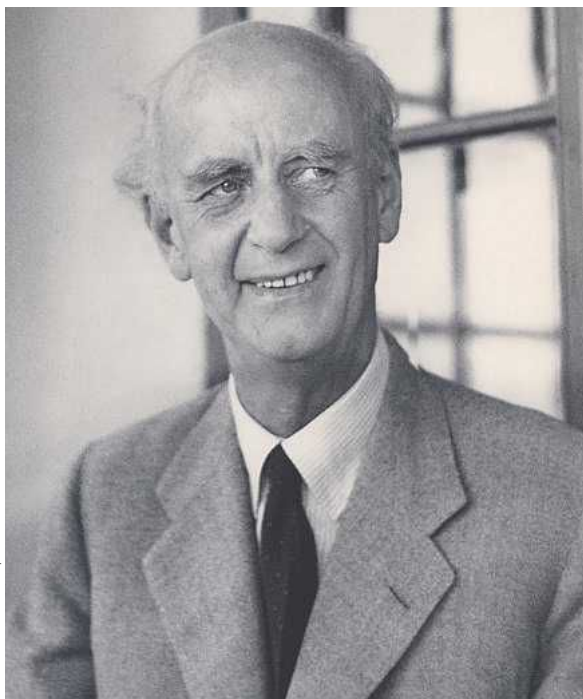


PHOTO: ROGER HALLERT/RENÉ KSTER

songs, although for EMI that did not take place until Sept 1953, with Watford Town Hall sessions under Otto Ackermann. A 1951 version with the VSO/Paul Kletzki appears in an uncredited mammoth website which includes posts of more than 500 recorded alternatives, also displaying artwork and adding numerous sound examples (see: vierletztelieder.com).

WHICH SCHWARZKOPF?

Also, a June 1956 Schwarzkopf/Philharmonia/Karajan version, live from the Royal Festival Hall, was briefly on EMI [now in Warner Classics 2564633629, five CDs]. Here, *Beim Schlafengehen* is heard last, as the conductor wanted the sound of Dennis Brain's horn playing to close the work. But it's the 1966 remake with the Berlin RSO under George Szell [ASD2888] that is mostly held in the highest regard – although quibblers have noted



PHOTO: HARALD HOFFMANN/DG

a second 'Langsam' at the end of *September*, a slight text amendment not in the earlier EMI recording.

Until recently a part of Testament's LP catalogue, the vinyl has now gone, although Warner has inevitably reissued the CD. Amazon has listed the Japanese SACD import at £953.13, can you believe?

Yet I find the remake somewhat cool and distant: the 1953 is warmer, Schwarzkopf sounding, I think, more engaged with the spirit of these settings.

All the great singers who have recorded the music – Kiri te Kanawa, Lucia Popp, Gundula Janowitz, Sena Jurinac, Renée Fleming, *et al* – have their admirers and detractors. Jessye Norman's 1983 digital LP, a joint VEB production with Kurt Masur and the Leipzig Gewandhaus, was heaped with praise, the *Penguin*

→ **The Four Last Songs** were recorded by Gundula Janowitz with Herbert von Karajan in Feb '73. *Metamorphosen* is added to the original *Tod Und Verklärung* LP coupling

↙ **DG's new live recording is with Anna Netrebko and Daniel Barenboim** [see boxout]



Guide noting a likeness to Flagstad's singing, although the weightiness did not appeal greatly to me when I succumbed to buying a copy [Philips 6514 322]. Revisiting it, I still find Norman's rapid vibrato and powerful tone uncomfortable, while the accompaniment is mushily recessed.

Peter Weir fans may recall the scene in the Mel Gibson film *The Year Of Living Dangerously* where *Four Last Songs* is playing in Linda Hunt's apartment, and we spot the sleeve of a 1975 CBS LP with Kiri te Kanawa and the LSO under a rather school-boyish Andrew Davis [now Sony 88843057672]. It's an impressively committed account, quite lovely in the vocal outpouring in *Beim Schlafengehen* after the fine

(uncredited) violin solo. Expectations were therefore high when she re-recorded the songs with Solti and the VPO [Decca 430511-2] but alas this proved a disappointment.

So coming full circle, my recommendation is a Karajan CD with two of the late works mentioned at the start of this Companion [DG 4474222]. Gundula Janowitz is the soprano with the BPO, recorded in Feb '73, and the engineer was Günter Hermanns – the variously orchestrated accompaniments are beautifully detailed and clear. Not only does Karajan provide his customary 'cushion' for his singers but allows space for vocal and solo orchestral parts to flourish. ☺

ESSENTIAL RECORDINGS

Anna Netrebko, Staatskapelle Berlin/ Daniel Barenboim

DG 479 3964

A new (live) recording this deserves a 'mini review'. Netrebko has been criticised elsewhere as lacking a 'Strauss voice' and – perhaps through mic placements – can sound stressed here and there. But what a voice (no wonder Ortofon took the name for its top MC), and she's quite touching. Wonderful accompaniments too. *Ein Heldenleben* (Barenboim's second version) is also splendid, both works illustrating the artistry of the new leader Wolfram Brandl, notably of course in his very individual depiction of Pauline in the tone-poem. I am tempted now to get the highresaudio 96kHz/24-bit version as well!

Elizabeth Schwarzkopf, Philharmonia Orchestra/Otto Ackermann

Naxos 8111145

This is with 'highlights' from *Arabella* (1954; cond. von Matacic) in good mono sound.

Lisa della Casa, VPO/Karl Böhm

Decca E467 1182

The studio version is reissued with excerpts from *Capriccio*, *Arabella* and *Ariadne auf Naxos*. But note a Salzburg live alternative with VPO/Böhm on *Orfeo D'Or* 651053.

Arléon Auger/VPO/André Previn

Telarc CD80180

Previn's cordial work with the VPO is often overlooked. A lovely mid-priced version.

Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

MGMT *Oracular Spectacular*

The album sold over half a million copies in the US alone while one song was 'appropriated' by a French president. **Steve Sutherland** hears MGMT's debut LP on 180g vinyl

If you're at all acquainted with the Coachella Music & Arts Festival, you'll surely know it's the coolest festival on earth. Staged in Indio, it's some two hours inland from downtown Los Angeles.

Pass the spiritual oasis of Joshua Tree on the left, the highlife haven of Palm Springs on the right, cruise through the spooky windfarm and you're there among the palm trees, basking in 100° heat in the manicured Polo Grounds, turning lobster red amongst the bronzed beautiful people.

GLITTERING CHIC

Near enough to Hollywood to attract an A-list VIP crowd, eternally mud-free and essentially indie and hip-hop minded, Coachella is the crème de la-crème of choice gatherings. Yet even by its own elegant standards, this is something special. Like an inner circle within an inner circle of glittering chic, the Mojave Tent is hosting a performance which, on my extensive gigging radar, rates as the sexiest I've ever seen.

The singer has left the stage – sort of floated off actually – his chiffon shirt wide open to the waist as he's sensuously rolled

and caressed across an impossibly glam audience of supermodels and the like. Agyness Deyn's in there, massaging his ribs as he glides overhead. Kelly Osbourne and her Beverly Hills It crowd are reaching and touching and sighing like crazy.

It's like a scene from your wildest dreams – ecstatic, like paradise except... all the while I can't shake this shadow, can't help but feel that this touchy feely-fest is actually innocence lost.

It reminds me of that scene in Francis Ford Coppola's *Dracula* where Keanu Reeves is set upon on the bed by those gorgeous bare-breasted gorgon vampirellas and has his lifeblood sucked from his body.

And I look at the singer as he writhes in the arms of his adoring femme fans and I just know he knows this is it, the zenith, the peak, the nearest to pop perfection he will ever attain. It's all downhill from here.

The singer, by the way, is an angelic-looking rich kid called Andrew

STEVE SUTHERLAND

Steve edited NME from 1992-2000, the Britpop years, launching NME.com and reviving the NME Awards. Previously he was Assistant Editor on Melody Maker. Among his many adventures he has been physically threatened by Axl Rose, hung out awhile with Jerry Garcia and had a drink or two with Keith Richards...



VanWyngarden who buddied up with the ever so slightly more geeky Benjamin Goldwasser at the prestigious Wesleyan University, a gold standard liberal art college out in Connecticut, which can also boast Daniel Handler, aka Lemony Snicket, amongst its alumni.

The pair caroused through their student days, doing lots of 'shrooms and staging kinda ad hoc musical happenings inspired by New York's pioneers of synthesised chaos, the band Suicide.

The world, it seemed, was the pearl in their oyster and high on confidence and everything else, they threw together an EP

which they entitled, with utter perfection, *We (Don't) Care*. They called themselves The Management, a name born of a bunch of jokey emails, and they developed a

pendant for the ironic which would probably have been pretty nauseating had it not been for the fact that everything they touched sounded raw, emotional and straight from the heart.

“Time” was a hot hit song about the inevitability of them having hot hit songs’

THE CLINCHER

A demo album followed, called *Climbing To New Lows*, then the clincher. They wrote a song called 'Time To Pretend' which was supposed to be tongue in cheek but, because they couldn't help themselves, actually worked gorgeously on several levels simultaneously.

For starters it bemoaned the passing of the rock god era, where the untouchable stars could get away with anything. It also seemed to say that, due to celebrity culture, the whole darn star trip had been cheapened and damned and, instead of arriving as the wages of inspired genius and massive luck, could now be rather boringly planned out on a career arc, like being a lawyer or a politician or somesuch.

Then again, when wrapped up in the hyper-chill tune they'd manufactured, it



The band (clockwise from bottom, left to right) Matthew Asti (bass), James Richardson (guitar), Will Berman (percussion), Benjamin Goldwasser and Andrew VanWyngarden



➔ Priced £17.99, the 180g Music On Vinyl reissue of MGMT's *Oracular Spectacular* is available online from www.rockbox.co.uk

appeared to be mapping out their own future. It was a hot hit song about the inevitability of them having hot hit songs and the whole kit and caboodle that comes with it: model wives, cocaine binges, heroin habits, disassociation from one's family, grotesquely favoured and gifted progeny fated to repeat the magnificent cycle. In short, it was self-awareness *in excelsis*, already bored with the fame and fortune that was bound to come their way.

It reminded me (in spirit, if not in sound) of the way Jarvis Cocker had plugged away for so many years with Pulp to become a pop star that when his wish finally arrived, he was too old and jaded to revel in it.

Except these guys had it all on fast forward and hadn't had to toil much or gig much or do anything much to arrive at the top, fully *blasé*.

ROUNDLY IGNORED

'Time To Pretend' became the title track of a 2005 EP on Cantora Records and for two long years it was roundly ignored until someone at Columbia decided these dudes – now called MGMT – had the goods. An album was optioned and they called it *Oracular Spectacular*, released to download in October 2007 and through more traditional outlets in January 2008.

It was and they were – of course – a smash. Producer Dave Fridmann had a fair bit to do with it. Founder, bass player and latterly producer of Mercury Rev, and then Flaming Lips, his resume also included Weezer, Sparklehorse, Low, Sleater-Kinney, Spoon and Mogwai. (He went on to mix both brilliant Tame Impala LPs too!)

What he did was open up the MGMT sound to allow the songs to luxuriate in an opiate bliss. When they re-recorded 'Time To Pretend' for the album with Fridmann overseeing, it suddenly assumed that final ingredient, a gorgeous detachment which rendered the track's maudlin lyric all the more poignant.



The truly amazing thing, though, was that the exquisite 'Time...' was not the album's sole sparkling jewel. *Oracular Spectacular* was voted *NME*'s Album Of The Year while the third single, 'Kids', delivered on the same levels of insouciant intimacy, and marched on such an anthemic Klaxxon-y beat that French President Nicolas Sarkozy got himself in hot water when he nicked it without permission to soundtrack a party conference.

'Weekend Wars' was also pretty wondrous, a snake in the Garden Of Eden trip through the adolescent psych. 'Of Moons, Birds & Monsters' amazingly and effortlessly channelled Syd Barrett's Pink Floyd, when they were thrilling pop before they went plodding prog. And, arguably better than all of them, 'Electric Feel' tapped into the psych edge of rave and managed to swoon even as it swaggered. 'Oooh babe, shock me like an electric eel!' indeed. Disco Paradiso!

ROCK VALHALLA

It was the song 'Electric Feel' that was pulsating hormonally through Coachella's Mojave Tent as Andrew VanWyngarden was giving himself up, body and soul, to his ultimate taste of rock Valhalla. Prediction made flesh, wishes made riches, the perfect moment.

And then it was gone. I mean, totally gone. The second LP, *Congratulations*, was

a scoundrel of an album, a pretence at bold progression away from the pop sensibility that made *Oracular* so 'Spectacular'. But there was no disguising that this tuneless mess was an alarming flight from the game born of fear of failure.

No-one bought it, the boys sulked and came back eventually with a half-arsed third LP entitled *MGMT*, a completely unremarkable effort.

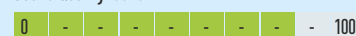
They've mislaid the route to Xanadu and chances are they'll never resurrect. Better to have been loved and then lost it than never to have been loved at all? I wonder... ☹

RE-RELEASE VERDICT

Produced by former Mercury Rev bass player and drummer Dave Fridmann, this Music On Vinyl reissue includes the UK Top 40 singles 'Time to Pretend', 'Electric Feel' and 'Kids' and retains the running order of the original CD release on Columbia.

A single slab of 180g vinyl housed in a standard two-panel jacket containing a printed insert with lyrics, our copy was flat and silent between all tracks. It may not be typical audiophile fare, but being soaked in '70s influences it's an LP that sounds contemporary yet somehow timeless. HFN

Sound Quality: 80%





Cream *Disraeli Gears*

The band only made three studio albums, so what was it about their second that was to turn a blues trio into a supergroup, enable them to break into the US market and cast a huge shadow of influence over a genre that would later become known as classic rock?

Words: **Mike Barnes**

Cream have been called the first supergroup. After all, its members were already name musicians when they formed the band in 1966. Yet, as is the case with almost all groups, it was simply a matter of a number of musicians coming together to explore ideas. In a couple of years they would be gone, leaving behind them just three studio albums. But this slim body of work was to have an incalculable influence on rock music.

Eric Clapton had already enjoyed high profile, if brief, spells with The Yardbirds and John Mayall's Bluesbreakers, during which time he had established himself as one of the UK's premier blues guitarists.

Jack Bruce and Ginger Baker had played together since the early '60s in Alexis Korner's Blues Incorporated and in the groundbreaking R&B group the Graham Bond Organisation. Bruce had been classically trained as a cellist, and both he and Baker had grown up playing jazz. Both thought of themselves as jazz musicians.

That said, Bruce also played with John Mayall and tasted some chart success during a brief spell with Manfred Mann, playing on their 1966 hit single, 'Pretty Flamingo'.

FRACTIOUS TIMES

Baker was keen to form a group with Clapton, but the guitarist insisted that Bruce should be the bass player and main vocalist. Bruce and Clapton had met when the latter was still in The Yardbirds, shared a brief overlap in the Bluesbreakers, and had both been in another shortlived band, Powerhouse, with Steve Winwood and vocalist Paul Jones. Baker accepted this proviso begrudgingly: in the Graham Bond

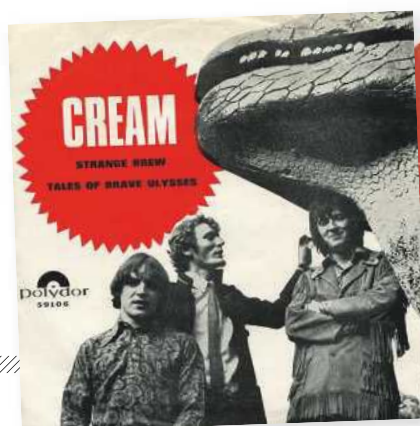


↑ Poster for concert in July '67 at The Saville Theatre, London

↗ The band in 1966, pictured for a Decca publicity still (l-r): Bruce, Baker and Clapton

↗ Playing on the Dutch TV show *Fanclub* in 1968

↙ The first single from the LP was 'Strange Brew', released in 1967 with a Clapton vocal



Organisation their relationship had been fractious to the extent that he had pulled a knife on Bruce.

Although this hardly boded well for their working relationship in Cream, they were able to reconcile their differences, at least for the time being.

The group's debut album, *Fresh Cream* was released at the end of 1966, and charted in the UK at No 6 and in the US at No 39. Whereas that album was in a harder blues-rock style, the group's

first two singles – 'Wrapping Paper' and 'I Feel Free' – featuring lyrics by the poet Pete Brown, were poppier fare.

Brown had taken a sabbatical to overcome a problem with alcohol and drug abuse, and re-emerged a teetotaler and ready for work.

'In the Graham Bond Organisation, Baker had pulled a knife on Bruce'

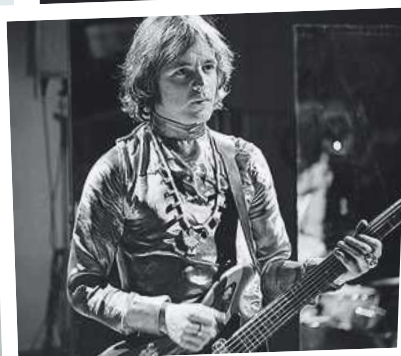
He had been introduced to the group by Baker – who had seen him performing in The First Real Poetry Band with John McLaughlin – with the intention of forming a

songwriting partnership. But although Brown wrote with both Baker and Clapton he really hit it off with Bruce. 'The chemistry was

quite extraordinary,' Brown says, and they wrote the bulk of the group's original material.

FREE ROCK

In describing their music, Clapton offered 'Blues ancient and modern', while Bruce chipped in with 'Sweet and sour rock 'n' roll'. By the time they were generating material for *Disraeli Gears* they were already in the process of improvising at length in concert, which had initially stemmed from them not having enough material. They could be self



VINYL ICONS

PRODUCTION NOTES

While New York's Atlantic Studios was more geared towards rock 'n' roll than the London studios the group were used to and boasted an eight-track set-up as opposed to just three tracks, engineer Tom Dowd was not expecting what confronted him when the band arrived in 1967 to record *Disraeli Gears*.

'I saw roadies setting up double stacks of Marshalls and double bass drums and double cymbals stands I just looked and I thought, "Why have I got two of everything?"'

Although it wasn't meant as a heavy rock album, it was decided to set up the group as if they were performing live in order to capture the sheer energy of their playing. One of the downsides of this strategy was that the levels of the drums varied a lot, making it difficult to balance their sound with that of the other instruments.

The solution was to isolate the drums into a single channel, though that changed the overall sonic balance. Certainly there is more of a rawness to the mono mixes.

Perhaps it was due to the sterile atmosphere of some of the studios in London, but Clapton has admitted that up to that point he had no interest in technology and not a great deal more in the people who operated it. But things were different at Atlantic with Dowd and Pappalardi. 'It's like having two extra members in the band,' said Clapton in 1968. 'Felix will come out of the control room and say, "The fourth note in the second bar should be more sharp" and he's absolutely right. It speeds things up tremendously.'



indulgent, but when they clicked they were doing something that hadn't been done before: a kind of free rock, with Clapton's fluid lead lines tracked by Bruce's exploratory bass and Baker's polyrhythms.

'PSYCHEDELIC HOGWASH'

A different type of experimental approach permeated the new studio material. These concise songs referenced a number of styles, with blues being just one of them. Atlantic Records founder Ahmet Ertegun had signed the group to the label in the States ostensibly as a heavy blues band and largely on the strength of Clapton's playing. He was not so enamoured by some of the new material on *Disraeli Gears*, and referred to 'Sunshine Of Your Love' as 'psychedelic hogwash'.

Bruce has said that Cream were basically being true to themselves by taking the language of the blues and transporting it somewhere else, both musically and lyrically. Brown also admits he was deeply persuaded by the way that blues musicians expressed themselves. And although he was influenced by psychedelic culture this song is not so different from a blues lyric as it tracks a musician coming back from a gig, hoping that his girlfriend is in a receptive mood, so he can give her his 'dawn surprise'.

Disraeli Gears was recorded at Atlantic Studios in New York City, following a run of rather low profile club gigs. Ertegun produced the first

track of the sessions, which, at his request, was a version of the old blues standard, 'Lawdy Mama'. It didn't work out, so he relinquished the producer's role to Felix Pappalardi.

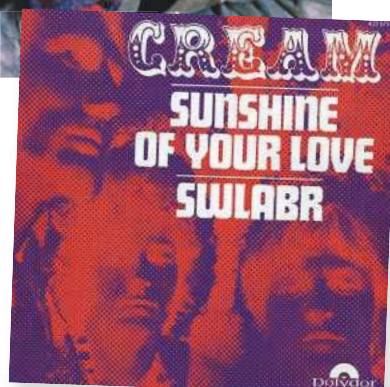
Although the whole album was recorded in just four days, some of the songs were modified at the very last minute. 'Lawdy Mama' was transformed by Clapton and Pappalardi from a slightly workaday blues cover into what we now know as the fresher, funkier 'Strange Brew', with the producer's partner Gail Collins adding lyrics about an enigmatic temptress figure.

STINGING LEAD

Martin Sharp, a sought-after young graphic artist who had worked for *OZ* magazine, designed the album's garish montage cover. He also wrote some appropriately psychedelic lyrics on 'Tales Of Brave Ulysses', including lines like 'Tiny purple fishes run laughing through your fingers'.

Clapton plays some spectacular wah-wah guitar on this track. It was the first time he had ever used the pedal, which he bought from Manny's Music on 48th street and added it as a late overdub.

One of the most enigmatic songs on the album is the turbulent *SWLABR*, which features some stinging lead by Clapton. The title



← Bruce, Clapton and Baker in 1966. The LP's title came when Clapton was discussing buying a bicycle with Baker. 'It's got them Disraeli gears,' piped up a roadie nearby. He meant derailleur gears

↑ French picture sleeve for 'Sunshine Of Your Love'

← Bass player, vocalist and producer Felix Pappalardi pictured in New York in 1967

'Baker was miffed he didn't get a credit for his inspired tom-tom patterns'

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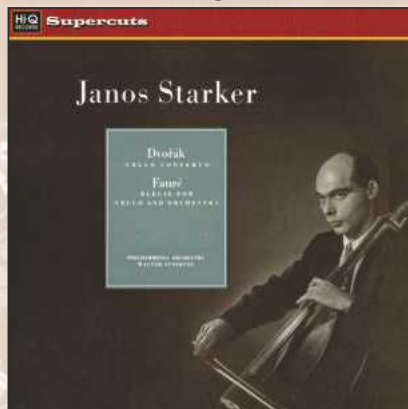
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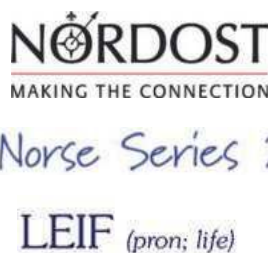
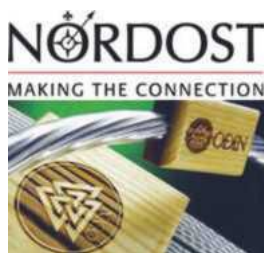
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The Absolute Sound, Issue 246, Oct - '14



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Alternate Format Discography



➔ Clapton, Bruce and Baker.
The band split in late 1968

is an acronym of She Was Like A Bearded Rainbow. One can only guess what Ertegun thought of the lyrics, but Brown has revealed that it's at least partly about someone who reacts to a troublesome girlfriend by defacing her picture, 'like someone drawing a moustache on the Mona Lisa'.

Tensions rose between Baker and Bruce during the sessions, with the former reacting adversely to the preponderance of Bruce compositions. He was also miffed he didn't get a composition credit for his inspired tom-tom patterns on Bruce's 'We're Going Wrong'.

He voiced his disapproval on 'Blue Condition', finishing off the lyrics in New York just prior to recording. Clapton recorded some takes singing the song, but they went for Baker's own vocal, which sounds rather like someone who has just woken from an afternoon nap.

FAUX COCKNEY

As the album is short, one wishes that they had included the brilliant 'Weird Of Hermiston' and the blazing instrumental 'The Clearout', both of which had been demoed. Anything except the old music hall comedy song, 'Mother's Lament', which closes the album with the trio singing in faux Cockney accents that would make Dick Van Dyke blanch.

Still, despite Ertegun's misgivings, the 'psychedelic hogwash' of 'Sunshine Of Your Love' made No 5 in the Billboard charts and became Atlantic's biggest selling single ever. The album peaked in the UK at No 5 and in the US at four and features in many 'Best Of' lists.

In 1968, Clapton told Jim Delahunt of *Hit Parader* that 'Gears' is just an LP of songs with nice arrangements and solos in the middle of them.' And many consider it to be the group's best album precisely for that reason. ☺



Disraeli Gears was first released in the UK on November the 2nd 1967. It was the inaugural release on the Reaction label – founded by Cream's manager Robert Stigwood – and came in mono [593 003] and stereo [594 003].

A month later the album was released in mono and stereo on ATCO, a subsidiary of Polydor. Both versions carried the same catalogue number [SD 33-232].

CASSETTE & TAPE

The album was also released in the US on cassette in a slipcase [ATX 5232] and in 4-track cartridge format [4X 5232]. Meanwhile, 3 $\frac{3}{4}$ ips reel-to-reel tape versions were made available in the US [SD 33-232] and the UK [ATX 232].

A cassette version was later released on RSO in the US in 1976 [823 636 4 Y-1], then reissued on Polydor on cassette in 1986, also in the US [823 636-4].

SECOND PRESSINGS

When the mono album went into its second UK pressing in 1968 on Reaction, editions were also made available on Polydor for the Australian market [593003] and for Spain [48.908].

The first stereo copy appeared on Robert Stigwood's RSO label in 1970, yet this was only released in the Netherlands [2479 185].

In 1973 the Reaction stereo LP [594 003] hit the shops in the UK in an unlined sleeve, but with a picture inner sleeve. This was followed by a spate of RSO stereo reissues, the first appearing in 1974 in Canada [2394 129], Japan in 1975 [MW 2130] along with the US [RS-1 3010], then Greece in 1977 [2479 165].

MEXICAN LP

A rarity is a 1984 RSO Mexican LP that was released with completely different cover art to the original.

Titled *30 Años De Musica Rock Salvat – Disraeli Gears* [822 294-1], the tracklisting also differs, with single 'White Room' (which was also on the 1968 LP *Wheels Of Fire*) in place of 'Mother's Lament'.

CD VERSIONS

Disraeli Gears was remastered for its first CD release in 1986 on Polydor in the US and Canada [823 636-2], and in Germany on RSO [823 636-2 YH].

A special limited edition CD box set, *Cream In Gear* [see below], came out on Polydor in 1991 in France [823 636-2 YH]. It comprised a 97-page book of previously unseen photographs of the band, plus a CD of the album and a certificate of authentication signed by Jack Bruce.

The first chance to compare the stereo and mono mixes in one package – and on a 24kt gold-plated disc – came in 1992 courtesy of Mobile Fidelity Sound Lab via Polydor [UDCD 562], with both mixes residing on one disc.

In 1997 the stereo version was released in remastered form on CD on Polydor in the UK and Europe [531 811-2], and in 1998 in the US with the same catalogue number.

Later, a special Japanese-edition CD came out in 2002 as part of the 'Eric Clapton Paper Sleeve Collection' series [UICY-9151].



CD SPECIAL EDITIONS

The most significant CD release came in 2004 in the shape of the generously packaged 2CD Deluxe Edition [see top, right]. This was released in the US in the Polydor Chronicles series [B0003331-02] and in the UK and Europe on Polydor [0602498 193 129].

Remastered and with a colour booklet and notes, it comprises both the stereo and mono mixes of the original album and also includes the outtakes 'Lawdy



Mama' and 'Blue Condition' – with Clapton on vocals – from the Atlantic Studios sessions both in stereo and mono.

The stereo disc also contains five stereo demos, including 'Weird Of Hermiston', 'Hey Now Princess' and 'The Clearout'. The mono disc also offers nine live in-the-studio tracks and some chat with Clapton, recorded in mono at the BBC.

The mono album was reissued on a single disc in the US in 2010 as a Rareties Edition on Polydor [B0014168-02], including the five stereo demos and the studio outtakes of 'Lawdy Mama' and 'Blue Condition'. This was only available through certain retail outlets.

LP REISSUES

The first audiophile release of the album on vinyl came in 1977 in the form of a limited edition 180g LP on the Simply Vinyl label through Polydor [SVLP 087].

This was followed ten years later by a 200g release on Polydor/Universal [UIJY-9006] but, sadly, this was for the Japanese market only, while a mono version on 180g vinyl [LR140] released the same year on the Lilith label was strictly for the Russian market. The UK was again left out of the party when, in 2008, RSO released the album on LP in Europe, but not in the UK [53150].

It wasn't until 2010 that RSO released the album in the UK on vinyl [POL 53265301]. However, it came as a picture disc – not the audiophiles' favourite format!



The Beacon Theatre, New York

First opening its doors in 1929 as a movie palace, this art deco theatre in Manhattan has played host to its fair share of rock 'n' roll luminaries too. **Steve Sutherland** takes you to the heart of the live music experience at The Beacon Theatre in New York

They called him Skydog. The Sky was bestowed by Mr Wicked Wilson Pickett. The main soul man declared, 'Damn! He hits the heights man!' when the hippie white boy put some stellar slide on a take of 'Hey Jude' down in Muscle Shoals. And the dog? Well, that came from his mates back up in Macon, Georgia on account of his bushy sideburns and scraggy mane.

But the Dawg, Howard Duane Allman, was long gone when our shows took place. Some 38 years since he slid his motorcycle under a truck aged just 24. But his band, the band who took his name, had soldiered on against many bad odds and here they were, staring down the barrel of a 40-year-career, and dedicating their three-week stint to his celebratory memory.

STEEPED IN THE BLUES

Fifteen nights, 62 guests to honour his name. Great guitarists showed up to sit in and pay homage – Johnny Winter, Buddy Guy, ZZ Top's Billy Gibbons, Taj Mahal – talents steeped in the blues he loved. Chuck Leavell returned to the ranks from his tenure with The Rolling Stones to tickle some ivories for his old pal's sake. Levon Helm of The Band rocked up to drum. Sheryl Crow dropped by, and Kid Rock, and long time psychedelic peer Bob Weir of The

→ The Allman Brothers Band celebrate their 40th anniversary with a residency at the Beacon Theatre in March 2009. The venue is situated at West 74th Street on Broadway in New York's Upper Manhattan

← Eric Clapton (right) performs songs from *Layla And Other Assorted Love Songs* with The Allman Brothers Band at The Beacon



JONATHAN BAYER

Grateful Dead. Arguably the most notable guest of all was Eric Clapton, who'd once tried and failed to nick the Dawg for his own incandescently doomed Derek And The Dominos.

The Dawg had done spectacular work as a hired hand on the *Layla & Other Assorted Love Songs* album, his contribution so astounding that Clapton – named 'God' at the time if you remember – claimed the mutt as the brother he never had. Still Dawg rejected the permanent offer and stuck with the rabble of rogues and renegades that concern us here.

LAST JAM BAND

March the 26th 2009 was the exact anniversary – 40 years since the band's first ever date and on this night alone they took the stage unadorned. Original drummers Butch Trucks and Jai Johanny 'Jaimoe' Johanson stepped out alongside hot-shot guitarists Warren Haynes and Derek Trucks, bassist Oteil Burbridge and percussionist Marc Quinones. The Dawg's younger bro and keeper of the flame Gregg called the shots on keyboards and The Allman Brothers Band romped through their eponymous debut and second LPs, *ABB* and *Idlewild South*, to nary a dry eye in the house.

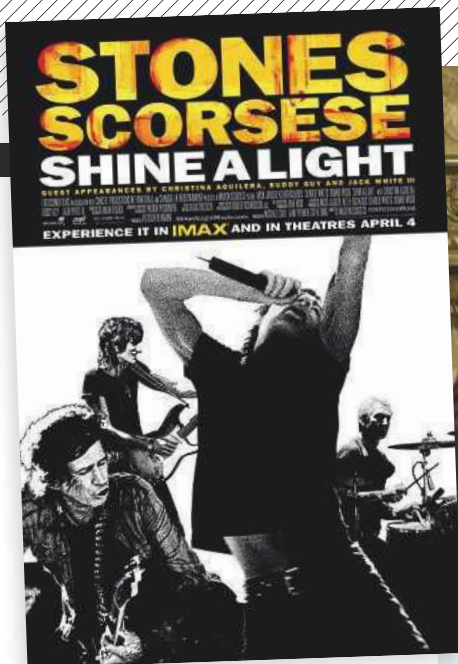
Their most famous recording may have been made at the legendary Fillmore East but the Beacon Theatre, where they chose to mark their anniversary, had been their *de-facto* home since 1989. Every year for 20 years they'd played a summer residency here, sold-out shows attended by faithful fans who booked vacations around the dates and made pilgrimages from all across the world to groove in intimate surroundings with the last true jam band standing.

The New York Beacon, at 2124 Broadway, corner of West 74th, first opened its doors on Christmas Eve 1929 when Warner Theatres took over the vacant property to show first-run film releases. The building had been designed by Chicago architect Walter W Ahlschlager (the same bloke who did the ace Peabody Hotel in Memphis) as a smaller accompaniment to the Times Square Roxy – a pair of luxurious silent movie palaces whose owners went bust before a single reel was even run.

Warners came to the rescue and the first punters through the doors saw *Tiger Rose* starring Lupe Vélez, a Hollywood hot babe who married Tarzan Johnny Weismuller for a while



ROBERT CAVALLANO



but whose other paramours included Clark Gable, Charlie Chaplin, Errol Flynn and Gary Cooper, who she famously stabbed and shot at more than once. Lupe overdosed in 1944 while pregnant with, gossips say, Cooper's love child.

ROCK VENUE

Anyway, movies kept the Beacon alive under the name the Brandt Theatre until 1974 when it was co-opted to stage pop concerts by a guy called Steven Singer.

New owners moved in and in 1976, the Beacon became a *bona fide* rock venue, its three tiers and high-on 3000 capacity filling the vacancy between the small Manhattan club scene and megavenues like Madison Square Garden.

The Grateful Dead were among the first to put down their marker, returning often, and thankful that a bid in 1987 to turn the Beacon into a nightclub was rejected on the grounds that the prestigious architecture couldn't stand the

Poster for Martin Scorsese's *Shine A Light* movie, which featured The Rolling Stones in concert at the venue over two nights in 2006 (pictured above, right)

Hot Tuna's bassist Jack Casady and guitarist Jorma Kaukonen. The band had a residency at The Beacon Theatre in '96

Jerry Garcia of early Beacon band The Grateful Dead, on stage in 1976

Lupe Vélez, whose movie *Tiger Rose* was shown the night the Beacon first opened its doors in 1929



stress. And then the Allmans moved in, their summer residency interrupted only once, in 2010, when they were forced to decamp across town to the United Palace Theatre because some doofus had booked in a run of Cirque du Soleil.

FAMILIAR TURF

Fans will tell you that every year was a highlight, but proof, should it be needed, that the Allmans profited from having some familiar turf to return to from their intergalactic improvs, can be found on their live LP, *Peakin' At The Beacon*, which was released on the Epic label in 2000.

The Beacon hosted many other notable shows. Hot Tuna, the Jefferson Airplane blues spin-off helmed by guitarist Jorma Kaukonen and bassist Jack Casady, instigated their own late November/early December residency commencing in 1996. And, on the other side of the coin, Duran Duran played the

Beacon in 1987 to raise funds for the Association To Benefit Children, the show captured on their *Live At The Beacon* DVD.

The Rolling Stones took over the Theatre for two nights in 2006 in a detour from their A Bigger Bang world trek. The dates were October the 29th and November the 1st (they were supposed to play Halloween instead of the latter but

Jagger's throat was playing up), the shows filmed by Martin Scorsese for what became his celebrated documentary *Shine A Light*.

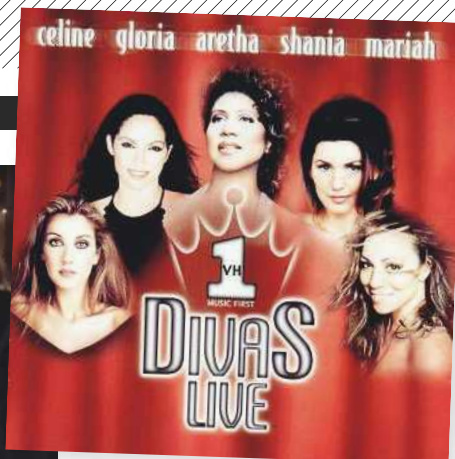
The soundtrack,

produced by Bob Clearmountain, was released nearly two years later on Universal.

Famous for attracting celebrity attendees Hilary and Bill Clinton, whose charitable Foundation benefited from the ticket sales, the two shows featured guest drop-ins from Jack White, who shared a 'Loving Cup' with Keef, Buddy Guy, who helped himself to a bit ➔

'The Stones nights became the documentary *Shine A Light*'

CLASSIC VENUES



of Muddy Waters' 'Champagne And Reefer', and Christina Aguilera who hammed it up with Mick during 'Live With Me'.

However, the whole affair was overshadowed by an incident backstage at the VIP Rattlesnake Bar when Ahmet Ertegun, the 83-year-old founder of Atlantic Records and the man who launched Led Zeppelin and Crosby, Stills, Nash & Young upon the world (not to mention Otis Redding via his licensing deal with Stax), slipped and banged his head on the concrete floor.

Ertegun, who had personally arranged to license the distribution for Rolling Stones Records back in the day, was rushed to hospital, lapsed in and out of coma, and died on December the 14th.

LANDMARK SHOWS

When the film came out, it was dedicated to him, and on the 10th of December 2007, what remained of Led Zeppelin played what increasingly looks like their last ever show together at the O2 in London to raise funds for Ertegun's Education fund, helping students to get through college.

Another landmark occasion at the Beacon occurred on the 14th of April 1998 when music channel VH1 chose the theatre to host its first ever Divas Live extravaganza. Arranged as a fund-raiser to buy

instruments and help put music back into the American educational curriculum, it starred Aretha Franklin, Mariah Carey, Shania Twain, Gloria Estefan, Celine Dion and special guest Carole King, who led the ensemble through her 'You've Got A Friend and (You Make Me Feel) Like A Natural Woman'.

Presented by Jennifer Aniston, Sarah Jessica Parker, Susan Sarandon and Teri

Hatcher, it was aired on October the 6th and set the ball rolling for further Diva doings. And talking of Ms Carey, she's been making her own piece of Beacon history lately, having hosted her 2014 Christmas Show at the theatre.

Run by the Madison Square Garden Company since 2006, our

final bit of business with the Beacon quite rightly concerns The Allman Brothers Band. Early in 2014, Warren Haynes (a Bro since '89) and Derek Trucks (ditto since '99) announced their intentions to leave the outfit for good in order to concentrate on their own bands. Haynes has his Gov't Mule and Trucks has other irons in the fire.

UNBROKEN CIRCLE

Looking back across the years, their band elders took the cue to wrap up their touring business for good and bossman Gregg, still grappling with a new liver and having recently settled a few scores in his autobiography *My Cross To Bear*, announced the Allmans' last ever gigs would be at the Beacon.

They bowed out with half a dozen shows culminating in a performance on the 28th of October 2014 which began at 9pm and, across three sets, ended at 1.30am with an ecstatic encore of 'Whipping Post' and 'Trouble No More'.

All six shows featured one song in common – 'Will The Circle Be Unbroken', a 1907 hymn adopted to say the band may be gone, but their spirit will live on forever. ☺



Music channel

VH1 chose the theatre to host its first ever Divas Live extravaganza.

Posing for the camera at

the Divas Live event, which took place on the 14th of April 1998 (l-r): Gloria Estefan, Mariah Carey, Aretha Franklin, Carole King, Shania Twain and Celine Dion

The Allman

Brothers Band chose the Beacon to play their last ever concert. Taking place on the 28th of October 2014, it mostly featured music from their first five records



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twisted pair is surrounded by a high-density braid and overlapping foil shield that promises excellent rejection of outside interference. The cable is terminated with Chord's custom VEE 3 RCA plugs featuring colour-coded ABS shells, a PTFE dielectric and gold-plated contacts.

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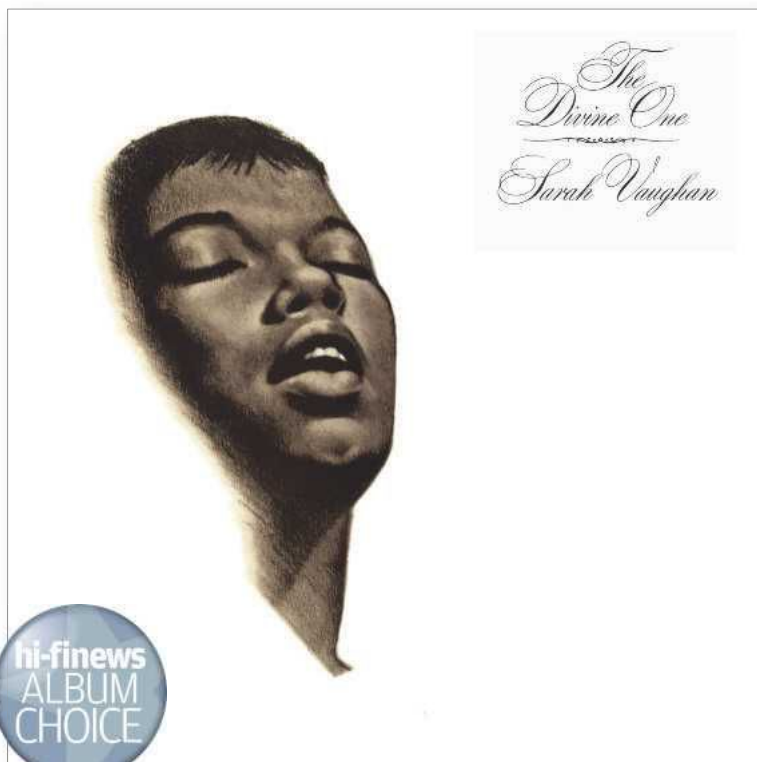
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ALBUM REVIEWS: VINYL



SARAH VAUGHAN

The Divine One

Pure Pleasure PPAN SR52060 (180g vinyl)

Many years ago I gave up trying to create a pecking order for the great vocalists – Ella vs Dinah vs Peggy, etc – because Sarah Vaughan always tipped the balance with LPs like this masterpiece recorded in 1960. From her brief span with Roulette, it's simply exquisite: a small group arranged by Jimmy Jones, with Harry 'Sweets' Edison on trumpet, Jones on piano ... the trumpet playing, for example, on 'What Do You See In Her?' shows interplay that makes this the kind of set that defines intimate jazz vocals. She concentrates here on quiet, moody ballads, but there are moments like 'Jump For Joy' that swing like nothing else. Pure Pleasure's pressings have been kicked up a notch too. **KK**

Sound Quality: 91%



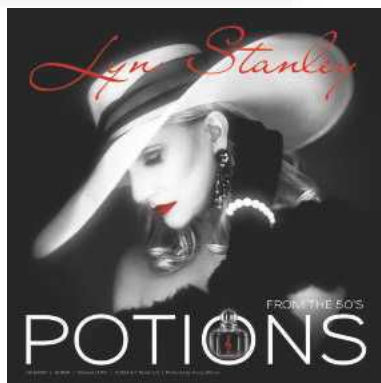
DARYL HALL & JOHN OATES

Voices

Mobile Fidelity MFSL1-411 (180g vinyl)

If you bought MoFi's SACD of this last year, you might question buying the vinyl, but this did pre-date CDs, appearing in 1980. I admit to being a sucker for their pure, blue-eyed soul tracks and their more rocking numbers, so this is an ideal effort as it contains both. While addressing the polished tastes of that era – The Cars, Blondie, etc – it remains a stellar example of heartfelt and soulful vocalising, with the highpoints, as cited in the SACD review last May, being the exquisite interpretation of The Righteous Brothers' 'You've Lost That Lovin' Feeling' and the original version of 'Every Time You Go Away'. The LP? A degree warmer and more intimate. **KK**

Sound Quality: 91%



LYN STANLEY

Potions – From the 50's

A T Music LLC 3103 (two 45rpm LPs; 180g vinyl)

Also reviewed last May was Lyn Stanley's debut, justifiably an instant hit with audiophiles as Ms Stanley knew to tick all the right boxes – from heavy vinyl to mastering by Bernie Grundman. And if it ain't broke... Her new release, on two 45rpm discs, again mastered by Grundman, contains 15 tracks; the last – 'The Man I Love' – is a poignant ode to her mentor, the late Paul T Smith. Stanley's tastes are broad enough to include, amidst the standards, a few rockers like 'I'm Walkin'' and 'Love Potion No 9', but the set belongs to 'Misty', 'Cry Me A River' and others of that calibre. For those who couldn't get enough of *Lost In Romance*, the wait was worth it. **KK**

Sound Quality: 90%



VARIOUS ARTISTS

King Strings

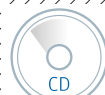
Sundazed LP5490 (mono; 180g vinyl)

Subtitled 'King-Federal-Deluxe Guitar Grooves, 1949-1962', you know instantly that this is culled from great blues labels of the post-war years. Compiled by Grammy-winner Colin Escott, it contains 16 instrumentals in pristine mono and is perfectly described as 'the historic various artists collection that should have been issued circa 1962'. Prescient funk and soul intersperses with vintage-feel blues and R&B, from giants including Freddy King, Albert King, Johnny 'Guitar' Watson, Johnny Otis, Bill Doggett, John Lee Hooker, et al. I suspect it's the kind of LP that will reward hip newbies who simply love vinyl as much as do audiophiles. The sleeve is a hoot. **KK**

Sound Quality: 89%



AUDIOPHILE: DIGITAL



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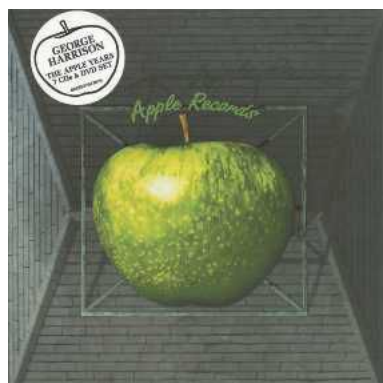
FOREIGNER

4

Mobile Fidelity UDSACD 2053 (stereo SACD)

Whatever bile was reserved for stadium rockers back in the day – like the hatred punks fostered for anything musical, but based more on anti-American xenophobia – big hair/big sound can be criticised three decades on for samey-ness but not for showmanship. This stuff is huge: blood-vessel-bursting vocals, majestic sound. The massive hit on this 1981 release – ‘Waiting For A Girl Like You’ – remains an exemplar of the giant ballad. The irony is that stadium rock, which British rock critics hated for its *Wayne’s World*-ish air-guitarness, was mastered by half-Anglo bands like this and who did more to help the balance of payments than any punks ever did. *KK*

Sound Quality: 88%



GEORGE HARRISON

The Apple Years 1968-75

Apple 0602537913879 (seven CDs + DVD)

A perfect companion to the earlier box set filled with his post-Apple work, this contains the ex-Beatle’s first half-dozen solos: *Wonderwall Music*, *Electronic Sound*, the two-disc *All Things Must Pass*, *Living In The Material World*, *Dark Horse* and *Extra Texture (Read All About It)* plus a DVD with assorted music videos and bonus features. Listening to them again reveals that the first two albums – both ‘experimental’ – weren’t as unlistenable as one recalls, while the rest rank among the best post-Beatle solos. Sets like this satisfy completists while delivering a sense of closure (until, that is, more outtakes are unearthed). Gorgeous music throughout. *KK*

Sound Quality: 88%



PAUL MCCARTNEY & WINGS

Wings At The Speed Of Sound

Concord 88072 35673 (book, two CDs + DVD)

Macca’s umpteenth reissue programme continues with this 1976 release, arguably during his most twee period. OK, so its banal hits ‘Let ‘Em In’ and ‘Silly Love Songs’ aren’t quite the drivel of the following year’s ‘Mull Of Kintyre’, but hearing this – and its companion, *Venus And Mars* [88072 35653] in the same deluxe, costly multi-disc format – alongside the Harrison box makes you realise how even true musical giants can have their bad days. Or years. Still, there are moments of Beatle-y brilliance, and as a package, it’s quite impressive. There are more sets like this to come, so warm up your credit cards. Or just buy the 2CD set for £15 instead of £60. *KK*

Sound Quality: 85%



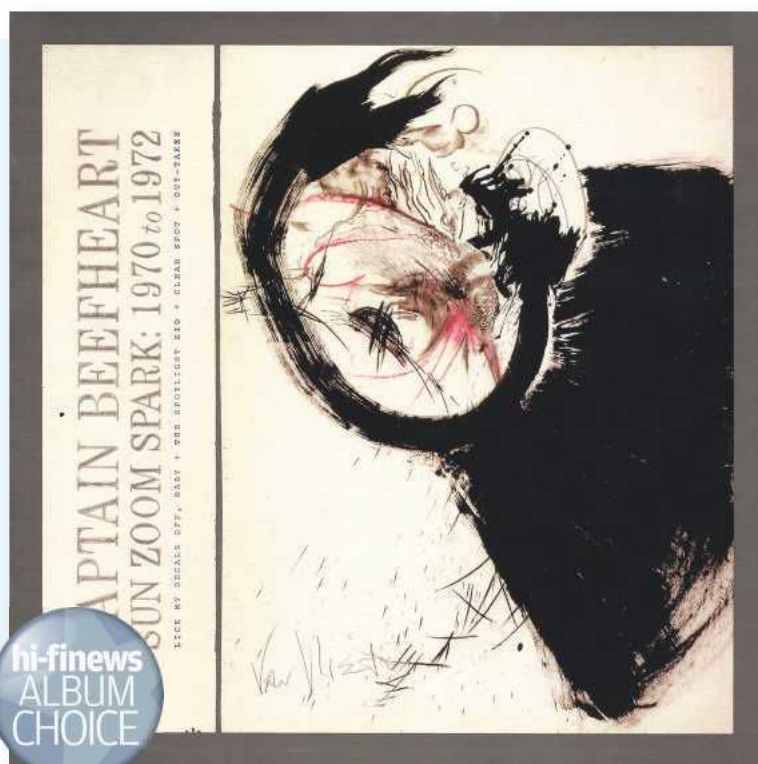
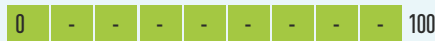
CAPTAIN BEEFHEART

Sun Zoom Spark 1970 to 1972

Rhino R2 541728 (four discs)

No-one can argue that Don Van Vliet, aka Captain Beefheart, is best-remembered for the absurdly over-rated *Trout Mask Replica*, but his catalogue included other treasures for the experimentally-minded. The trio in this box – *Lick My Decals Off, Baby*; *The Spotlight Kid* and *Clear Spot* – followed *Trout Mask Replica* and proved more digestible, though barely more commercial. For those unfamiliar with his oeuvre, he blended rock, blues, psychedelia and (for lack of a better term) avant-garde jazz, performed with his Magic Band, his growly voice in between Dr John and Klaus Nomi. Nothing here to convert the unconvinced, but for those enamoured of him, the box is stunning and the bonus CD full of surprises. *KK*

Sound Quality: 89%



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ALBUM
CHOICE



PASCAL MAILLOUX

Rain (176.4kHz/24-bit; FLAC & DSD64)

www.hiresaudio.com; Fidelio FACD046

There's little musical innovation to savour in this collection of piano compositions from Canadian pianist Pascal Mailloux, whose career has been writing music for films, TV shows and commercials, and collaborating with Montreal-born singer Marjolène Morin (aka Marjo) over the years. Still, he does conjure up some delightful melodies, and the performances by his accompanists are polished throughout. I've found myself returning to 'Morning Mist' for its intriguing chord progression and Dave Gilmour-esque slide guitar break. And 'October Sky' is another infectious track. But given that *Rain* was recorded in ultra-hi-res 'DXD' (a marketing/brand name for 352.8kHz sampling rate PCM at a bit-depth of 24- or 32-bits and commonly used when mixing/editing DSD recordings) – the sound isn't as spectacular as one might wish for. It's a little 'safe' and lacking in sparkle. *JB*

Sound Quality: 80%



VIVALDI

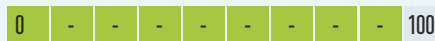
Concertos for two violins and strings, RV508-510, 515, 517, 523; Riccardo Minasi and Dmitry Sinkovsky/Il Pomo d'Oro (96kHz/24-bit; FLAC)

www.hiresaudio.com; Naïve OP30550

This is the third programme by Il Pomo d'Oro (founded in 2012, the group takes its name from a ten-hour 17th-century opera written by Antonio Cesti) in Naïve's ambitious plan to record all of the Vivaldi works lodged in the Turin library. You'll need to do some internet searching to find what exactly you are listening to here, as only the cover comes with this download. The six concertos vary in mood and inventiveness, with

some fugal writing in the G-minor, RV517(i), birdsong and concluding 'percussive' effects in the opening track of the A-minor, RV523(i). The C-minor RV509 is quite a sombrely sustained work and it contrasts with the lively E-flat, RV515, with its echoing phrases. Crisp, buoyant string playing with the soloists nicely separated laterally but not set unnaturally forward. *CB*

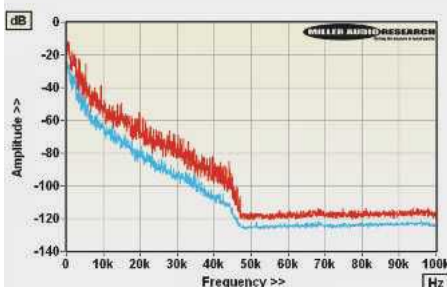
Sound Quality: 85%



OUR PROMISE

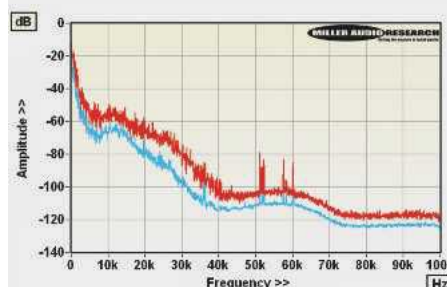
Following our Investigation feature [*HFN*, Jun '11] where we examined the claimed quality of high-resolution downloads, *Hi-Fi News & Record Review* is now measuring the true sample rate and bit-depth of the HD music downloads reviewed on these pages. These unique reviews will be a regular source of information for those seeking new and re-mastered recordings offered at high sample rates and with the promise of delivering the very best sound quality. (Note: asterisk in headings denotes technical reservation explained below.) *PM*

LAB REPORT



This appears to be a straightforward enough 96kHz recording/download offering a good dynamic range. The >40kHz bandwidth is well used by the extended harmonic range of higher strings and 'percussive' effects. *PM*

LAB REPORT



Fidelio's X2HD is a 352.8kHz/32-bit DXD recording process conceived to 'get rid of most computer processes and external hash'. Judging by the spurious ultrasonic tones in this 176.4kHz downsample, it's not been 100% successful. *PM*



COMPACT DISC



SUPRAAUDIO



DVD



BLU-RAY



VINYL



DOWNLOAD



SCRIABIN

Piano Sonatas; Anna Malikova (96kHz/24-bit; FLAC)

www.hiresaudio.com; Acousence Classics ACO-12214

The Moscow composer-pianist Alexander Scriabin wrote his first five piano sonatas between 1893 and 1907; the other five date from 1911-13 (Nos 5-10 are in single-movt form). They show a development from a Chopin-influenced style – eg, ‘Funèbre’ in Sonata 1 – to one where ‘the tonic became distantly perspectived... existing only in the imagination’. Some have associated texts or sub-texts. Also Moscow trained, Anna Malikova made her recordings in a German studio in Feb/March of 2012, ’13 and ’14, playing a Shigeru Kawai pianoforte – then a newly launched model. She’s obviously committed to this music, a thoughtful player who doesn’t use any of it as a ‘showpiece’ (contrast Daniil Trifonov in his Carnegie Hall Sonata 2 on DG). The question is: will the listener unfamiliar with these sonatas be persuaded that it’s more than Rachmaninov without the tunes? *CB*

Sound Quality: 75%



SONS OF KEMET

Burn (96kHz/24-bit; WAV, ALAC, FLAC)*

www.naimlabel.com; Naim CD195

Burn is the 2013 debut album from the winners of a MOBO award last year. Sons Of Kemet are a London-based band famed for rattling the rafters with boisterous and eclectic jazz-with-a-twist. Fronted by 29-year-old Shabaka Hutchings (reeds) who spent most of his childhood in Barbados, the band comprises Oren Marshall (tuba) and two drummers: Seb Rochford and Tom Skinner. That’s it. Bass lines are provided by the parping tuba of Marshall, the twin drummers thumping out variously riotous and mesmerising poly-rhythmic beats to underpin Hutchings’ joyously sculpted musical meanderings. (*LondonJazz News* aptly described it a ‘galumphing sound’.) The band has infectious verve and delivers a rollercoaster of adrenaline-fuelled fun. Unfortunately, the album appears to have been mastered with everything turned up to 11, so it’s far from easy listening. *JB*

Sound Quality: 65%



JEROME SABBAGH

The Turn (96kHz/24-bit; FLAC)

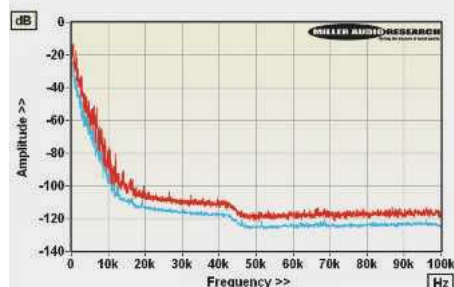
www.hiresaudio.com; Bee Jazz BEE 064

Born in Paris, saxophonist and composer Jérôme Sabbagh moved to the US in 1993 to further his musical studies at Berklee, and has since become much admired on the New York jazz scene for his inventive and lyrical style. *The Turn* sees him partnered with longstanding accompanists Ben Monder (guitar), Joe Martin (bass) and Ted Poor (drums) in ‘live take’ performances of seven new compositions, plus a tribute cover of ‘Once Around The Park’ written by jazz drummer Paul Motian, recorded in Manhattan’s Sear Sound studio. It’s a mellow-sounding analogue recording, a little soft around the edges but nicely balanced with a natural image perspective. From the riffy jazz-rock feeling of ‘Banshee’ to the more free-form experimentalism of ‘Cult’, this set shows increasing maturity from an accomplished quartet that refuses to rest on previous musical laurels. *JB*

Sound Quality: 80%

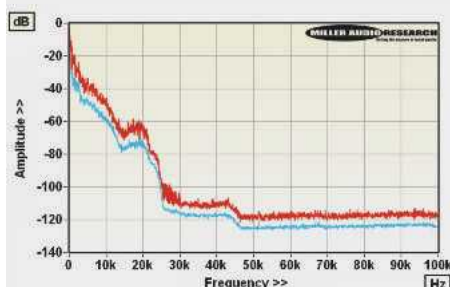


LAB REPORT



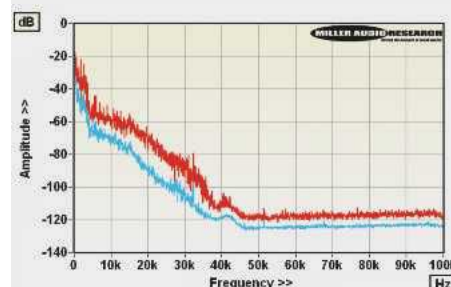
A genuine 96kHz rendering but one – as we’ve seen with solo piano in the past – where the >40kHz available bandwidth is utilised more by ‘ambience’ than musical harmonics that rarely exceed 15kHz [*Prestissimo volando*, graphed above]. PM

LAB REPORT



Not unlike Max Raptor’s *Mother’s Ruin* (another 96kHz offering from the Naim stable) this download contains mixed sample-rate content, most obvious in tracks 5 and 6 [see Graph above]. Strictly, this is not a native 96kHz file. PM

LAB REPORT



Recorded live to two-track analogue tape and subsequently sampled at 96kHz, the bandwidth and dynamic range of this file is limited more by the former than the latter. It’s an ‘honest’ recording, but note the spurious 32kHz tone. PM



COMPACT DISC



SUPERAUDIO



DVD



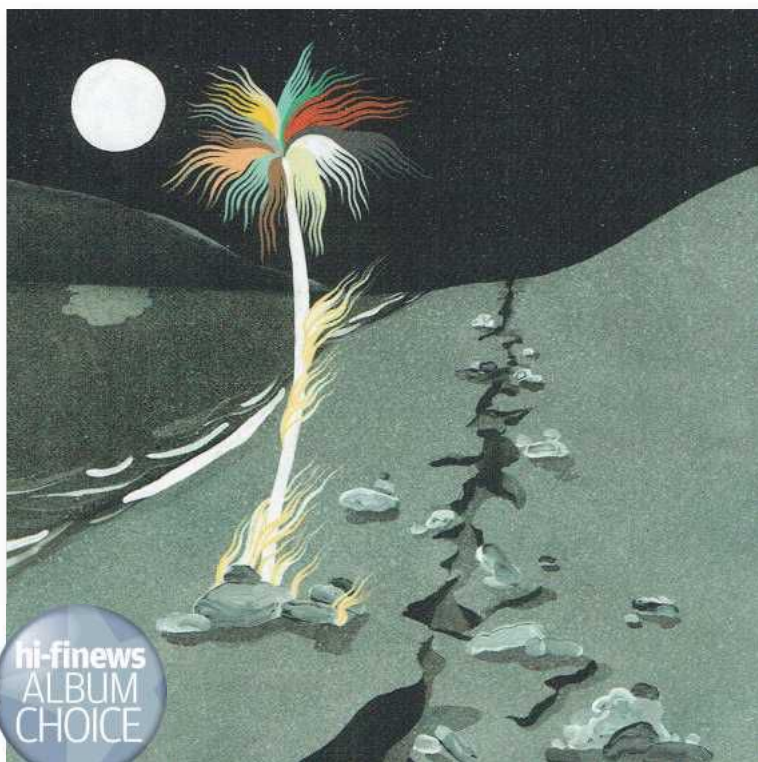
BLU-RAY



VINYL



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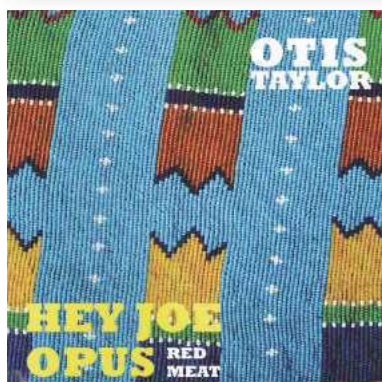
NRVS LVRS

The Golden West

Hz Castle 888295195782

This excellent San Francisco quartet have pulled off a rare achievement by managing to incorporate deep socio-political lyrics into what sounds, at first listen, like lightweight electro-pop. As you bop around your front room to the jangly pop candy of 'Black Diamonds', you'd never know that you're knee deep in an album about cultural decay, economic problems and the housing market on California's golden coast. Occupying a musical niche somewhere between St Etienne and Broken Social Scene, this four-piece only came together a year ago, but they already sound like they could attract a major cult following if they can get a video into high rotation, or if they're as compelling live as their studio recordings suggest. *JBk*

Sound Quality: 90%



OTIS TAYLOR

Hey Joe Opus

Inakustik Records INAK9136CD

It's only natural to wonder whether the world really needs another version of 'Hey Joe' (let alone the two Taylor offers here) but moments into his first version, when the violin and trumpet improvis begin to snake around Taylor's impassioned guitar lines, the answer is clearly 'yes'. This is probably the most imaginative blues album any of us will hear this year, with Taylor in exemplary form on electric and acoustic instruments, delivering thoughtful, passionate songs and a couple of tasty instrumental showcases. Guests including Langhorn Slim (banjo/piano) and Warren Haynes (guitar) pep things up still more, but this would be a fabulous album even without them. *JBk*

Sound Quality: 90%



ADAMSKI

Revolt

Future Waltz Recordings FW025 (two discs)

Those who lost track of Adamski round about the turn of the century should be delighted to find that he's back in contention, having become fascinated by the potential of waltz rhythms through his frequent visits to Venezuela. For *Revolt*, he's integrated waltz tempos into his pioneering EDM soundscapes, for a bunch of varied collaborations with the likes of Lee 'Scratch' Perry, David McAlmont, Congo Natty, Asia Argento, Bishi and Rowdy SS. An easy intro to the vibe is the neat, heavily sampled cover of The Stranglers' 'Golden Brown' by Shanki, but there's so many more creative goodies on this 20-track box set that it's safe to say Adamski is back on top form. *JBk*

Sound Quality: 88%



SONNYMOON

The Courage Of Present Times

Glow Records GLO370

For a duo that started releasing music well over five years ago, Boston's Sunnymoon have lost none of their adventurous spirit so, if you're looking for something clearly rooted in electronic-pop-dance but with a challenging experimental edge, there's nothing much else out there to rival producer/musician Dane Orr and singer Anna Wise. They offer sublimely lovely melodies set in minimalist electro soundscapes which are somehow as profoundly unsettling as they are beautiful. There's nary a potential pop hit to be heard, but if they ever decide to aim for the charts they'd be a huge force for the good and, if your brain needs a workout, start here. *JBk*

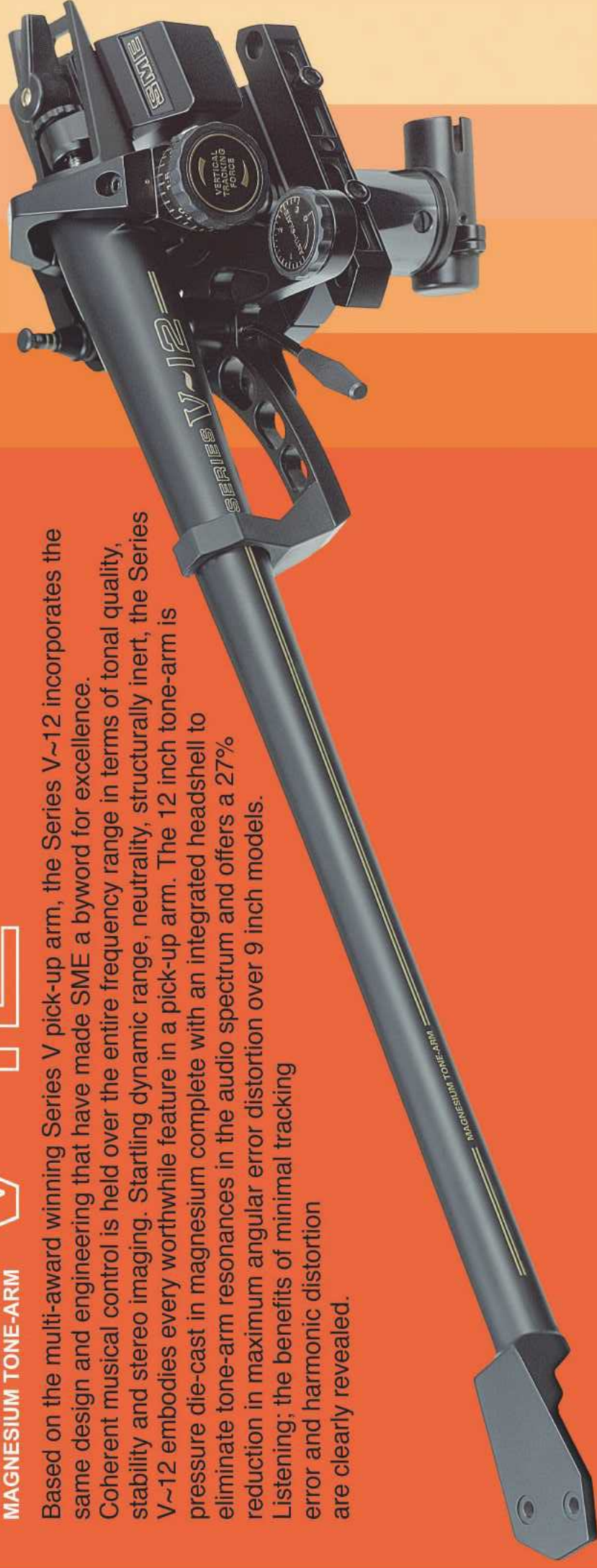
Sound Quality: 86%



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JAZZ IN POLISH CINEMA

Out Of The Underground 1958-1967

Jazz On Film Records JF002 (four discs)

After the 'thaw' of 1956, young Polish filmmakers dared to use the music of pioneer jazz pianist/composers Krzysztof Komeda and Andrzej Trzaskowski, and the results are captured in this superbly-presented box. For *Night Train* (1959), Trzaskowski adapted Artie Shaw's 'Moonray' as an unforgettable vocal theme for Wanda Warska. With a band including a youthful Tomasz Stanko, Komeda produced some exciting hard-bop-styled tracks for *Innocent Sorcerers* (1960), and the story ends with his music for *Le Départ* (1967), recorded in Paris with musicians including Stanko, Don Cherry, Gato Barbieri, Eddy Louiss and Christine Legrand. Unmissable. *SH*

Sound Quality: 90%



HORACE SILVER QUINTET

June 1977

Promising Music 441212CD

From the archives of Radio Bremen, an open-air concert in the city's marketplace, where Silver's quintet plunged into some of his favourite originals with gusto. Larry Schneider is gruffly authoritative on tenor, Tom Harrell warmly articulate on trumpet. Naturally the set ends with 'Song For My Father', but an unexpected *tour de force* is the driving 'In Pursuit Of The 27th Man', with Chip Jackson's urgent electric bass and a great drum solo from Eddie Gladden. Inevitably, the balance isn't what you'd get from a studio recording, with a rather thin piano sound, but the stereo picture is true to life and really captures what must have been a great afternoon. *SH*

Sound Quality: 85%



NELS CLINE AND JULIAN LAGE

Room

Mack Avenue MAC 1091

Guitar virtuoso Nels Cline started his career in jazz long before joining the Chicago rock band Wilco in 2004, later unleashing his wildest electric sounds with his own group, The Nels Cline Singers. He's duetted notably with Bill Frisell, but around two years ago he teamed up with young jazz guitar star Julian Lage in a collaboration that led to this album. With Lage, Cline leaves behind his effects and loops, and what you hear is just two guitars, sometimes weaving their way through Cline's intricate compositions, at other times improvising freely. There are many references to earlier jazz styles, but these two are clearly creating a new world of their own. *SH*

Sound Quality: 85%



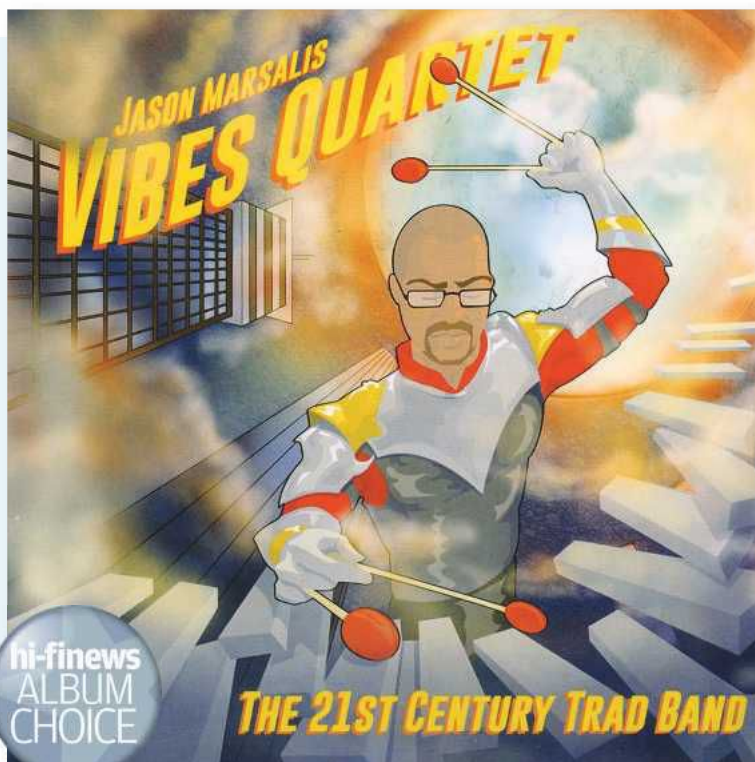
JASON MARSALIS VIBES QUARTET

The 21st Century Trad Band

Basin Street Records BSR 0304-2

When Jason followed elder brothers Branford and Wynton into music he started out on violin, quickly moving on to drums and joining father Ellis's band at a tender age before becoming a master of the vibraphone. This second album from his Vibes Qt follows 2013's *In A World Of Mallets* and on the opening 'Discipline Meets The Offbeat One' he overdubs brilliantly on almost every mallet-based instrument from marimba to tubular bells. Elsewhere, this virtuosic quartet plays as one through the most exhilarating rhythmic twists and turns. From the title track, with its updated marching beat and playful poke at 'The Saints', to the pure lyricism of 'Calm Before The Storm', this album grabs your attention and won't let go. *SH*

Sound Quality: 90%



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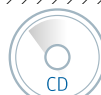
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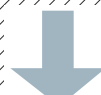
DVD



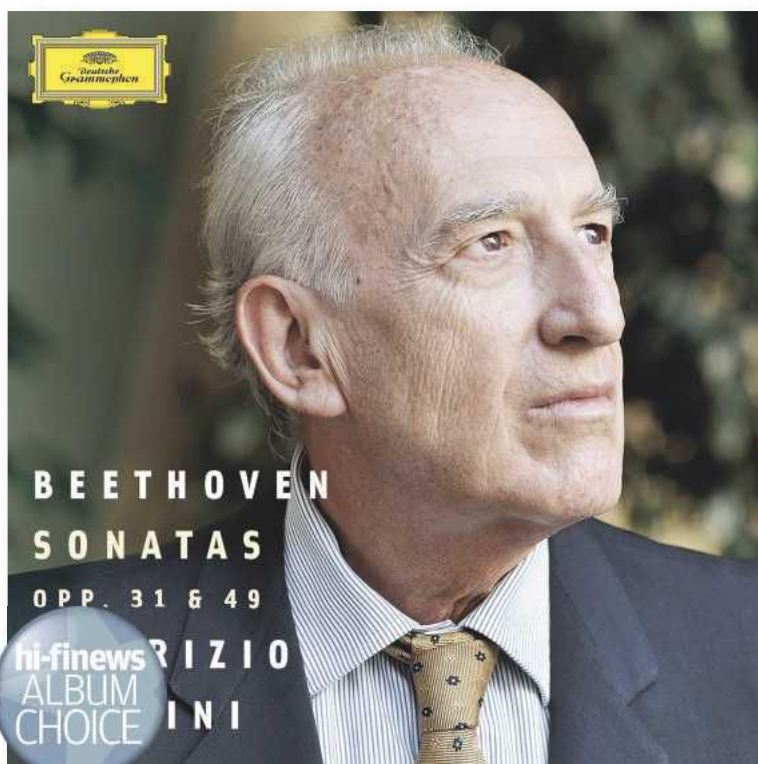
BLU-RAY



VINYL



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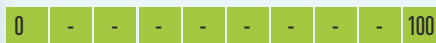
BEETHOVEN

Piano Sonatas Op.31 and Op.49
Maurizio Pollini

DG 479 4325

Had DG reversed the order of the two Op.49 sonatas ('Sonates faciles') you could say that Pollini's cycle has ended with a whimper (*piano*) rather than a bang (*ff*). He began recording these works in 1976 with Nos 29-32, completing the set with the three Op.31 here – not as light or witty as Kempff in the elaborated slow movement of the G major, but beautifully set out nonetheless, and quite outstanding in the D-minor, the 'Tempest'. As I suggested in last month's Classical Companion, Pollini finds humour in the two Op.49, but what is most impressive is the way he makes you aware of how *audacious* Beethoven was in his writing of the three middle-period works. Wonderful! **CB**

Sound Quality: 95%



BEETHOVEN

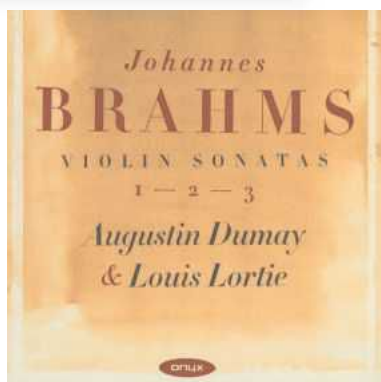
Missa Solemnis

Helen Donath, Doris Soffel, Siegfried Jerusalem, Hans Sotin, LPO & Edinburgh Festival Chorus/Sir Georg Solti

LPO-0077 (44.1kHz/16-bit download at theclassicalshop.net)

Talking about his first Chicago cycle of the Beethoven symphonies (1976), Sir Georg Solti implied that his was the golden mean between the extremes of Toscanini and Furtwängler. But he seems to stand in respectful humility before this great Mass. Sourced from BBC tapes, the *Missa Solemnis* was recorded at a 1982 Prom. Timings are shorter in the last three movements than in his 1977 Decca set, even so the *Sanctus* seems to meander – although Solti makes up for that in an impressively paced *Agnus Dei*. The soloists are good, but the choruses are the real strength of this version. **CB**

Sound Quality: 70%



BRAHMS

Violin Sonatas 1-3; FAE Scherzo
Augustin Dumay/Louis Lortie

Onyx ONYX 4133

Given the superlative reviews for Dumay's 1991 DG recordings of the Brahms sonatas with Maria Pires, it's perhaps surprising to see he has recorded them again. Here he's not only exchanged his partner but his violin: the Strad replaced by a Guarneri which, says Dumay, recalls 'the voice of Kathleen Ferrier in Brahms's *Alto Rhapsody*'. The problem is that he is set far too forward of the excellent Lortie, so we hear intakes of breath, his treble becomes aggressive in *fortes* and the balance is simply awry for these three duo sonatas. Dumay is also somewhat fulsome in his phrasing (compared, say, with Kavakos on Decca). **CB**

Sound Quality: 65%



LA BELLE EXCENTRIQUE

Patricia Petibon, Susan Manoff, et al

DG 479 2465

A whiff of *La Marseillaise* gives way to accordion, setting the scene for this collection of songs and instrumental interludes which will be irresistible to anyone who loves the sound of the French language, its humour (*M Hulot's Holiday*) and drama (*Jules et Jim*). Petibon sings simply or outrageously over the top as the material demands: by Satie, Hahn, Fauré, Poulenc, Manuel Rosenthal and Léo Ferré. One or two songs have silvery percussion or drums in the accompaniments. So there's constant variety, a certain amount of pathos and plenty of high jinks. Is she a modern-day Piaf? Well, she's never grating, and there's far more light in the voice. **CB**

Sound Quality: 85%



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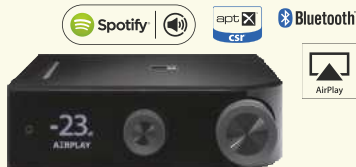
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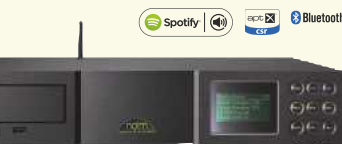
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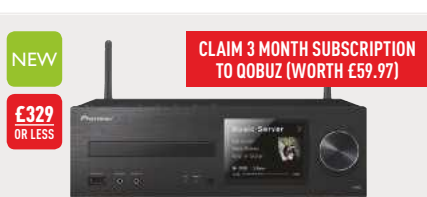
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Paul Miller Editor

Technician and writer on all things audio for some 30 years, Paul Miller took over the editor's chair in 2006. He invented the QC Suite, used across the audio industry

Going green?

To meet Europe-wide targets for emissions and energy consumption, the EU Commission has been looking at 'Ecodesign' requirements. **Paul Miller** wonders if high-end hi-fi will escape notice

This issue of *Hi-Fi News* carries reviews of two amplifiers whose mission is identical – to deliver music, via a pair of loudspeakers, with the utmost fidelity – but whose approach couldn't be further apart. I speak, of course, of the Ming Da Dynasty Cantabile [p30] and Benchmark AHB2 [p50]: the latter an exemplar of cool-running, high efficiency solid-state electronics; the former inefficient, incandescently hot, massively heavy – in short, an anachronism. Thing is, we love these amps, hot and wasteful as they are. But in all probability the EU legislators responsible for driving down energy consumption won't share our passion...

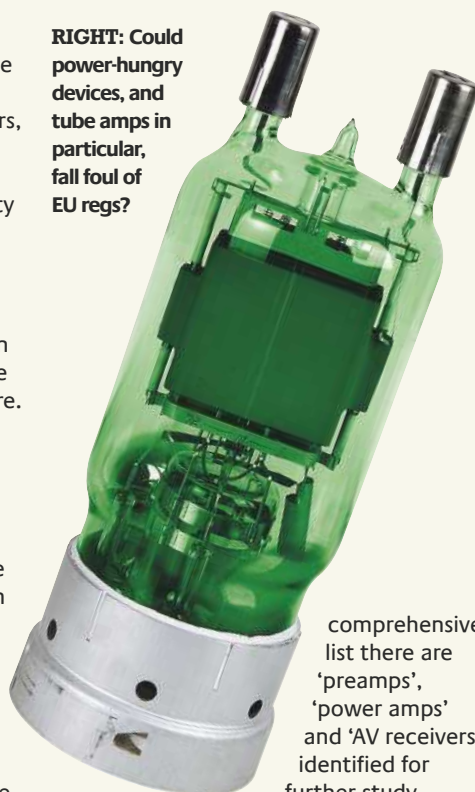
ECODESIGN DIRECTIVE

Back in 2009 an EU Ecodesign Directive was drafted with the eventual intention of providing 'consistent EU-wide rules for improving the environmental performance of energy related products (ERPs)'. It went on, 'By 2020, the first Ecodesign Regulations on 13 product groups are projected to allow energy savings equivalent to more than 12% of the electricity consumption of the EU in 2009'.

It's my understanding that these regulations will form part of the CE compliance – and any product not displaying the CE mark cannot be sold in an EU country. This is not just about standby consumption, which was <1W from Jan 2010 and decreased further to <0.5W (or <1W if the product has an 'information display') in 2013. This directive also covers the energy consumption *during* operation.

How does this affect us? Well, of the various product groups identified there's one called 'Sound and Imaging Equipment' and within this

RIGHT: Could power-hungry devices, and tube amps in particular, fall foul of EU regs?



comprehensive list there are 'preamps', 'power amps' and 'AV receivers' identified for further study.

Fortunately for our niche industry, the first product groups prioritised by the Commission had to meet a sales volume of more than 200,000 units a year within the EU.

A Preparatory Study was published in 2010. First in the firing line were video (DVD and BD) players and recorders (set-top boxes), projectors (as distinct from TVs) and games consoles. The

total electricity consumption for these multimedia products was calculated at 8.6TWh or equivalent to slightly less than the total electricity consumption of Lithuania, and equivalent to about 0.3% of the total electricity consumed in the EU throughout 2012.

'This directive also covers energy consumption during operation'

On this basis, the suggested consumption limits for individual DVD/BD players/set-top boxes was 15W in HD mode and 20W/30W in Live Pause (SD/HD modes). HD Live Pause was tightened to 25W in 2014. As comparable devices in the same 'Sound and Imaging Equipment' category include CD/SACD players, it begs the question whether any consideration might be given to allow high-end AV devices a slightly higher power consumption in order that they might deliver improved audio performance.

POWERLESS AMPLIFIERS

I think we all know the answer to this and, ultimately, I don't think performance will be an issue. Instead it'll be the collective impact of all power-sucking hi-fi separates that determines whether entire segments (such as power amplifiers) are clobbered with the same heavy-handed legislative fist.

I've had an eye on this EU study since 2009 when various NGOs were putting pressure on the EU Commission to set the energy limits as low as possible. It was even mooted that the *operational* power consumption of audio amplifiers be limited to 20-25W. That would spell the end of high-end audio as we know it.

In our tests this month, each mono Ming Da sucked 390W from the wall without raising a musical note. Even the lean Benchmark AHB2 drew 19W at idle, increasing to 305W at its rated 2x100W/8ohm output. In practice, the most efficient Class D amplifier would not raise more than 22-23W of audio from 25W of juice – and that's in mono mode!

Interestingly, an Impact Assessment Study published in 2013 recommended self-regulation as the preferred choice for games consoles as 'the variability in functionality and power demands through iterations of each model of a game console needs to be considered'. So I reckon there's hope for the beleaguered audio industry yet. ☺

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Audio Note Lounge



Barry Fox Technology journalist

Barry Fox trained in electronics with the RAF and worked as a patent agent, but he gave that up to enter journalism. He is one of the world's top technology writers

Master of reality

Meridian has launched a new encoding and lossless music format it hopes will 'change the way people enjoy music all over the world'. It's clever technology, says **Barry Fox**, but will it fly?

For 30 years sound quality has gone downhill – with streaming it has hit a new low point. I can't think of any other industry where quality has gone downhill.'

The words are those of Bob Stuart of Meridian when launching the new MQA (Master Quality Authenticated) coding system. On the face of things, MQA looks like the right solution at the right time. There is a growing market for better quality content – and a clear need to handle large hi-res files more efficiently.

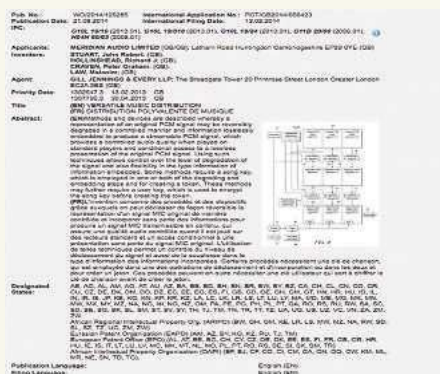
Officially released details of MQA technology remain sketchy. But patents filed by Meridian and British digital specialist company Algol, read like the manual for an MQA toolkit.

BURYING DATA

One patent (WO 2014/125285) filed in early 2013, describes 'Versatile Music Distribution' and tells how a PCM signal can be reversibly degraded, with an audio watermark buried in the signal which describes the degradation. A digital 'song key' is also buried which a modified player can use to reverse the degradation – but only when the user has paid for a 'user key' which mates with the song key.

One suggested way to degrade the music is to add modulation noise, similar to analogue tape hiss. One way to embed a watermark is to use a system for burying data in a PCM stream separately developed by Peter Craven and Malcolm Law (WO 2013/061062).

The patent WO 2014/108677, which was filed in January 2013, reminds that the higher the frequency at which an audio signal is sampled for digital conversion, the better the audio will sound. The signal must be brick-walled



ABOVE: Meridian patent WO 2014/125285 for the reversible degradation of a PCM signal

at around half the sampling frequency to avoid 'aliasing'. But higher sampling rates mean huge files, which makes 'the prospects for interesting the public at large in high resolution sound appear bleak'.

So Meridian relies on 'observed characteristics of the human ear rather than on conventional communications theory'. This involves very heavy

attenuation (by at least 32dB) of any aliasing frequencies in the 0-7kHz range 'where the ear is most sensitive'.

Another trick is to convert the original analogue signal to digital code at a

high rate, 176.4kHz, 192kHz, 352.8kHz or 384kHz, and then reduce the file size by down-converting for transmission at a lower rate that is an exact sub-multiple.

Patent WO 2013/186561, filed June 2012 for 'Doubly compatible lossless audio bandwidth extension', reminds that although most music downloads and streams are heavily and lossily compressed, eg, by MP3, the computers or players used to play them can also handle large files of uncompressed PCM, at the CD rate of 44.1kHz or 'professional' 48kHz, with bit

depths of 16-bits and sometimes 24-bits. So a 24-bit PCM signal is split into two parts, one 'more significant' made up from a 16-bit music signal, and the other an 8-bit 'less significant' data signal.

A standard 'legacy' PCM player plays the top 16 bits from the 'most significant' parts of the signal to give a lossy signal with bandwidth of 20kHz. A new generation decoder also uses the extra eight bits and higher sampling rate to generate a lossless replica of the original signal with 40kHz bandwidth.

SO, WILL MQA FLY?

Online stores like HDtracks and Linn do a fine job but are boutiques compared to Apple, Google, Spotify and Amazon. The music companies have never liked the way Apple got a stranglehold with iTunes and its proprietary Fairplay DRM system. How will they all feel about relying on a software system from hardware manufacturer Meridian? Will Apple use MQA if others can? Would Meridian licence MQA exclusively to Apple?

And we have seen it all before when other clever audio technologies have been offered to the music industry. They want a standard. But only if it is their standard. So a format war results.

The MQA launch had been delayed a month, perhaps in the hope of having a major signing to announce. But all we got was the promise of 'announcements at CES' and an executive from Warner who duly said he was 'excited' – but not sufficiently excited to announce a corporate commitment to MQA. Even Dolby, which administers the MLP licenses, remains uncommitted.

MQA is a clever technology and people who have been given confidential access to more demos than we heard at the official launch, including at CES, affirm that it works. If MQA fails to drag online delivery into the hi-fi age it won't be the technology to blame. It will be the same old music industry politics. ☹



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Barry Willis

Journalist for top American audio-video publications

While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

A century of progress

Even the most die-hard vintage collector would think long and hard before adding a gramophone to their collection but, says **Barry Willis**, they serve as a reminder as to how far we have come...

Over decades of poking about at flea markets, estate sales, thrift stores and antique markets, I've seen many hand-cranked record players from the early years of the 20th century. Many of us have. Typically they are huge heavy consoles from the 1920s, with dark ornate woodwork and big brass horns. I have even seen a Thorens Excelda portable gramophone from the early 1930s, that folds up into a small case. German soldiers took it into the field.

But until perusing a local antiques fair in mid-December last year, I had never seen a Columbia AU, a stripped-down record player without any cabinetry at all. Ryan Harper, a young antiques dealer specialising in jewellery and vintage audio gear, had one on display – all original save a new crank, green felt mat, and rebuilt 'reproducer' mechanism.

SPRING-DRIVEN THING

Made in 1904, the AU features a straight brass horn with flat-black paint, mounted to a long arm with a low-friction pivot bearing. The drive mechanics are derived from well-established watch and clock technologies that predated the first audio playback machines: a wound spring supplying force to a spinning platter, ingeniously maintaining a constant speed as the spring loses energy. The whole acoustical-mechanical affair is deceptively lightweight – no more than a few pounds.

It's simple to operate and easy to move, an oddity from a period when manufacturers seemed to use a maximum amount of steel, iron, and wood in every commodity. When new, it sold for \$11, and probably came with a carrying case, which Harper didn't have.



ABOVE: Antiques dealer Ryan Harper with his re-built Columbia AU gramophone from 1904



He did have a small collection of steel needles and eagerly installed a fresh one to demo the only record he had on hand – a 7in Columbia 78rpm from 1901 of a tenor solo of Moret's 'Hiawatha'. The record's hazy surface was testament that it had been played many times beyond its useful lifespan – but a faint, tuneful voice was there, like someone in the distance singing downwind on a noisy beach.

Certain notes leaped out of the horn with startling force, an artefact of its resonant frequency, while others were almost suppressed. This favouring of some frequencies gives horns their characteristic honking quality. The

fidelity was incredibly low quality.

Harper had with him a small digital scale that he used for weighing out silver and gold. At my urging we used it to measure the tracking weight of the combined arm/horn assembly: 169g! This is more than 100 times the typically tracking weight of a modern arm and cartridge, and certainly the cause of premature failure of the delicate shellac discs.

Harper said connoisseurs used bamboo needles to minimize record wear, but he didn't have any with him. Pine needles were also tried in such machines, but disc wear must have been a serious issue – one that benefited Columbia, to this day a major record label.

The company's 7in disc was soon eclipsed by the larger industry-standard 10in. The AU will handle larger discs, of course – the long arm swings freely throughout a full circle – but the player is optimised for smaller ones.

A GOOD REASON

Any hi-fi show, or hi-fi enthusiast, would benefit from having one of these machines on hand simply to demonstrate how far we've come in little over a century. *HFN* reviews vintage gear reaching back to the 1960s, but not that from the first half of the last century.

That's for good reason: most of it doesn't sound very good, and very few of us would want to listen to it for more than a couple of minutes. Still, the amazing fact is that it works at all.

Harper's Columbia AU, by the way, is available for sale at \$750. I suggested a trade for some more recent stuff, but he wasn't interested. ☺

'A faint voice was there, like someone singing downwind on a noisy beach'



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Signal



Jim Lesurf Science Journalist

Jim Lesurf has spent a lifetime in audio, both as an engineer at UK hi-fi company Armstrong and reader in Physics and Electronics at St Andrew's University

String theory

After buying his first HDTV, **Jim Lesurf** is left stroking his beard as he ponders the reasons why an inexpensive HDMI cable fails to work with the new set, yet solves a problem with his PC

When I first began learning about digital systems and techniques, it was common for people to think that 'bits is bits'. They were assuming that information in digital form was immune from all harm. Fortunately, my practical introduction to the subject meant I had to design, build, and test digital control and data systems long before CDs appeared. This gave me a healthy understanding that when it came to the real world, 'digital' signals are simply a way of making use of varying voltages or currents, which keep a firm grip on behaviours which in other contexts we'd call 'analogue'! In short, the precise shapes, levels, and timings of the details of waveforms matter.

A CHEAP LEAD

Despite this, I'd remained sceptical of claims that decently made HDMI digital cables could have much effect on digital video. However, recent experience has given me something new to think about. A few days ago I finally took the plunge and bought an HDTV. Since video isn't my main interest, for years I'd soldiered on with an ancient widescreen analogue CRT set, fed via analogue SCART leads from a Freeview set-top box and DVD recorder.

The new TV has HDMI sockets, so I bought a £5 HDMI lead from a local computer shop and used this instead. However, no matter how I delved through the settings menus of both the TV and recorder, the TV refused to notice automatically the recorder when it started to play. Yet the handbooks for the TV and recorder both said this should happen.

Finally I started to wonder if something was wrong with the cheap

RIGHT: Several versions of the HDMI standard have evolved since v1.0 appeared in 2002, with three common connector types now employed. The latest HDMI feature set includes 3D, Ethernet and Consumer Electronics Control (CEC) extensions



HDMI lead. In particular, maybe it wasn't what is called 'fully populated', *ie*, not all the pins on the two plugs were connected end-to-end with a wire.

To check, I swapped the cable for one I've been using in a computer system. That done, the TV now detects when the recorder starts to play, and automatically switches to it. So it looks like the cheap HDMI cable was the problem. However, at this point I needed to use the 'bad' cable with the computer because I didn't have a spare to hand.

I did wonder if it would fail to work, but was in for a pleasant surprise. With this particular computer the lead worked better than the one I'd shifted to the TV! In particular, I could now use screen modes that previously didn't work correctly with my computer and its monitor. One mode had given a strange result in the past. Some pixels that should have looked near-black showed up with a bright green tinge. Now, this is a digital transfer of data. On a 'bits is bits' basis, it shouldn't happen.

Having encountered this behaviour I now plan to do some tests to find out more. But my initial guess is that the cause of the 'green tinge' may be due to the way HDMI uses multiple parallel wires to send the torrent of data. Because so many bits per second are needed, it makes sense to use a set of wires to spread the load. But that in turn raises two possible problems.

OUT OF STEP

One is the risk of signal 'leakage' from one wire to another, altering both waveforms. The other is that the wires may not all be exactly the same length electronically. So even if there is no 'crosstalk', bits may arrive out of step.

This may be why you are cautioned to be careful about bending HDMI cables too much. This isn't so much due to the fact that it may make some wires physically longer but because deforming the inner transmission lines affects the speeds with which signals are conveyed. Perhaps by just enough to make black look green once some bits are (mis-) interpreted. For once the question isn't 'how long is a piece of string? but 'are all the pieces of string exactly the same?' ☹

'With digital data transfer – on a "bits is bits" basis, it shouldn't happen'



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Steve Harris Contributing Editor

Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

Zone of neutrality

Computer-aided room-correction is becoming increasingly effective, but there's a more traditional and simpler approach to achieving great sound that costs nothing, as **Steve Harris** reminds us

You might have wondered, reading 'Room For Improvement' [*HFN* Nov '14], why there was no mention of electronic room correction or compensation. The answer is that this is a whole 'nother subject, a vast and thorny subject too.

In home theatre, using five or more speakers, it becomes simply essential to tailor their response to the room conditions, so multichannel AV processors now always include room-compensating set-up systems.

But it was in the late 1990s that room correction first became a hot topic among two-channel audiophiles too. You might have already been enthused by CARA, or Computer Aided Room Acoustics, from Germany [www.cara.de]. CARA software enabled you to model your room's dimensions and materials in CAD and then calculate the ideal position for the speakers.

TARGET RESPONSE

Then came the TacT Audio Room Correction System. After taking comprehensive microphone measurements in the room, the RCS could be set to process the audio so that the result at the listening position complied with a pre-determined target response.

In 2013, Linn launched its Exakt concept, with the slogan 'The source is in the speakers'. As Barry Fox has pointed out [see 'Opinion', Aug '14], Linn likes to do things differently 'and also has enough massed brainpower to justify whatever it is doing differently'. Linn's very powerful Exakt DSP system does have room compensation abilities, but it doesn't apply correction based on microphone measurements. Instead, when it comes

RIGHT: Sounding good anywhere in the room? Linn's Akurate Exakt system provides position-compensation for speakers like the Akudorik seen here



to setting up the system in your listening room, the installer first finds the best position for the speakers by listening, using Linn's well-known TuneDem method (www.linn.co.uk/tunedem): 'How easy is it to sing-along/follow with the melody?'

Next, the installer measures the room dimensions and the speaker positions in relation to the walls and inputs this information into Linn's Konfig system, which will find the room modes and

correct the response accordingly.

After this, the installer can assess the effectiveness of the compensation subjectively, listening to the effect of each of the room-mode-correcting notch-

filters that Konfig has created, and making adjustments as he hears fit.

Linn's approach is pragmatic, acknowledging that the best-sounding placement is rarely the one that the customer wants to live with. Most people, especially if they are married, want the speakers placed neatly against the wall, even knowing that they'd sound better brought out into open space.

In this situation, the installer uses Konfig to re-set the response so that when the speakers are placed where the customer wants them, they emulate the sound produced in the 'best' position.

PLACEMENT METHOD

If you aren't in the market for a Linn system and CARA still seems like overkill, there is another very long-established positioning methodology, first described many years ago by that most respected and scientific of speaker designers, David Wilson. You can find it in Wilson Audio's downloadable user manuals.

With WASP, or the Wilson Audio Speaker Placement method, you start by listening carefully to what the room does to the human speaking voice, and find the 'zone of neutrality' where the speaker (human or hi-fi) is least affected.

It takes some understanding, some confidence in your own powers of hearing and a willingness to really listen. But isn't this the sane approach? Computer modelling and active DSP correction can work wonders, but can also take you on endless detours.

If you don't want to get lost in a maze, it's best to be really sure of where you're starting from. ☺

'The best-sounding placement is rarely the one the customer wants to live with'

YOUR VIEWS

Sound Off!

Correspondents express their own opinions, not those of *Hi-Fi News*. We reserve the right to edit letters for publication. Correspondents using e-mail are asked to give their full postal address (which won't be published). Letters seeking advice will be answered in print on our Sound Off pages, but due to time constraints we regret we're unable to answer questions on buying items of hi-fi or any other hi-fi queries by telephone, post or via e-mail.

Send in your views to:
Sound Off, Hi-Fi News, AVTech Media Ltd,
Enterprise House, Enterprise Way, Edenbridge, Kent TN8 6HF
or email your views to: letters@hifinews.com –
please use 'Sound Off' in your subject field

THE BRIGHT SIDE OF LIFE MODERN KIT, NOISE AND BOOSTED TREBLE

Am I alone in finding some of the speakers currently on the market claiming monitor status to have an overly bright treble? To my ears we are being asked to pay a small fortune for the privilege of owning loudspeakers that quickly become tiring to listen to.

I have also noticed the tendency of many moving-coil cartridges to have an extraordinary treble lift from about 6kHz onwards. I have noticed this effect with Ortofons and the Transfiguration Proteus, which you reviewed in your November 2014 issue – though there are others. The result is extra brightness in sound and yet these very expensive cartridges are routinely given high praise. I have two cartridges made by Mayware – low and high output – which both measure ruler flat and sound unbelievable.

Lastly, I'm all for innovation, but do you really think a weighted signal-to-noise ratio of 80.1dB is acceptable in the case of the Primare A60 power amp [see *HFN* Nov '14]? I recall, many years ago, Chord having some difficulty in achieving reasonable signal-to-noise figures with switchmode

power supplies although they have now cracked that problem.

Conventional amplifiers easily exceed the 100dB down mark and, with early stage regulation, even better figures of merit are possible. Very sensitive speakers have a habit of revealing noise and hum. One should hear virtually nothing with your ears right up to the speaker units, otherwise you'll have to put up with less sensitive loudspeaker units.

VJ Hawtin, via email

Paul Miller replies: Let's deal with the issue of noise first. When Primare first launched its UFPD amplifier technology in the I32 integrated [*HFN* Jun '11] it offered an A-wtd S/N ratio of 81dB and there was obvious PSU noise contaminating the spectrum (along with an idle tone at ~7kHz). These issues have since been banished but the S/N of subsequent UFPD amps, including the A60 and A34.2 power amp that we'll be reviewing next month, still hovers around 80-82dB.

Remember that these figures are all re. 0dBW (1W/8ohm) and not illustrative of the dynamic range at higher output. These days the 'average' amplifier has an A-wtd S/N figure of 85-86dB, but while UFPD is slightly short, its smooth 'white noise' characteristic will be subjectively innocuous if not actually *preferable* to many listeners. Depending on the design of the amplifier, and what's going on elsewhere in the hi-fi system, super-wide S/N ratios will not always enhance the audio experience!

Meanwhile, it's not uncommon for superior MC pick-ups (with very stiff cantilevers, low tip and moving mass) to have a more extended and 'brighter' top-end response than the typical MM. If you ever find an LP with a 'hot' groove at 10kHz+, then this can be ameliorated by adjusting the MC's VTA.

Which USB input for best sound?

COMPUTER AUDIO RETURNER WANTS TO HEAR OPPO SING

When the Oppo BDP-105EU universal player was released I bought it mainly to spin Blu-ray discs. However, my hi-fi friends then suggested I use its DAC via my laptop to listen to music with the computer running the free foobar2000 software. Adding a Nordost Blue Heaven cable to the set-up made listening quite acceptable.

My laptop then broke down and I returned to listening to music using my BlueNote Koala CD player or Acoustic Solid turntable with Origin Live Encounter arm played through my Unison Research Unico 200 amp with Mullard valves.

Having now built up 1.4TB of music on an external hard drive – over 60,000 tracks – I felt the pressure to get the computer system running again. It was then that I discovered that I didn't need the laptop as I could simply connect the hard drive straight into the Oppo via USB.

However, using the USB cable supplied in the box with the drive gives a somewhat lifeless



ABOVE: The Oppo BDP-105EU sports three USB inputs

sound. Is there an aftermarket cable that you would recommend? Also, the Oppo has three USB ports – one on the front and two at the back. Is one of them to be preferred when it comes to achieving the best sound quality?

Mr E Lange, via email

Paul Miller replies: The AVTech and EISA award-winning Oppo BDP-105EU [*HFN* Jan 13] remains a first-class choice of 'digital hub' – I'm currently using the latest BDP-105D (Darbee) version with its upgraded USB interface now supporting DSD 64/128. Like you, I'm also reading music files directly from a disc (attached to the rear 'USB 1' port). Employing an 'audiophile' USB interconnect rather depends on the disc port as most cables are terminated in full-sized A-to-B connectors. Instead, I'd focus on the choice of drive itself as this can have a far greater impact on overall sound quality.

Big HDDs powered by a separate 'wall wart' supply generally don't sound as good as music rendered via a little 16GB USB stick, for example. A 128-512GB SSD is the best compromise – I would recommend a Samsung 840Pro SSD used with an IDE/SATA-to-USB cable adapter. These are USB 2.0 compliant and average power consumption is a mere 0.12W.



ABOVE: Transfiguration Proteus MC from Immutable Music Inc, in Japan

At a pinch....

REBUILDING RUBBER REEL-TO-REEL ROLLERS

Jim Lesurf and fellow reader James Beaumont could both have the pinch rollers on their Tandberg reel-to-reel tape recorders rebuilt by Terry's Rubber Rollers in the US. He is reputed to do a good job and is not hugely expensive [see www.terrysrubberrollers.com].

If the roller is not completely shot they could try some rubber restorer fluid, usually available (in litre bottles!) on eBay. Or use some very fine wet-and-dry paper on them.

I have three Tandberg reel-to-reel machines – a 6041X, 16041X and 3000X – and the common problem I have had with all of them has been the drive belt. Luckily these are available on eBay too. With a new German belt fitted the 16041X now rewinds like a bat out of hell!

David Mansell, via email

Jim Lesurf replies: Thanks to David for the tips. I fear, though, that my 3041X may need more than a new pinch roller.



ABOVE: Examples of Tandberg pinch wheels offered by Terry's Rubber Rollers

Hence my dithering over having a full refurbishment. The question is whether it makes sense just to try and fix the pinch roller first, if in doing so other problems will be revealed. So it may be simpler to go for a full service or replacement. Currently I am thinking long and hard over which route to take.

I wish I was able to attend the Audio Jumbles more regularly, but time and distance often makes this impossible. It's frustrating to see items I might have bought, in *HFN* reports weeks later!

Belushi brothers blues

READERS SPOT PICTURE MIX-UP IN FEBRUARY CLASSIC VENUES FEATURE

While reading Steve Sutherland's *Classic Venues* piece in the February 2015 issue, it was disconcerting to find a photo of actor James Belushi mistakenly identified as his older brother John. Should James happen to be a reader, one can only imagine his reaction. Oh me, oh my...

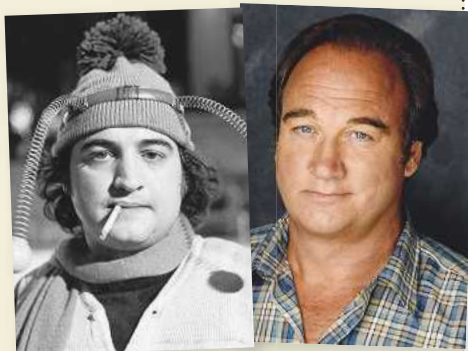
Michael Arnold, via email

I just wanted to point out the mistake on p84 of the February issue.

The *Classic Venues* feature on the Gazzarri's, Rainbow & Roxy clubs in LA carried a picture of Jim Belushi with a caption stating that John Belushi had died. Ouch! Jim Belushi (who is pictured) is very much alive.

Michael Cuthbert, via email

Patrick Fraser replies: Just two of a flurry of letters we received within days – if not hours – of the February issue hitting the newsstands and, yes, both Michaels



ABOVE: John Belushi, who died in 1982, and (right) his brother James 'Jim' Belushi

are correct. We carried a photograph of James 'Jim' Belushi when it was the story of his older brother, John, which was one of the main themes of the piece.

James Belushi, of course, is best known for playing Jim Orenthal in the US sitcom *According To Jim*. His first book, published in 2006, was called *Real Men Don't Apologize*. Still, apologies all round.

8

Lanes On Your Entertainment Superhighway



RJ/E Forest



RJ/E Cinnamon



RJ/E Vodka



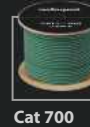
RJ/E Diamond



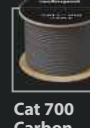
Cat 600 Pearl



Cat 700 Pearl



Cat 700 Forest



Cat 700 Carbon

Since its origins in the early 1980's, Ethernet, and the Local Area Network (LAN) systems it enables, has become the copper plumbing of the digital age. Originally deployed only over coaxial cable, the Ethernet protocols (IEEE 802.3) now also apply to fibre-optic and "Category" (Cat 5, 5e, 6, 6e, 7) cables. These 8-conductor (4 twisted pairs) Cat cables are the 8 lanes which stream or transport your digital entertainment to equipment a foot away or several rooms away.

AudioQuest refers to its pre-terminated leading-edge Cat 7 cables as the RJ/E Series ... RJ for the RJ45 connector standard to the application, and E for Ethernet. For AudioQuest, the highest Cat 7 standard (with all 4 pairs using correctly differentiated twist rates and individually shielded) is only the solid foundation to which AQ then adds better materials and unique-to-AQ additional technologies.

The particulars of the RJ45 connectors have also received extreme attention. The plugs used on the Vodka and Diamond models (and available for use with bulk Cat 700 models), feature a unique patented transition-compensating system which reduces reflections caused by the impedance mismatch where 4 twisted pairs meet a straight line of 8 plug contacts.

What does this all mean? Simple ... better sound!

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icon Audio

Our NEW MB 90 MK II^m KT120



110 Watts pure valve power

designed by David Shaw



**LDT Low Distortion
Tertiary Transformers**

Pictured with optional TJ Full Music6SL7, David Shaw CV181gp Tung Sol KT150 and Jensen Copper foil in paper and oil audio capacitors

Valve power for bigger speakers!

New materials and techniques enables the design of loudspeakers for the larger room with hitherto undreamt of performance. But these complex speakers are often a difficult load and very power hungry, putting them out of reach of many traditional valve amplifier designs. Many valve amplifiers are relatively low powered and will struggle to deliver the required current. Transistor power comes very cheap with excellent specifications on paper but often fails to deliver the degree of enlightenment hoped for. We know this from the many phone calls we get that people who have already “bought the T Shirt” and find that long-term listening is disappointing. The new Russian super-strong KT150 valve gave us the opportunity to design a power amplifier of outstanding quality and power from only four audio valves. Our unique in-house designed and wound LDT transformers have the capacity to fully deliver the musical energy generated in this remarkable valve. Amongst our biggest mono block amplifiers. They are ideal for someone wanting a fast dynamic sound, but without a fatiguing mechanical quality. Both big power supply and big output transformers are requisite. The new KT150 has caused a storm in the hi fi world, with 50% more power than the excellent predecessor the KT88. It enabled us improve the sonics, power, distortion and reliability. An excellent alternative to a solid state transistor amplifier, the MB90 II^m will deliver the finest detail of modern recordings in a more satisfying way or present jazz and rock music without harshness or fizz.

Two Amplifiers in One. The importance of Triode

The triode sound is preferred by many hi fi fans, but the power is always lower. Ignored or neglected in the past we give equal priority to the triode function so the full quality is maintained. With our UL/Triode switch you can change from 100 watts to 55 watts of pure triode sound at the flick of a switch. 4 Ohm loading is also given equal priority enabling lower impedance speakers to give maximum performance without compromise.

Now with “Easy Bias” Meter

We think of our amplifiers as musical instruments. Like a piano needs occasional tuning, big amplifiers need the bias checking. This way you can be sure of 100% performance all of the time. Now made very easy with our “easy bias” meter. If the pointer is in the “black” it’s correct! Also useful to check if your valves are worn and how much audio power you are using. Long term performance is important to us and this useful aid will take the guesswork out of maintaining your amplifier.

Our new series of “Low Distortion Tertiary” output transformers are the best we have ever made, enabling us to reduce global feedback by about 40%. All our amplifiers are designed and finished in Leicester. Warranty and service is done by the engineers that designed them so you can be sure of long term performance. We incorporate a “standby” switch in order to protect the valves during warm up. All of our amplifiers are hand made using “point to point” wiring without using printed circuit boards. We are convinced this sounds better. It allows for very easy servicing, upgrades and modifications. High quality components are used throughout including silver plated PTFE audio cable SGR capacitors audiophile resistors. Loudspeakers of nominal impedance between 3 ohms and 10 ohms may be used with virtually no reduction in power or quality. A choke regulated power supply adds richness to the sound quality that silicon devices alone are unable to do. In short we have created an amplifier of excellent flexibility and quality which retains the qualities traditional of traditional design and performance. Bespoke upgrades available including silver/copper capacitors, valves and design.

From £2,899 (inc UK VAT). Upgradeable See also our similar ST60 II^m integrated amplifier and other award winning amplifiers on our website

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0116 2440593

Leicester UK

In praise of integrated amps

READER EXPLAINS HIS REASONING BEHIND THE GROWTH OF HIGH-END ONE-BOX SOLUTIONS

I enjoyed Ken Kessler's December Off The Leash column on the topic of high-end integrated amps. I've wondered why we haven't seen more of these over the last few decades.

In the current market I see two factors that make the high-end integrated a more logical design than it might have been back in the '60s and '70s. One is the elimination of balance and tone controls that has taken place over the years, which makes the design of a front-end much simpler. Today, all that is expected is an on/off switch, a volume knob and an input selector.

The second factor is the rise of digital as a primary source and the demotion of vinyl to a secondary, niche source. This eliminates the need for phono circuitry in a control amp or, indeed, from an integrated amplifier. The phono stage was always the most complex portion of a preamp, with its need for precise equalisation and, in the better phono stages, selectable MM/MC loading – not to mention the high gain required for these very low level sources.

Phono stages (and DACs) are now usually stand-alone units. Today, all that's needed are a few dBs of gain, which can be accomplished with one extra gain stage or perhaps just a bit of extra gain designed into the first stage of the amplifier.

And, as Ken mentioned, the integration of front-end and amplifier eliminates the need for a costly pair of interconnects and allows a talented designer to make an almost ideal connection to the amp function. Plus, it's obvious from the D'Agostino review in the same issue that integration doesn't

mean lower power. So fewer pieces, good integration... I vote for more high-end integrated amplifiers.

Allen Edelstein, via email

Ken Kessler replies: Mr Edelstein exemplifies one side of the never-ending rivalry between integrateds and separates. If one were to produce a list of pros and cons for the two forms, though, it comes out pretty even. Briefly, you weigh convenience, the removal of an interconnect, guaranteed matching of pre and power amps, a single AC cable and overall smaller hardware versus the ability to mix and match pre and power amps. This includes the freedom to upgrade just one section (eg, if one suddenly needs more power because of a change of loudspeaker, or DAC upgrade in a digital system if a new format emerges), having the ability to insert certain devices such as processors between pre and power, or simply to satisfy the audiophile craving.

As a reviewer, I find myself experiencing both on a regular basis. Although I must remain neutral, my preferences are split: I agree with Allen about the convenience, but the reviewer side of me demands the flexibility of separates, even beyond integrateds with a pre-out facility. I think that, in the high end, the majority will choose separates, but I also see more growth with integrateds, which better suit all-digital systems in modern, urban homes, increasingly suffering space constraints.

What the D'Agostino, the new Constellation and other integrateds – including years' worth of high-end valve integrateds like Unison Research's Absolute, various Audio Notes, etc – is that all-in-one integrated amplifiers do not mean a sonic compromise, merely a rearranging of one's options.

LEFT: The D'Agostino Momentum Integrated amp has an onboard power supply encased in solid aluminium that sits beneath the main unit. At £42k in silver it is priced to compete with high-end pre/power duos



WIRELESS FRONTIER?



Not only are wires still very much the lowest-distortion highest-performance way to send both analog and digital audio information, but when it comes to sending power, "wireless" is just a nifty science project, not part of a home entertainment rig.

The challenge of not adding distortion as AC power goes from the wall to the electronics, and the challenge of not adding distortion as audio power is sent to a loudspeaker, are almost the same. The amount of energy transferred through these cables, and the size of the associated magnetic fields, puts them in a different class from all other audio and video cables.

Speaker cables need to maintain perfect integrity across the audio band and then some, while AC cables only have to try to be perfect in a narrower band. AC cable design is therefore a subset of speaker cable design because AC cables are subject to almost all the same distortion mechanisms, and benefit from almost all the same damage minimizing techniques.

For the most sophisticated power-transfer cables, for the best sound and video, please visit audioquest.com for more details.

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From valve amps to Devialet

INVESTIGATION INTO MODERN AMP TECH HAS READER REQUESTING FURTHER ENLIGHTENMENT...

I read with great interest Keith Howard's Investigation piece on the endeavours of designers to retain the linearity of Class A while reducing the quiescent power drain [see *HFN* Feb '15]. I learnt a useful amount about some of the more modern approaches but the feature raised a few issues for me.

I know Keith said he was not dealing with valves but I was uneasy about his comment that all valve amplifiers operate in Class A. I suspect there are quite a few Class ABs out there. Also, I recall an early switching design from Sony that it termed 'Class T'. I've never seen this since and Class D seems to be the term now employed.

I don't think Quad would be happy with Keith's description of its current dumping amplifiers. The company

that readers might encounter today rather than trot out a list of all the proprietary output stage designs we've seen down the years, whether truly novel or not. I'd recommend Ben Duncan's 'High Performance Audio Power Amplifiers' if you want to get into that.

My description of the Quad current dumping circuit – 'unbiased Class B stages are used in some amplifier circuits, the classic case being Quad's "current dumping" topology, where other means are provided to fill in the 'hole' around zero-crossing' – is accurate, I just don't go into what those 'other means' are. To do so in detail would require an explanation of bridge circuits and immerse itself in the controversy over whether the arrangement constitutes feedback or feedforward – all well beyond the remit of the article. Readers with an interest in this area may care to look at one

of the THX patents for what we now know as AAA (eg, US8421531) in this context.

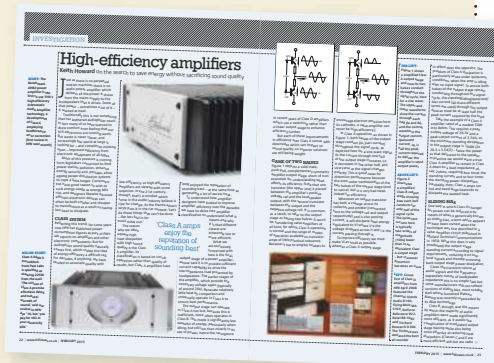
Yes, class AB is used in valve power amplifiers, indeed there are classifications AB1 and AB2 according to whether grid current is allowed to flow at any point in the cycle.

Class AB2, where grid current does flow, is more efficient than Class AB1 but is not normally considered suitable for high fidelity purposes. You see? This is all stuff I didn't want to waste space on given that valve amps weren't the subject of the piece.

The key point in the context of efficiency is that, while Class B valve amplifiers exist, they aren't generally considered hi-fi. As James Moir wrote many years ago in *High Quality Sound Reproduction*, 'Class B amplifiers are characterized

by high efficiency, but at the expense of some loss of fidelity.' I suppose you could contrive a current dumping-like circuit using valves – but who would? (A cue for someone to tell me that it has already happened!) You'd still waste energy heating the cathodes.

Mr Willan's 'Class A amplifier with a signal detector' could be considered a crude



ABOVE: Keith Howard looks at amps and energy efficiency in the Feb '15 issue of *HFN*

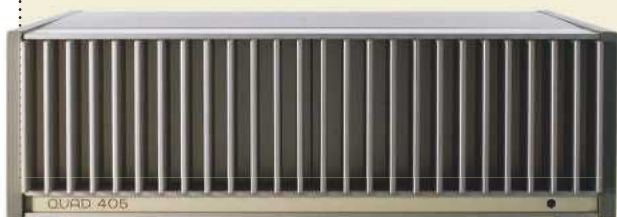
form of sliding bias design, described in my article, but one which would be no more efficient than a conventional Class A design when actually reproducing music.

Paul Miller replies: When the D-Premier, Devialet's first amplifier, was launched several years ago [*HFN* Apr '10] it appeared to offer everything – tremendous power, direct digital inputs and a uniquely slim form factor. Its beautiful industrial design was matched by the elegance of its technology, a hybrid of Class A voltage amplification with precision digital Class D current dumpers. If this sounds familiar then it should, for Devialet's ADH technology is, in principle, a staggeringly sophisticated re-imagining of Quad's original and wholly analogue power amp circuit.

In practice, the near-perfect 'stiffness' of its PSU is reflected in the doubling of power output under dynamic conditions into 8, 4 and 2ohm loads. Furthermore, distortion barely increases with reducing load impedance. Couple this with its infinitesimally low 0.003ohm (3mohm) output impedance and, provided you don't use scrawny cables, a Devialet will surely rule your loudspeakers with a rod of iron.



ABOVE: The Devialet 800 is the French company's current flagship amplifier



ABOVE: The Quad 405 current dumping amp, which was in production from 1975 to 1982

describes them as low power Class A amplifiers that are aided by high speed current dumping transistors when the demand becomes too great for them. As such, the current dumping transistors must operate for less than half a cycle, which technically would be Class C, although this terminology is not really helpful in this context. Keith quite rightly did not touch upon Class C as it is not normally relevant to audio.

Finally, I was rather hoping for a description of whatever it is Devialet does to achieve such rave reviews.

My own idea would be to have a no-compromise Class A amplifier with a signal detector. The amp would 'idle' at a low quiescent current and when an input signal was detected, would burst into full bias, returning to idle if no signal was detected for, say, ten minutes.

Nick Willans, via email

Keith Howard replies: My intention, in what was a short article given the ground to be covered, was to concentrate on technologies

Servicing the Quad 606

COMPANY STILL OFFERS UPGRADES FOR VENERABLE LATE '80S POWER AMPLIFIER

I refer to Richard Clewes' letter in the January 2015 issue and your writers' replies. Quad in Huntingdon continues to service and upgrade the venerable 606 amplifier and has recently, and most cost-effectively, serviced my Mk1 606 and upgraded it towards 909 spec.

I use the 606 amp to drive a pair of Spendor SA1 speakers from the buffered output of a Heed DAC and transport, via a Moth 30 passive preamplifier. Cables are Chord Anthem and Epic Super Twin. I intend to add a subwoofer to my system and

am considering a REL S2 after I have auditioned the SVS SB-2000, which I saw recommended in the 2014/2015 AVTech Awards.

C R Scaife, via email

Tim Jarman replies: Quad is very helpful with its older models and the 606 and 909 are decent amplifiers, which makes the expenditure a wise investment.

The current version of this amplifier – the QSP – is one of my favourite modern designs and Quad's first class backup makes it an excellent choice if you are building a final system 'for keeps'.



ABOVE: As well as its 606 power amp, Quad says it maintains products over 50 years old

AVTech Awards on the net

FRENCH-BASED READER'S SUGGESTION ON BEHALF OF HFN FANS LIVING OVERSEAS

I'm an overseas subscriber who lives in France, and I really enjoy your magazine. However, we foreigners apparently didn't receive the AVTech Awards supplement with our January 2015 issue, presumably because of the extra postage costs involved. So why not send us the supplement as an email attachment, or allow us to access it via the HFN website?

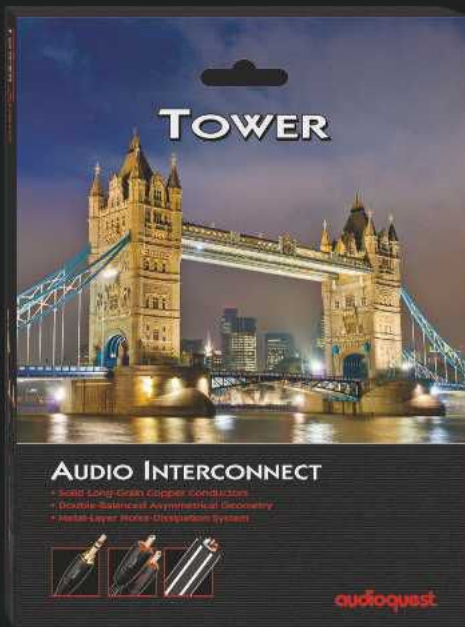
Owen Bull, via email

Paul Miller replies: You must have read my mind Owen! All *Hi-Fi News* readers, wherever they live, can now enjoy our selection of the best hi-fi and AV products via the *Hi-Fi News*, *Hi-Fi Choice* or *Home Cinema Choice* websites. Collectively we test and review more hi-fi, TV and home theatre equipment than any other



ABOVE: The 2014/2015 AVTech Awards can now be seen at www.hifinews.co.uk

organisation in the UK and our annual Awards are informed by this pool of experience. The direct link is www.hifinews.co.uk/news/article/avtech-awards-2014-2015/20237



We've Got Your Back ...

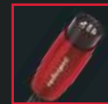
Your Front and Your Sides!



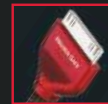
RCA plugs for the back



3.5mm plugs for portables and more



DIN plugs for the back



iPod plugs for underneath



3.5mm socket for extension cables

From solid conductors, superior metals (conductors and plugs) and low-interaction insulation to AQ's Noise-Dissipation System and AQ's Dielectric-Bias System, all of AudioQuest's proven distortion-minimizing ingredients are used to ensure that all eight models of Bridges & Falls cables bring you beautiful music, clear dialogue and thunderous sound-effects.

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Meridian Component preamp

Comprising mix 'n' match modules chosen to suit your listening needs, this preamp from 1983 was an early hint at Meridian design flair. But how does it sound today?
Review: **Adam Smith** Lab: **Paul Miller**

While countless hi-fi companies have made their mark by producing well designed and eminently sensible products year after year, occasionally one will throw caution to the wind and surprise us all with something a bit out of the ordinary. One such company is Meridian.

The Huntingdon-based firm has never been afraid of innovating when it comes to industrial design, but rewind the clock some 30 years and a fresh addition to the company's catalogue drew quizzical faces all round. The product in question was the Meridian Component Amplifier, and the year was 1983.

A CONNECTION SHORT

The idea behind the amplifier was a clever one – after all, we have come to expect nothing else from Meridian. As the 1970s drew to a close, people started to say goodbye to huge amps festooned with every knob, button, switch and slider you could think of as what has retrospectively become known as the 'flat earth' concept took hold. This manifested itself in amplifiers having as few controls as possible with the result that their front and rear panels looked very bare indeed.

This new minimalist concept worked wonders when it came to sound quality but convenience suffered. And with the arrival of CD in 1982/3, all those amps with just phono, tape and tuner inputs suddenly found themselves a connection short.

Meridian's Allen Boothroyd and Bob Stuart approached the issue from a new



ABOVE: The instructions for the Meridian preamp told the user all they needed to know regarding module connection and basic operation; more detail was given in each module's instructions

angle and came up with the idea of an amplifier that could be customised to the user's needs. The concept was then developed further as the pair considered the products Meridian already offered. A single length of aluminium extrusion was used as the basis for the company's 101, 103 and 105 series amplifiers while its 101 preamp could be further configured by the use of internal modules for specific cartridge matching and the like. They

reasoned that this concept of modularity could be taken a step further and applied to a whole amplifier. The implementation of this idea led to both the Meridian Component Amplifier (MCA) and the Meridian Component Preamplifier (MLP).

BASIC FORM

The MLP consisted of three modules in its most basic form. To the left was a routing and control unit that accepted a low voltage AC input from an external plug-top power unit. The front panel was hinged and the unit entered standby mode as soon as it was connected to the mains. A light touch on the top left of the panel pressed a button behind it and switched it on, and another touch returned it to standby.

Flipping the panel down revealed further switches for Mono operation, Source Memory and Tone Memory. The

LEFT: Each module offered source and tape copy selection and could memorise switch-on source selection and tone control settings





Source Memory option was used to specify the source selected by the unit when powered up and the Tone Memory could remember specific bass and treble settings for each input when the optional tone control module was fitted.

To the right of the power supply module came the input modules and up to six of these could run by the MLP power supply unit. Inputs were available for MM phono, MC phono, CD, FM Tuner, Aux and Tape. Each of these units had a similar front panel flap to that of the power unit, and these were pressed to select a particular input.

Under each flap was an additional 'Tape Copy' button that would send the module's output to the Tape module for

recording purposes. Also available was the aforementioned Tone Control module. Finally, at the right hand end, was fitted the volume control unit and, at the rear, this carried a single 5-pin DIN socket providing the L/R stereo output.

All modules were interconnected by the 24 gold pins of the Meridian Bus Bar arrangement.

Each input module and the volume control had sockets on their left hand sides and the input modules and the power switching section had corresponding pins

on their right sides. To connect them, the units were simply pushed together and this linked power, balanced audio signals and logic control lines throughout the unit.

'It served up a deliciously punchy and well-paced performance'

ABOVE: With the front flaps closed, the MLP was a paragon of style. In this state, the modules' source buttons could still be operated and an LED showed which one was selected

It was an ingenious concept and worked well. What's more, it allowed for easy future upgrades. Mechanically, two metal bars protruded from the PSU and each module came with a pair of metal spacers. These screwed onto each other with the volume control unit's fixings securing everything thanks to it having screw heads that allowed it to be tightened fully with a screwdriver or coin. Adding a new module was simply a case of undoing the volume control and removing it, fitting the spacers supplied with the new module, locating the unit and re-fitting the volume control.

In addition to the input and tone control sections, it was suggested at launch that both FM and AM tuner modules would be available. The AM unit never appeared

and, while the FM variant was released in the form of the Meridian MFM tuner, this turned out to be a standalone design with its own power supply – albeit styled to match the Component Amplifier.

CD ROLL-OFF?

At the time it was also suggested that the CD module was not identical to the Aux variant but featured a treble roll-off amounting to -2.5dB at 20kHz , while the Aux unit had a conventionally flat response. However, our lab results suggest the differences are very much more subtle (p123).

The full-blown Meridian Component Amplifier (MCA) was designed along the same lines as the MLP but this used a larger switchmode power supply

LEFT: HFN first evaluated the Component Amplifier in the Dec '83 issue and carried an interview with Bob Stuart about its design



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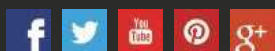
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WHAT HI-FI?



unit that could apparently power up to 20 input modules! This was positioned to the right of the left-most switching module and next came the two 30W power amp units. Input modules and the volume control then continued to the right as per the MLP.

At launch, an MCA unit with one input module cost £375, unless that module was MC phono, in which case the price was £395. Separate modules were priced at £58 for MM, Aux or CD, with the Tape module costing £68 and the MC unit £78. As a result, the price of a version with a few different inputs rose quickly and, in the case of the MCA, the amplifier soon became very wide indeed!

ADAM LISTENS

I connected the MLP to my Michell Gyro SE turntable with SME 309 arm and Ortofon 2M Black cartridge, plus a Naim CD5XS for digital duties. Power amplification was supplied by a Hitachi HMA-6500 [see *HFN* Jan '15] driving PMC Twenty.24 loudspeakers. From the first bars of the first track played, the muscles responsible for raising my eyebrows went into overdrive, as this was one surprising preamplifier!

As a regular user and fettler of classic equipment, finding older components pleasant to listen to but somewhat soft-sounding compared to newer alternatives is not uncommon. However, the Meridian MLP proved to be a very 'modern' sounding unit, serving up a deliciously punchy, taut and well-paced performance. Bass lines

were spry, deep and effortlessly rhythmical, with the MLP absolutely lapping up material that had a good beat.

With 'Let Go' in the CD player from Frou Frou's 2002 CD *Details* [Island CID 8112/586995-2], the MLP grabbed the bass line by the scruff of its neck, pounding it out with a truly impressive sense of purpose. The percussion effects behind this were clear and crisp, and Imogen Heap's vocals soared forth from my PMCs.

Across the midband, the Meridian was as detailed as could be wished for, and shone a bright spotlight on each individual instrument to keep it vivid within the performance. Admittedly the Meridian didn't set up quite as expansive a soundstage as my vintage Yamaha CX-10000 preamplifier is capable of, but then I have yet to hear a preamp that can. However, rather than attempt to

turn your listening area into a cavernous recording space, the MLP effectively brings the action closer to you, and is none the less enjoyable for this.

Switching between the Aux and CD input

modules at this point proved interesting as, despite the similarity between the two modules noted under measurement [see Lab Report, p123], there was a faint softening of the sound through the dedicated CD section with some material.

This would have undoubtedly helped to tame the often fierce treble of some early CD players and even today it can have beneficial effects. At times I found the

ABOVE: The interconnection system used was simple but effective, forming a 'bus' that carried control and balanced audio signals. Mechanical strength was added by the brass locating bars

MLP's largely glorious exuberance to be a little unwelcome on some slower material but, through the CD input, this was less of an issue. Diana Krall initially sounded somewhat strained when performing 'I've Got You Under My Skin' from her *When I Look In Your Eyes* CD [Verve 050 304-2], but became ever so slightly smoother through the CD input. Ultimately, however, the differences were very subtle, so the Aux and CD modules can effectively be considered as interchangeable.

Through the MM module, things were, if anything, even better. The amp's magnificent rhythmic and low-end abilities were still present and correct, but the MM module gave performers more space to play in and seemed less disturbed by a slowing of the pace than did the Aux input.

As a result, Guy Garvey's vocals on the beginning of Elbow's 'New York Morning' from *The Take Off And Landing Of Everything* [Fiction 3754769] were emotive and beautifully reproduced. However, when the pace of the track picked up, the MLP rose to the challenge to give a strong, clean and taut performance.

BUYING SECONDHAND

Neither the MLP nor the integrated MCA unit are especially plentiful on the secondhand market but they do turn up from time to time, with the MCA integrated amplifier more common than the MLP preamplifier.

Additional modules are quite rare to come across on their own, so if you are looking for a particular type it is likely you'll have to buy a whole amplifier in order to get it. It is common to find whole amps that make use of the MM and MC

LEFT: The long gold interconnection pins are soldered directly onto each module's PCB (the routing/control/PSU unit shown here). A PCB at the front supports both switches and LEDs



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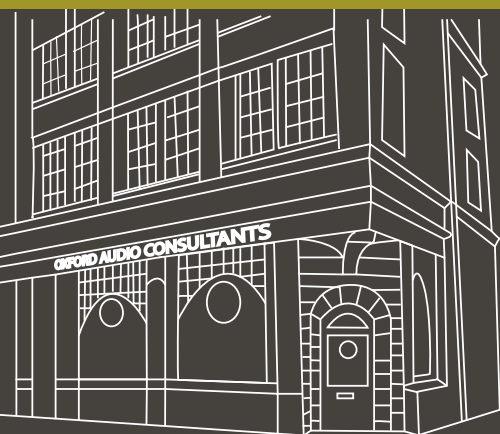
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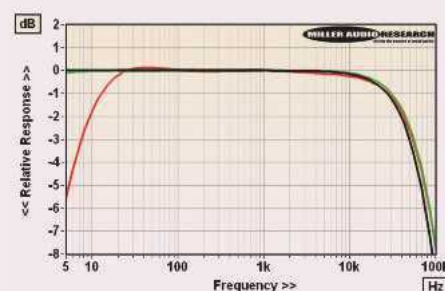
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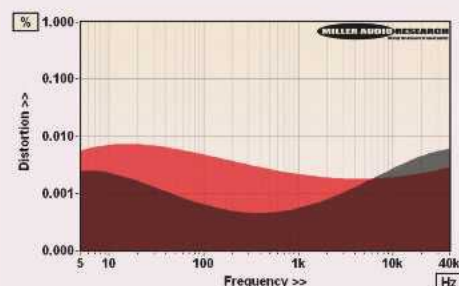
MERIDIAN COMPONENT PREAMP

Thirty years old but still technically 'fresh' the Meridian Component Preamp (MLP) offers a set of results that wouldn't be out of place today. Gain is a moderate 10dB via the CD/Aux modules, increasing to a useable +49.6dB via the MM module – equivalent to a sensitivity of 3.31mV (re. 0dBV). MM module distortion is impressively low at 0.002% through upper midband frequencies, increasing to 0.007% at 20kHz [see red infill, Graph 2 below]. This falls still further to a minimum of 0.0007% via the CD/Aux modules (all re. 0dBV out), the spectrum composed almost entirely of 2nd, 3rd and 4th harmonics [black trace, Graph 2]. The MLP's maximum single-ended output is a little lower than modern references at 4.3V but this is still more than adequate to drive today's power amps. The 235ohm source impedance is less than Meridian's 300ohm specification and uniform across 20Hz-20kHz, but still too high if you were to rig the MLP to drive a set of low impedance headphones.

More importantly the MLP enjoys low levels of noise, aided in no small measure by the outboard PSU. The A-wtd S/N ratios of 98.1dB (CD/Aux) and 76.3dB (MM) are excellent and good (respectively). Finally, a word about frequency response. Though Meridian may have suggested its CD module has a steeper HF roll-off, in practice the difference between -0.55dB/20kHz and -9.2dB/100kHz (CD) versus -0.45dB/20kHz and -7.8dB/100kHz (Aux) will be imperceptible [see black vs. green traces, Graph 1 below]. The MM module shares the same HF response but has a more obvious – and thoroughly sensible – low bass filter amounting to -0.2dB/20Hz and -6dB/5Hz. Readers are invited to view a comprehensive QC Suite test report for Meridian's (vintage) Component Preamplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Extended frequency response (5Hz-100kHz) showing CD (black) vs. Aux (green) vs. MM (red)



ABOVE: Distortion versus extended frequency from 5Hz-40kHz at 0dBV (CD, black; MM, red)

HI-FI NEWS SPECIFICATIONS

Maximum output (<1% THD, 47kohm)	4.3Vrms (unbalanced)
Maximum input level (<1% THD)	7Vrms
Output impedance (20Hz-20kHz)	233-235ohm
Frequency response (20Hz-100kHz)	-0.25dB to -7.8dB
Input sensitivity (CD / MM, re. 0dBV)	315mV / 3.31mV
A-wtd S/N ratio (CD / MM, re. 0dBV)	98.1dB / 76.3dB
Distortion (20Hz-20kHz re. 0dBV)	0.00075-0.0046%
Power consumption	4W
Dimensions (WHD, main/module)	80/40x60x300mm



ABOVE: All inputs are through phono sockets, with the exception of the tape module and the preamplifier output. Left and Right channels are not clearly distinguished!

Phono, Aux and CD modules but the Tape and FM Tuner units are rather scarcer. In all my years of admiring the unit I have yet to see a Tone Control module.

Operationally, the unit is straightforward and contains no great surprises other than the usual component and solder-aging maladies that might affect any 30-year-old electronic component. That said, while the pins that connect each module to its neighbour are robust, they are easily bent when exposed, so great care should be taken when handling each unit if it is not plugged in.

New modules came with a protective rubber cap for the protruding pins so it is wise not to lose these if you have them.

NEXTEL FINISH

Internally, the units are relatively straightforward and a limited amount of circuit information is still available direct from Meridian. However, this is hand-drawn and contains no circuit component references, so some electrical knowledge is required to work your way round one of these! All module inputs are via phono sockets with

only the Tape module and main preamplifier output being DIN.

On the subject of the latter, it is essential to wire the output correctly if using an unbalanced configuration as getting it wrong can blow the preamplifier's output transistors. Use L+ and R+ for the left and right signal respectively and the central ground pin as the return for both. Remember not to not use the L- and R- connections.

Finally, mention must be made of the Nextel finish that is applied to all parts of the amplifier. This is a soft-finish paint and, even when new, the MCA and MLP were known as the 'Zebra' because different modules often had slightly different colour tints to them!

Nextel ages very badly, becoming tacky and prone to damage by even the lightest touch, which can make even the best units look shabby. Sadly, nothing can be done about this and cleaning products generally make the problem worse.

Unless you fancy dismantling the unit completely, blasting the coating off and re-painting it, the appearance is perhaps best regarded as possessing a suitably vintage patina! ☺

HI-FI NEWS VERDICT

The Meridian MLP preamplifier was an ingenious design that offered a superb combination of sound quality and versatility. While the Nextel finish isn't the most robust, the balanced internal circuitry and its clever implementation mean that the sound quality is still excellent by today's standards. If you find one with a set of input modules that suit your requirements then it is well worth buying.

Sound Quality: 85%



ABOVE: Meridian publicity shot shows the MLP atop the MPA power amplifier

A touch of glass

Ken Kessler confesses to 'une affaire passionelle' with the ARC D-70 tube amp



*Hi-Fi
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Reputations precede every item a reviewer ever might handle unless that reviewer is fortunate enough to have a world scoop. With the Audio Research D-70 valve power amplifier, a heady reputation existed for it even before the first review sample was released. This is no world scoop, and I must admit that I've seen a few reviews of this unit prior to attacking my Olivetti (though a few weeks after I'd first made the D-70's acquaintance). Words have been committed to print both here and abroad that the D-70 is one of the finest amplifiers – valve or otherwise – ever made, and this fastest-gun-in-the-west karma has coloured my past month's experiences.

I knew, after a marathon 16-hour non-stop listening session, that the D-70 is an amplifier like few, if any, others. Beyond that, it's a hi-fi component regardless of type like few others. By that I mean that I've yet to put together an imaginary or dream system in which each



ABOVE: The Audio Research D-70 valve power amp, which was released in 1983

ingredient is as good as the D-70. It's a frightening discovery, like an engineer finding a power plant with no peers in the way of chassis or tyres or transmission. The D-70, like its big sister preamp, the SP-10, is something of a freak, and its insertion into any system is an injection of high-grade steroids.

The past few years have been filled with all sorts of revelatory discoveries that have undermined the previous half-century's rules pertaining to audio. The biggest of all was the discovery that turntables sound different, after generations of believing that all a deck had to do was rotate quietly at 33.3rpm. Without fanfare or any desire to brand Audio Research founder William Johnson with Ivor Tiefenbrun-like attributes, I'd like to put forth that Johnson's Audio Research D-70 is as noticeably superior to most other amplifiers as the Linn Sondek allegedly is to most other turntables.

FASHION INDEPENDENT

I, and any other music lover with an interest in the rarefied strata of exotic hi-fi, can name 20 or 30 pretenders to the throne: super esoteric amplifiers that became the stars of the month in a given issue of an underground publication, or

became the pet amplifiers of an influential dealer, or in one way or another earned a reputation as the unit to own. They bob up and down the hi-fi hierarchy like buoys in the sea while, throughout, the Audio Research products float merrily along, independent of fashion.

At 19in wide, 7in high, and 16½in deep, the D-70 is about the standard size for high-end amplifiers. Output is a nominal 60W into 16ohm (minimum continuous), and input sensitivity average at 1.2V for full output. The fascia bears little more than the Audio Research legend, and a simple on/off toggle switch flanked by green LEDs and fuse holders. The left LED indicates 'power on'; the one on the right lights up when the unit is stabilised and ready to use.

At the back are rows of screw terminals for 4, 8, and 16ohm speakers and it's these that present the only physical complaint I can muster: I'd have preferred binding posts that accept banana plugs, as those are what I've got on my cables. Oh well, what's the sacrifice of a bit of cable and the fitting of spade lugs if it means experiencing the truly celestial...

I let the D-70 warm up for four or five hours before spending any serious time with it. It's no

inconvenience. I switch it on the minute I get home, say hello to my wife, eat dinner, watch the box, write an article, and then put on a record at midnight. Simple.

When the D-70 was delivered, the Editor and I just turned it on and fed it disc after disc, going for the gut effect. Hell, it didn't take more than a couple of seconds' worth of music to know that we were in the presence of some near-divine amplifier. But being responsible journalists, it was decided that I should live with the D-70 before carving in stone my verdict.

AUDIO OVERDOSE

The first weekend after it arrived, I was free enough to sequester myself in the hi-fi room without any fear of interruptions, the stay limited only by the elasticity of my bladder.

Between 10am on Saturday morning and midnight the next day, I spent 16 hours non-stop, followed by some sleep, topped off with a four-hour refresher. The

Audio Research D-70 is a narcotic.

Why, you might ponder, should I cram in so much listening time knowing that I had the unit for a month or so to come? It gets back to what makes a good hi-fi good. When you use a system that makes you want to hear every one of your favourite discs – time be damned – you know you're using something very special. It's like having an unlimited supply of your favourite food and not feeling full at all, or finding yourself in a bordello with a blank cheque and no fear of impotence. But I must mention Ricardo Franassovici's role in this audio overdose.

Ricardo is the man behind (and in front of) Absolute Sounds, the UK importer of the Audio Research range. He said to me, in all innocence I'm sure, that the true measure of a piece of hi-fi is to see what it does with recordings that you'd otherwise written off as a bad/murky/inferior job.

As we both appreciate the finer points of Sam and Dave, and we both bemoan the Sargasso Sound of late '60s recordings on the Stax label, it was felt that one of

their LPs would be as good a point as any with which to initiate the proceedings. I've been worshipping Sam and Dave for 17 years or so, and I've played their LPs literally hundreds of times. Because the music is so spiritually uplifting it's been easy to overlook the sound quality. I'd rather listen to Sam and Dave over the telephone than Dire Straits live. Now, I thought I knew those discs inside out, and I'd played them on so many systems that I couldn't begin to count, but I just was not prepared for the bushels of information revealed only through the *Audio Research D-70*.

Right: *whole drums*. Bass lines. Front-to-back depth. Yes! Front-to-back depth on a Sam and Dave record! My Gawd, that's like finding wit in *The Sun*. Rock-solid stereo imaging. Highs where there were

none before.

None of this 'another veil was lifted' nonsense – the D-70 peeled away a duvet.

Yeah, I know, this sounds like outrage for the

sheer thrill of it, as if I just bought my first Roget's and want to get my money's worth. Wrong. I dug out records that no-one would ever accuse of being well-recorded. Four Seasons (Valli, not Vivaldi) circa 1963. Mono Buddy Holly stuff pre-'Peggy Sue'. Bootlegs with a worse pedigree than Scamp. Turtles singles. Fats Waller stuff that had to be twentieth-generation dubs. Even early recordings on the Chess label.

Which presents a problem: I now realise that every record in my collection has to be played again

RIGHT: Ken, a Quad and a kimono... American-born author Ken Kessler joined *Hi-Fi News* in 1983 after working as Assistant Editor for the short-lived *Stereo – The Magazine*. The editor of *HFN* at the time was John Atkinson



through the D-70 just so I know what I'm missing when Ricardo takes it back. And that's just the information transferral capabilities of the amp; I've said nothing yet about the sound.

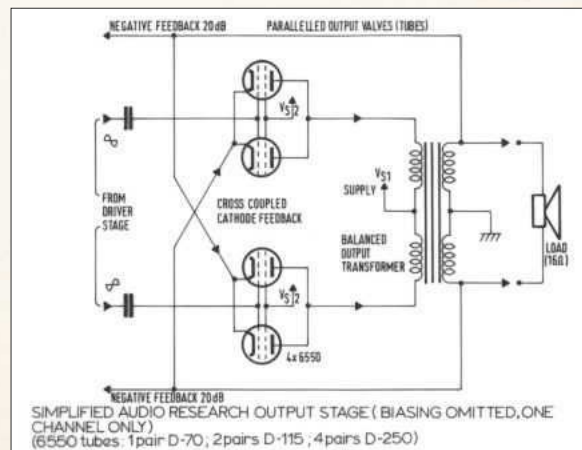
I mentioned before that I've yet to make a list of components that equal the performance of the D-70, so any listening one does to the D-70 is automatically limited by the inferior characteristics of lesser items. You want to hear how bad something is, feed it through the D-70: it will tell you in no time how your cartridge mistracks or what your cables are doing.

So you partner the Audio Research with components whose failings you can tolerate. Or with items you are willing to forgive for their transgressions. I'm sure that most of you are intimate with your systems (unless recently purchased) so you will be familiar with any quirks. Just be prepared for the baring of souls when the D-70 enters the equation, for any weaknesses previously masked or ameliorated by any other amp will be revealed...

GENUINE BASS

Preamp aside, I spent the bulk of my listening time with the Garrott Decca, AR turntable circa '68, and Goodmans LS3/5a speakers – after having played about with the variety of components mentioned earlier. The Editor arranged for the loan of an Audio Research SP-7 preamp, solid-state but tolerable for all of that, and I spent a lot of time with the PS Audio PSIV in the chain, as well as the Humphreys/Hafler DH-100, Musical Fidelity 'The Preamp', and Croft valve preamps. ➔

BELOW LEFT: Simplified output stage in schematic form for the Audio Research D-70, D115 and D-250 amplifiers. The D-70 employed one pair of 6550 tubes per channel



FROM THE VAULT

It's a good thing I didn't have the D-70 around before writing my epic on the LS3/5a [see *HFN* Nov '83]. The D-70 showed them to be even greater than I had thought, for it took this magnificent amp to show just what they can do when fed from the finest of power sources. Not only did I learn that the LS3/5as are capable of genuine bass, I learned that no valve lover need ever apologise again for the quality of bass provided by valve amplification.

THE REAL THING

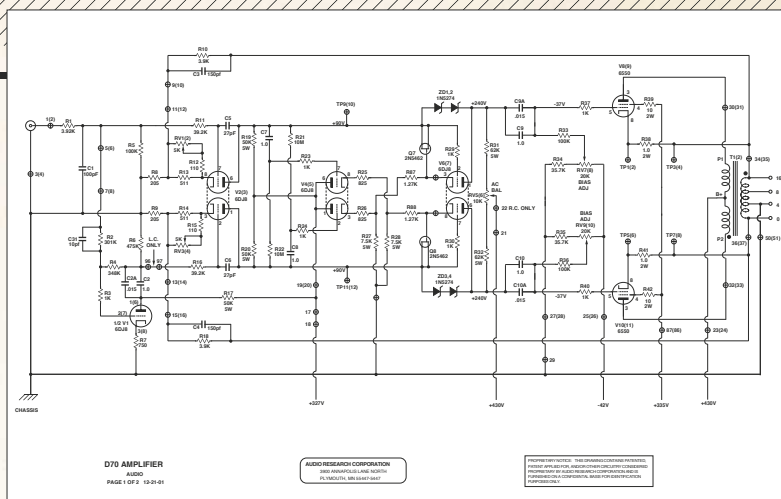
The D-70 lay to rest forever any remarks of the 'Valve amps are incapable of tight/deep/controlled bass' sort, and Naim owners had better believe me. Prior to living with the D-70, the best bass I'd ever heard came via the otherwise seriously flawed Threshold Stasis 150. That honour now belongs to the Audio Research.

You want rhythm? Control? No overhang? The D-70 will amplify, without doing any damage, whatever bass information it is fed by the source. I, and other Garrott Decca users, have long known of that cartridge's exemplary bass performance; the D-70 is the best amp I've yet used for carrying that signal from the end of the preamp's phono leads to the beginning of the speaker cable.

Up into the midrange and it's the same story. Open, uncoloured, pure sound, amplified with no deleterious effects. The all-important midrange comes through sounding real – and that is the ultimate accolade. Not 'accurate' or 'uncoloured', but *real*.

And it doesn't stop there, for there's a continuity starting with the bass, through the midrange, and up into the treble region that negates this need for tripartite analysis. The

RIGHT: Original circuit diagram of the D-70 amp. Power output was said to be 60W per channel (continuous) into 16ohm



BELOW LEFT: Audio Research founder William (Bill) Johnson pictured inside the company factory in Minnesota. Johnson set up the company in 1970 after running a retail operation then working as a custom electronics designer. He passed away in 2011. The Audio Research Corp. is now part of the burgeoning Fine Sounds Group



sound is seamless, limited only by the quality of the original signal and the calibre of transducer used to convert the D-70's labours into sound waves.

I don't want to attribute too many magical qualities to this amplifier, because I still firmly believe the old saw about a system sounding only as good as its worst ingredient. I disagree vehemently with the argument about a Linn through a junk amp and rubbishy speakers out-performing any system with a lesser deck, because you're still listening to a junk amp and rubbishy speakers – no matter how good the source. But there was something uncanny about the D-70, for its magic was apparent even when situated between an Oak turntable with a £12 Ortofon cartridge and a pair of Videotone Minimax IIs.

I don't want simply to modify that nonsense about £400 turntables in £500 systems by saying that the amp is more important, but I will say that it's shown me that amps would appear to be far more to blame for most audio ills than either front ends or speakers. Why? Because the D-70 has revealed to me that relatively clean, uncoloured information – from less than state-of-the-art front-ends – only gets as far as the average amp's input sockets... and from then on it's downhill.

But enough of this left-field philosophising, because I'd rather talk about the two areas where the D-70 really shows its mettle. I've already mentioned its capabilities regarding the unblemished transferral of information. That's not

so astonishing, because there are plenty of incredibly detailed amps available. Where the D-70 excels is in its ability to reveal intensely low-level information, subtleties simply swamped by lesser amplifiers.

Things like toe-tapping and the sound of breathing may not be too important when it comes to getting a musical message across, but they are crucial if verisimilitude is one of the criteria. It's the low-level clues that make the difference between the 'artificial' sounding and the 'real' sounding, for these low-level clues lead right on to the D-70's other great strength: the soundstage.

LEADING EDGE

If you want to recreate a musical experience in the comfort of your own home, you have to have

something more than just the music. You must have the image as well as the sound, and that encompasses everything from the placement

of the players and their instruments, to the impression of height, to the feeling of the space that separates these players.

I'm not saying it's imperative for the enjoyment of music, for one can still get a buzz listening to a mono transistor radio if the song happens to be a particular favourite. But that's not the same as leading-edge, state-of-the-sound reproduction, in which we strive for a duplicate of the original performance in every aural dimension.

The D-70, at least when used with the equipment I've tried, presents the best impression I've experienced of full-size performers ➤

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IsoTek EV03 Polaris, Hi-Fi Choice, March 2013



EV03 Premier

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FROM THE VAULT

occupying a three-dimensional space. And each time one of the components is improved, it naturally gets that much better.

For six hours, I had the honour of using the £3500 Audio Research SP-10 valve preamp in place of the SP-7. While a third of my waking day isn't enough time, enough exposure, for passing judgement, I must say that it came closer than any other single unit to matching the D-70 with like-calibre performance.

PRIVILEGE TO USE

The SP-10 was almost as big a *satori* as the first session with the D-70, and the whole process of wanting to hear my entire record collection started all over again. But even though I didn't try the SP-10 with other power amps, I've got this sneaking suspicion that the D-70 is the far more important of the two items in the quest for natural sound.

Why? Because there was greater satisfaction using the D-70 with any of a half-dozen preamps than there was using the best of those preamps with any amp other than the Audio Research... which gets back to my concern about its role being as great, if not greater, than the role of the front end, assuming that the front end is at least competent.

Where does this leave amplifiers as we know them? You'll notice I haven't been so foolish as to say that the D-70 is 'The Greatest Power Amp On Earth' or 'Guaranteed To Make You A Hit With The Fellas'. I

'Where does the D-70 leave amplifiers as we know them?'



can think of a dozen amps I've yet to try – all costing much more than the D-70, by the way – that also have reputations preceding them. Two possibilities include the D-70's larger siblings, there's a whole range of Futterman and Conrad-Johnson

amps to consider, and I've got a hunch that the Crofts, EARs, and the larger models from Roy Grant and Bill Beard will uphold the UK side of things. All

I can say with certainty is that the Audio Research D-70 is the finest piece of hi-fi equipment – regardless of type – that I've yet had the privilege to use.

SHEER BRILLIANCE

I've had three monumental experiences in 15 years of hi-fi use or ownership. The first was hearing the Garrott Decca cartridge. The second came four years later with the Stax loudspeakers. And the third followed shortly after with the D-70.

The amp's sheer brilliance doesn't lessen the greatness of fine amplifiers costing less, and that it doesn't exactly thrash the Beard P100 makes that amplifier look like a real steal at roughly half the price of the Audio Research.

But what it does do is present a real challenge to any manufacturer selling amplifiers near its price or above, and I look forward to the day I might hear something better with the same zeal that preceded the loss of my virginity. ☺

ABOVE: Pages from the February 1984 issue of *Hi-Fi News* in which Ken Kessler shared his thoughts on the performance of the Audio Research D-70 power amp

LEFT: Audio Research press release from June the 1st 1984 announcing that the D-70 had been revised and now enjoyed 'a new and improved cross-coupled circuit' to give improved musical dynamics. The Mk II version put out a claimed 65W per channel



Also in *HFN* this month in 1984

EDITOR'S COMMENT
By John Atkinson.

IEWS
Your letters on Linn's 'lucky bins', double standards and digital technology.

FORMATIS REVISITED
Paul Messenger looks at the questions raised by the UK introduction of the 'VHS Hi-Fi' FM recording system and by the RCA video-disc.

AFFORDABLE TURNTABLES
We audition midprice models in the form of the Ariston RD40, Mission Cambridge 775, Dunlop Systemdek II and Walker CJ58.

AN AMERICAN ELECTROSTATIC
Martin Colloms' listening room is taken over by one of a new generation of Acoustat loudspeakers – the Two+Two.

HAFLER DH-100 PREAMP
Ken Kessler builds the kit and Ivor Humphreys describes how he got the best results from it.

A BLANK IMPRESSION
Angus McKenzie carries out an in-depth survey on high quality cassette formulations from brand leaders BASF, Maxell, Sony and TDK.

CD: THE MOVIE
John Seabury examines the launch of Compact Disc.

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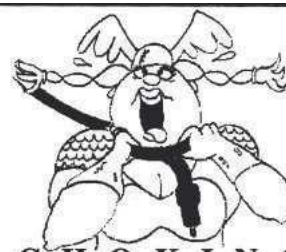
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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

The LP's true value today lies not in its sound quality but 'cool' value, reckons **Ken Kessler**

There is a tendency among audiophiles to think they're uniquely responsible for the so-called vinyl revival. Yet the LP's return depends more on those born after the dawn of CD, and who didn't even know what a turntable was until, oh, 2011.

Admittedly, it was companies like Pro-Ject, Ortofon, Denon, Thorens, SME and others who never ceased production of turntables, arms and cartridges, and music labels like Mobile Fidelity, Sundazed and Pure Pleasure who were the revival's enablers. If, say, between 1990 and 2005, there had been no LPs pressed nor decks manufactured, the rebirth would be restricted to secondhand turntables and discs.

How so? Because if all the record presses had been scrapped, and all the turntable assembly lines dismantled, it wouldn't have been viable to begin again from scratch. Pro-Ject, for example, has been making turntables for over 20 years; it is *not* a new start-up. The independent and major labels using pressing plants like RTI depend primarily on well-maintained equipment from the past.

In other words, there isn't and never will be enough money to start anew, but there is sufficient fiscal potential to restart surviving facilities. As one industry executive told *The Independent*, it is now a £20m-per-year

business in the UK, up from £3m five years ago. Hardly chump change, but still less than 3% of total music sales.

If you need a more succinct example of just how niche is the revival, the best-selling LP of 2014 in the UK was Pink Floyd's *The Endless River*. It managed this with 6000 copies. Back in the day, the band would probably have sold that many each hour on the day of release.

YOUNG FOGEYS

But at street level? From budding DJs to hirsute, tattooed hipsters to ad agencies' creative types, the LP's worth is not so much sound quality – the aspect which drives 'us' audiophiles – as its 'cool' element. This, of course, is based on the same retro characteristics of typewriters, VCRs, cassettes and other obsolete technologies, now finding favour with young fogeys. The difference is that LPs still perform better than what replaced them.

After all, I don't know anyone championing VHS over, say, Blu-ray.

A colleague who attends get-togethers like 'Classic Album Sundays', the primary manifestations of the revival where people sit and listen to LPs in reverent silence, says they tend to be filled with be-pierced youngsters pretending it's 1968 and they're students in digs listening to the latest Doors album. But

then, what else would you expect to make up an audience in 2015? Hi-fi enthusiasts don't need such events because we own record libraries and turntables.

There's a social element, too, but the only difference between attending an LP listening session with 30 strangers and simply going to a pub is the music. One should, however, never underestimate the proselytising value of something as formalised as LP listening sessions.

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All audiophiles should support such ventures if they encourage people to listen to music over something more inviting (and sociable) than an iPod/earbuds set-up, so forgive any cynicism in my tone. I love the idea of twentysomethings realising that their 'old fart' dads are on to something.

But these gatherings have gone from semi-casual to seriously professional with something called Spiritland.

Held in a London pub called the Merchants Tavern, Spiritland was a 'pop-up' event that took place every day and evening between the 6th of October 2014 and 1st of January 2015.

Free of charge, it was filled with music lovers – typically 70-100 per session – able to hear vinyl over a two-channel system consisting of Tannoy-supplied Westminster GR horn loudspeakers driven by Canary M500 valve monoblocks provided by Definitive Audio. LPs were played on modified Technics 1210 turntables.

Spiritland's organisers state that, 'Vinyl is preferred as a medium, but we also use CDs and 1/4in tape for playout purposes.' For these sources, they employed a Studer B67 tape deck and a Sony CDP-D12 broadcast CD player. The system mixer was Bozak's CMA-10-2DL.

There are currently plans to make Spiritland a permanent venue, probably in some achingly-cool place like Shoreditch (visit www.spiritland.club). If you can bear rubbing shoulders with tofu-eating sandal-wearers, semi-Goths and beardy hipsters, poised over Mac Aairs pretending to be novelists, it will be the ideal place to confirm that LPs are, and maybe always will be, the coolest format. Ever. ☺

'The difference is that LPs perform better than what replaced them'

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