

hi-fi news

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& Record Review

Exclusive

SONY'S RETURN

15 Years on – new flagship 'Hi-Res' stereo separates!

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2014 International

CES

£2000
Speakers
Group Test:
Five fabulous
floorstanders



THE BAND
MUSIC FROM BIG PINK

Icon Audio

KT150 tubes light up
the MB90 MkII amp

Krell Connect

Media streamer & DAC

Audioquest

DragonFly DAC reborn

Budget Esoterica

Pro-Ject's vinyl bargain

**"Lennon was in
his underpants"**

Hamburg's Star-Club, p78

Buying Vintage

First-generation CD players

• **PLUS** 19 pages of music reviews & features • **VINYL RE-RELEASE** Red Hot Chilis *Blood Sugar Sex Magik*

• **OPINION** 11 pages of letters and comment • **VINTAGE REVIEW** Quad 22 control & II power amplifiers

• **SHOW BLOG** We report from CES 2014 in Las Vegas • **READERS' CLASSIFIEDS** Hi-fi bargains galore

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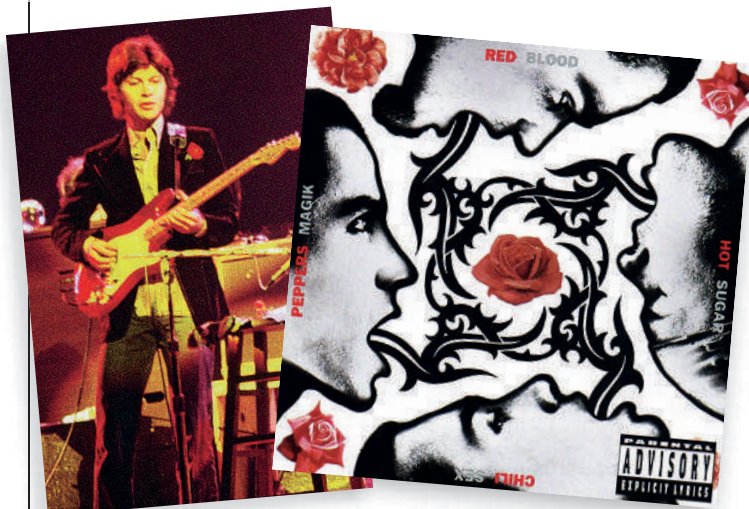
VERY HIGH QUALITY • MUSICAL FIDELITY DESIGNED
NEODYMIUM DRIVE UNITS

RIGHT: Audioquest's DragonFly plug-in USB DAC just got better! See p61

FAR RIGHT: JBL's new Synchros S700 'phones boast a lifelike listening experience... See p58



ABOVE: A new aesthetic and, by Krell standards, affordable pricing. We drive the new Connect media player, complete with onboard DAC (p50)



VINYL: The Band's *Music From Big Pink* is this month's Vinyl Icon (p72) while Steve Sutherland interviews the Red Hot Chilis over 20 years before *Blood Sugar Sex Magik* is reissued as a 180g LP (p70)

RIGHT: *Hi-Fi News & RR* is the exclusive UK representative of EISA's Audio and Home Theatre panels. Paul Miller is EISA's Audio and HT Panel Manager

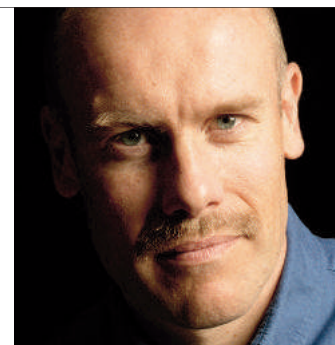


This year's International CES was certainly billed as the biggest and brightest yet but visitor attendance, in the 'High-Performance Audio' section at least, felt much quieter in the first two days thanks to weather-induced transport chaos across the northern US hubs. On the upside this gave *HFN* a distinct advantage, as we enjoyed largely unrestricted access to the movers and shakers and their prestigious hardware.

You can see snapshots from the event in this month's Show Blog (p8). Regular readers might also care to guess which of these high-end heroes will make it as exclusives on our forthcoming 2014 covers. Just for fun, mind... no prizes!

One of the high points must surely have been Naim Audio's unveiling of its fabulous Statement amplifier, a trio of towering black heatsinks that comprise the (two) NAP S1 mono power amplifiers and NAC S1 preamplifier. For Steve Sells, Naim Audio's Electronic Design Director, this was the culmination of a decade's sketchbook scribbling followed by three years of intense design work that drew upon every resource of every department within the company.

But perhaps the biggest surprise, after the £125k price



tag, was the realisation that Naim had succeeded in keeping this project top secret and under wraps for so long! It's our lead news story this month (p5).

This month's lead review is equally exciting because it marks the homecoming of hi-fi's iconic and market-leading innovator back to the stereo fold. It's been well over a decade since Sony

'Hi-fi's iconic market-leading innovator has returned to stereo'

graced the traditional music fan with a straightforward two-channel amplifier, but its flagship TA-A1ES is arguably as minimalist in concept and execution as anything it has ever produced.

The partnering HAP-Z1ES media player is also a surprisingly simple and elegant machine, one of a series of products that Sony is launching under its 'Hi-Res Audio' banner. Frankly the reason is unimportant. I'm just celebrating Sony's return!

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



BARRY FOX
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 currently our Senior Contributing Editor and almost singularly responsible 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

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CONTENTS

MARCH 14

VINYL & RECORD REVIEWS

- 68 Vinyl Frontier**
Chris Heard of Classic LPs brings you the best of the new reissues and re-releases on premium vinyl
- 70 Vinyl Release**
Thanks to Def Jam Records founder Rick Rubin, Red Hot Chili Peppers' *Blood Sugar Sex Magik* won them a global fan-base. Steve Sutherland relists as it enjoys a 180g reissue
- 72 Vinyl Icon**
Johnny Black looks at the recording of The Band's *Music From Big Pink*, recorded in a basement in a bid for a down-home gritty sound yet able to stir the soul some 50 years on...
- 78 Classic Rock Venues**
Steve Sutherland continues his tour of the world's iconic rock venues, this month bringing you the story of The Star-Club in Hamburg
- 85 Music Reviews**
Our selection of audiophile LP and hi-res downloads reviewed by our specialists alongside the latest rock, jazz and classical albums

DEFINITIVE PRODUCT REVIEWS

- 22 Sony HAP-Z1ES/TA-A1ES**
Hi-res audio the Sony way means a spanking new media player and a minimalist stereo amp. What gives?



ABOVE: Brodmann Acoustics JB155, p28



- 28 Brodmann Acoustics JB155**
It's a loudspeaker designed to be a musical instrument in itself, but can it produce accurate sound? We find out
- 32 Icon Audio MB90 MkII-150**
A world first for the UK firm as it offers its tube amps with Sol KT150 valves. We hear the 115W MB90 monoblock
- 39 Group Test: £1650-£2300 loudspeakers**
Five feisty floorstanders on test, none afraid to embrace some of the most exciting new technologies in the field
- 50 Krell Connect**
Network player finally arrives with the choice of a built-in DAC. How does it fare as a source for high-end systems?
- 54 Parasound CD 1**
This CD player has a computer on board and promises 'a new method of playing compact discs'. Intrigued?
- 58 JBL Synchros S700**
Not just a 'me-too' headphone but one boasting digital signal processing. Will DSP result in more lifelike sound?
- 61 Audioquest DragonFly v1.2**
Why this DAC-in-a-stick could be the best £129 you'll spend this year...
- 62 Pro-Ject 1 Xpression Carbon**
Latest version of Pro-Ject's classic deck proves to be another winner

VINTAGE

- 114 Buying vintage hi-fi**
We continue our series on how to secure the best vintage hi-fi buys with our pick of the CD players that now deserve to be called classics
- 120 Vintage Review**
How do the classic components of yesteryear measure up today? We test one of the most widely available vintage amps, the Quad 22/Quad II

NEWS AND OPINION

- 06 News**
Naim makes a Statement with its ultimate amplifier, Chord goes mobile with a DSD-ready DAC/headphone amp and IsoTek revamps its mains conditioners
- 08 Show Blog**
The International CES, hosted in Las Vegas, is the biggest technology event of the year with hundreds of prestigious hi-fi brands on the 'High Performance Audio' floors
- 16 Investigation**
It appears from your letters that hearing aids and hi-fi don't mix. Keith Howard sets off in search of the audiophile hearing aid and looks at some workarounds along the way
- 98 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
- 106 Sound Off**
Great sounding system for pennies, are today's high-end components throwaway, how to hear digital files at their best, plus will your next media machine be an ARMiniX?
- 138 Off The Leash**
'Civilians' have recently been asking Ken Kessler for advice on buying hi-fi and they mean separates rather than iPod docks. Time for optimism?



ABOVE: For our Group Test of £1650-£2300 loudspeakers, see p39

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Free! Audioquest Mackenzie interconnect See page 82

The Statement

NAIM AUDIO'S FLAGSHIP PRE/POWER AMPLIFIER LAUNCHED AT CES 2014

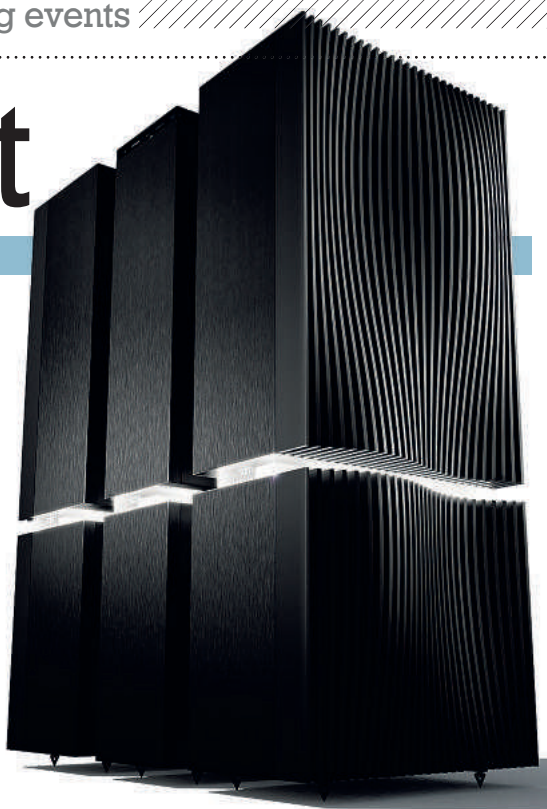
Debuted at CES 2014 in Las Vegas, Naim's Statement NAC S1 preamplifier and NAP S1 mono power amplifiers were the talk of the High-End Audio exhibit. With a starting price of £125k for the combination, the Statements are underpinned by two NAP S1 mono power amplifiers, each rated at 746W/8ohm (one horsepower), 1450W/4ohm and over 9kW/1ohm under dynamic conditions.

The NAC S1 preamp (centre column in photograph) features an entirely new electronic design, isolated throughout by leaf- and spring-suspension systems and screened within an inert metallic cage. The new Naim Dual Volume Control (DVC) combines a chip-based volume circuit that allows the sound to be monitored while adjusting the gain together with a

discrete 100-step resistor ladder that switches back into circuit once the desired level is reached.

Steve Sells, Naim's Electronic Design Director, first conceived of the idea for the 'ultimate amplifier' over ten years ago and development began in earnest in 2011. Says Steve, 'It's a massive project. To really push the boundaries of what we could achieve has required the efforts of teams from across Naim. Electronic, mechanical and industrial design engineers with combined experience totalling well over a hundred years have contributed to this project.'

The Statements will launch in July.
Naim Audio Ltd, 01722 426600;
www.naimaudio.com



Headphone Hugo

CHORD'S DSD-READY HEADPHONE PREAMP



Palm-sized headphone preamps surely do not come more versatile or rugged than the new £1200 Hugo from Chord Electronics. Launched as part of the company's 20th anniversary celebrations, the Hugo offers five digital inputs including support for A2DP aptX Bluetooth, and provides both 3.5 (x2) and 6.35mm headphone outlets alongside a pair of RCA phonos.

A standard (16-bit/48kHz) USB input is fitted alongside a USB 2.0 port that handles hi-res 24-bit/384kHz DXD and DSD128 music files. The coaxial S/PDIF input is also good to 24-bit/384kHz thanks to the FPGA-based DAC technology developed for Chord by Robert Watts. With a built-in battery charger and taking no power off the USB bus, Hugo is compatible with all iPhone, iPad and Android devices.

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

HI-FI NEWS' NUGGETS

QUAD 9AS SPEAKERS

Conceived as a compact 'crossover' speaker for desktop or bookshelf locations, Quad's active 9AS includes both analogue and digital inputs. For digital signals, amplification begins with the same high-precision 24-bit/192kHz DAC found in Quad's Elite CD players. All signals are passed via an electronic volume control to internal Class AB power amps tailored to the specific drive units: a classic Quad mid/bass unit with 100mm woven Kevlar cone and a newly-designed 25mm fabric dome tweeter with waveguide.
www.quad-hifi.co.uk

OYAIDE MAT

Black Rhodium, the UK distributor for Japan's Oyaide cable and accessories brand, has announced the launch of its BR-12 turntable mat. This £90 mat combines the anti-vibration properties of butyl rubber with the inclusion of Tungsten powder, further improving its ability to damp extraneous noise. The mat is also dished towards its centre by 1° allowing slightly warped LPs to be flattened by combining the BR-12 mat with a record weight (the Oyaide STB-MS). **www.oyaide.co.uk**

IsoTek powers on

A TRIO OF NEW MAINS CONDITIONERS

Three of IsoTek's power conditioning products have been redesigned and relaunched. The £2295 Evo3 Sigmas and £2695 Evo3 Titan include multiple conditioning stages to further reduce differential and common mode noise on the mains supply. The former combines two high-current outlets (up to 3680W) with four 10A outlets (2300W) while the Titan offers two outlets at 4600W and an auxiliary Neutrik connection. By contrast the £5995 Evo3 Mosaic Genesis (below) is derived from IsoTek's Ultimate series and combines both regeneration and conditioning across two 150W outlets.

Isotek; www.isoteksystems.com



The Hi-Fi Show *Live* 2014

THE LIVE HIGH-END EXPERIENCE EXPANDS FOR 2014

Following the success of the UK's first dedicated high-end event, The Hi-Fi Show *Live* will light up the Beaumont Estate venue in Windsor over the weekend of 1-2nd November. The exhibitors who worked to create the most enduring presentations of the most exclusive audio equipment are all pledged to return, with many new high-end brands filling additional rooms. The Hi-Fi Show *Live* will offer audiophiles a unique opportunity to experience and compare the very best audio equipment in the world while enjoying presentations from key designers and personalities.

www.hifinews.co.uk/show



Arcam's flagship FMJ

NEW TOP-OF-THE-LINE INTEGRATED FROM BRITISH MARQUE



Another surprise launch at CES 2014 was this new flagship integrated amplifier from Arcam. The FMJ A49 is not only the largest and most powerful amplifier to wear the Arcam badge but it's also the first to be built in the USA (Rochester, New York). Rated at 200W/8ohm and priced £3250, the A49 is also the costliest integrated from the brand. At the time of writing, specifications are limited but the amplifier appears to be a fully balanced design combining a 50W Class A stage with a Class G amplifier maintaining the headroom up to 400W/4ohm. The A49 is equipped with a MM/MC phono input and boasts 'the lowest distortion ever from an Arcam amplifier'.

Arcam, 01223 203200; www.arcam.co.uk

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Platinum DSD DAC

ANTELOPE AUDIO DEBUTS DSD DAC/HEADPHONE AMPLIFIER

Featuring what it describes as a 'unique 256x upsampling mode' the new Platinum DSD DAC and headphone amplifier from Antelope Audio elevates DSD64 and DSD128 media files to DSD256 (11.2MHz). In addition to this custom USB input, the DAC also includes S/PDIF and AES/EBU inputs. The Platinum DSD DAC is priced at £4250 complete with second-generation Voltikus power supply and an elegant aluminium remote control.

Antelope Audio (Europe), 0208 133 8355;

www.antelopeaudio.com



Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- 09 FEB** Audio Jumble 2014, The Angel Leisure Centre, Tonbridge, Kent; www.audiojumble.co.uk
- 21-23 FEB** Sound & Vision Show, Marriott City Centre Hotel, Bristol; www.bristolshow.co.uk
- 10-13 APR** Hi-Fi & High End, Crocus Expo Centre, Moscow, Russia
- 15-18 MAY** High End Show, M.O.C, Munich, Germany; www.highendsociety.de
- 30-01 JUN** T.H.E. Show, Hilton Hotel, Newport Beach, CA, USA

International CES 2014

Words & Pictures: Paul Miller



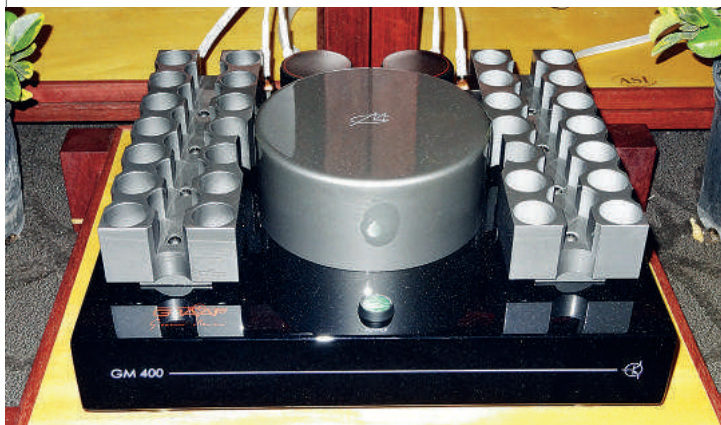
Every year the International CES, the world's largest consumer electronics show (ironically not open to 'consumers') evolves to reflect trends in all areas of technology. This year the exit polls were comparable to CES 2013 with more than 3200 exhibitors and 150,000 attendees, including over 35,000 from outside of the United States.

Over at the main convention centre, automotive technology had replaced the 'space' left by

Microsoft and various telecoms companies while the likes of LG, Samsung, Panasonic and Sony were slugging it out to offer the most extreme 4K screens.

The 'High Performance Audio' exhibit at the Venetian Hotel, located midway down the famous Las Vegas strip, was an oasis of calm thanks to the best sounds high-end hi-fi has to offer. No great tech breakthroughs this year but DSD-capable USB DACs were certainly in the ascendant.

Graaf, better known for its audiophile tube amps, is celebrating its 30th anniversary with a solid-state power amplifier. The GM 400 boasts numerous innovations, not least a design that is 'free from all well-known shortcomings affecting transistor amplifiers'. Rated power is 210W/8ohm with the first 10W in Class A. It sounded grand with Rosso Fiorentino floorstanders (p15). www.graaf.it



The Da Vinci *Dual* DAC is not a red-painted version of the Light Harmonic flagship we reviewed last year [*HFN* Apr '13]. Its '384kHz asynchronous USB ladder' is now augmented by a separate bitstream 'engine', analogue stage and PSU, providing two DACs in one chassis. www.lightharmonic.com



In a little under two years, amplifier maestro Dan D'Agostino has established a brand that's recognisable from a 100 feet. Here he is unveiling the new Integrated model which (essentially) combines the circuitry of the D'Agostino preamp [*HFN* Nov '13] with the Stereo power amp [*HFN* Aug '12]. The power supplies are screened in a separate milled aluminium enclosure that also forms a stylised base for the amplifier. Beautiful! www.dagostinoinc.com



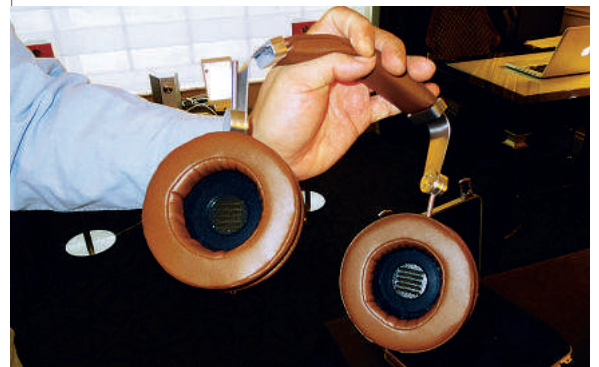
Designed by Korg, the engineering resource behind the AudioGate 3 DSD-centric audio player software, the DS-DAC-100 offers single-ended and balanced (XLR) analogue outs with a single USB input. The DAC supports LPCM up to 24-bit/192kHz and DSD files up to 5.6MHz. www.korg.com

Tucked away off CES's beaten track in a suite at the Mirage Hotel, Classé was very quietly showing a new series of 'crossover' hi-fi/home theatre separates. All 2U high and with optional rack-mount ears, the Sigma series represents Classé's first use of Class D amplifier technology. The series is headed by the \$5000 SSP multichannel processor/preamp and includes two power amps – the \$3500 stereo AMP2 and five-channel \$5000 AMP5. These new components are due for launch in late April/early May. www.classeaudio.com



A longstanding gentlemen's agreement between Michell Engineering and Germany's Transrotor has stalled the distribution of the latter's comprehensive turntable range in the UK. Nevertheless, Transrotor had much to shout about, launching four new turntables from the €4000 belt-driven Dark Star to the plush Orion Reference pictured here with SME arm. The deck features a non-contact magnetic drive. www.transrotor.de

Developed in Taiwan, the HAMT-1 is the world's first two-way AMT-equipped headphone. Bass and midrange are handled by a relatively conventional 57mm dynamic driver (with neodymium magnet) while the Air Motion Transformer takes over to stretch its response up to a claimed 45kHz. Impedance is 56ohm, price \$1800. www.obravo-global.com



With apologies for the thumbnail-sized picture, this is one half of Magico's massive, diecast bespoke horn-loaded loudspeaker system dubbed 'The Ultimate'. The company could only manage to accommodate one of these enclosures in its annex room. The equally immovable QSub is optional... www.magico.net



Partnered with a Spiral Groove SG1.1 turntable, Wilson Audio Alexia loudspeakers [HFN Mar '13] and top-of-the-range Transparent cables, this VTL S-400 Series II Reference amplifier helped deliver some delicious sounds. Rated at 300W in tetrode and 150W in triode mode, the S-400 II employs 12 6550 or KT-88 tubes with user-adjustable damping factor feedback control. www.vtl.com



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A beaming Heinz Lichtenegger wields his new €350 CD Box S player/DAC and Stereo Box S Phono amplifier. In 'Digital' guise, the Stereo Box S also includes a USB input, bringing the unit price to €500. Pro-Ject also showed its €1000 CD Box RS CD transport which is based around the StreamUnlimited mechanism and servo, offering I2S (on RJ45) and clock connections to the €900 DAC Box RS. www.project-audio.com



Seen atop the new \$13.2k (Swiss) Thales TTT Compact turntable, with its 'battery drive' system feeding a three-phase motor, is the remarkable Simplicity tonearm. Its two tubes move relative to one another, rotating the headshell so that it achieves a tangential geometry across the LP. Price is \$9.2k. See www.tonarm.ch



Ocean Way Audio introduced its \$48k Montecito loudspeaker system, designed by Allen Sides, the Grammy Award-winning engineer and producer. It features a ferrofluid-cooled 1in alloy dome tweeter (with hardwood waveguide), a polymer-coated 10in mid bass and two 12in alloy bass drivers for a claimed sensitivity of 88dB and pair matching within $\pm 0.5\text{dB}$. www.oceanwayaudio.com

Celebrating its 23rd anniversary in style, Pass Labs offered two stacks of its 'Point 8' power amplifiers. With the X150.8, X250.8, X350.8 and 600W mono X600.8 in the background, the new XA Point 8s (foreground) push their MOSFETs even further into Class A. Seen here are the 30W XA30.8 to the 200W XA200.8. www.passlabs.com



The distinctive form factor of Gato Audio components was introduced to *HFN* readers in Oct '13 and so the curved cabinet of the DPA-2506 (six channel) power amplifier will be unmistakable. Rated at 6x250W (or 3x500W) it's joined by the four-channel DPA-4004, the PRD-3 preamp and a pair of DAC-equipped integrated models, the DIA-250 and DIA-400. www.gato-audio.com

MBL was filling its generously proportioned room with fabulous music from this new Noble series. The E31 CD/DAC marries a slot-loading (Sanyo) CD drive with S/PDIF, AES and USB 2.0 digital inputs while the partnering E51 integrated amp utilises the company's proprietary LASA switched output stage to offer a rated 2x380W. www.mbl.de/en



SHOWBLOG Sights and sounds from around the globe



These racks of sparking Esoteric separates were a sight for tired eyes and ears alike. The fluted alloy fascias belong to its new 'Grandioso' series components, including the P1 SACD transport (with VMK-3.5-20S VRDS-NEO mechanism) and outboard PSU, the D1 monoblock DSD DAC (using new AK4495 32-bit chips) and the truly massive 300W/600W 8/4ohm M1 monoblock power amplifiers. www.esoteric.jp



Described as 'the most technologically advanced DAC in the world' with its 80-bit DSP, Femto clock technology and 384kHz discrete ladder DACs, MSB's 'Analog DAC' is relatively affordable at \$1695 or \$1795 with volume control. The modular base section has I2S input bays to accommodate USB, AES/EBU and S/PDIF digital cards. www.msbtech.com



Alongside Naim's Statement amplifiers, one of the other stand-out performances of the show was heard in the VAC room where these Statement 450 iQ mono power amps (using 8xKT88s to support a rated 450W/8ohm) drove Focal Grande Utopia EMs flawlessly. This was a room worthy of repeat visits! www.vac-amps.com

Now in Series 2 guise, the latest Wilson Sasha W/P features a new silk dome 'convergent synergy' tweeter and revised crossovers (the pulp mid and polypropylene bass drivers are unchanged). The head assembly also has a finer, 40-step adjustment used during set-up. www.wilsonaudio.com



Seen atop the C1 DAC and D1 SACD player from Swiss marque CH Precision is the equally lavish Sperling L-1 turntable from Germany. Priced at \$36k and equipped with the \$9.5k Durand Talea tonearm, the adjustments on offer, including motor position, take tweaking to a new level. www.ch-precision.com; www.motordose.de

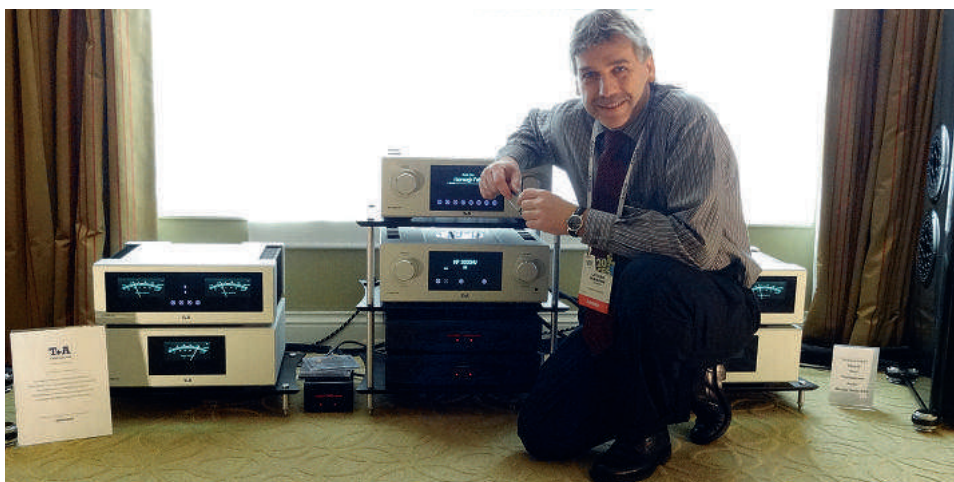
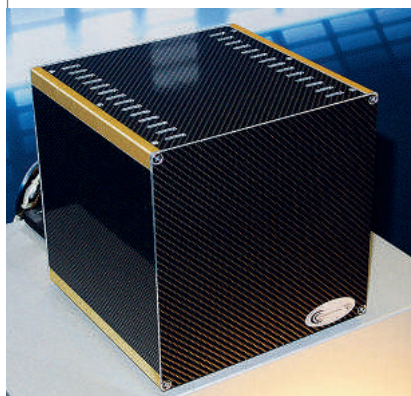
Japan's Triode Corporation has more integrated, pre and power tube amps than you might shake a filament at, and the TRX-M845SE is pretty much top of its tree. With parallel-driven 845s, this single-ended mono amp is rated at 50W/8ohm in Class A. Auto-biasing is a useful feature as are the balanced XLR inputs. Price is \$22,500. www.triode.co.jp



Nola's open-baffle loudspeakers are always a delight to hear and this massive Concert Grand Reference Gold was no exception, its five-way combination of ribbon tweeters, dual 12in subwoofers, 4.5in magnesium-coned woofers and 4.5in mid drivers filling the room with ease. Price is \$197k. www.nolaspeakers.com



Remember the three-box SAGA amplifier from Siltech [HFN Jun '13]? Much of its technology, including the novel 'Light Drive' power supply, is squeezed into this concept Cube amplifier, with RF remote. Rated at 2x200W/4ohm, the £15k Cube is modular with bays for optional inputs. www.siltechcables.com



Seen here with T+A's chief engineer Lothar Wiemann are the company's new additions to its EISA Award-winning HV series. The P 3000 HV preamp is joined by the 2x300W A 3000 HV power amp, operable in 380W mono mode and upgradable with the PS 3000 HV PSU! www.ta-hifi.com



More separates are emerging from Krell with this new and distinctive chassis design. Alongside the Illusion II preamp and Solo 575 mono power amps was this Duo 300 stereo model. Rated at 2x300W, a substantial portion purportedly in Class A; the heatsinks are buried deep under the bonnet. www.krellonline.com



MartinLogan went wireless at CES 2014 with the debut of its Bluetooth and AirPlay-compatible Crescendo speaker system. This remote solution combines a 24-bit/48kHz digital preamp with a 100W Class D amplifier, driving an oval (5x7in) black polypropylene woofer combined with two of its Folded Motion tweeters. www.martinlogan.com

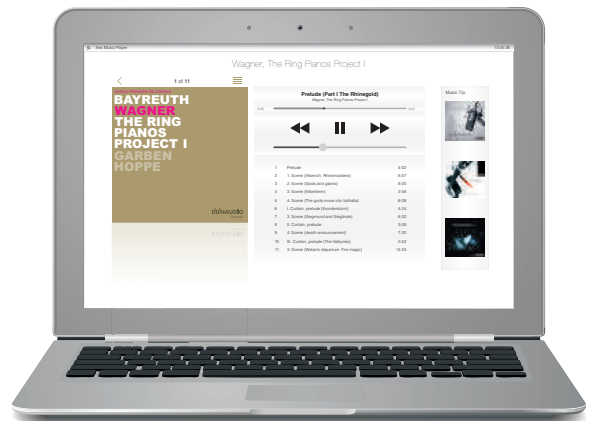


Winner of the AVTech Awards 'Best High-End USB DAC', the Auralic VEGA is seen here above the new ARIES multiroom streaming solution. The ARIES acts as a bridge between your NAS and existing DAC and is specified to deliver DSD and DXD-resolution audio over a Wi-Fi network using its Lightning streaming protocol. www.auralic.com

The perfect high-end system, in two simple steps:

1.

2.





Seen with the fabulous Absolare Passion 845 tube amps was this huge turntable, dubbed 'The Beat' from Kodo in the USA. It uses a three-phase synchronous motor as part of a 'MagDrive' with 'no direct mechanical contact between the motor and the platter'. Price in the UK is £24,995. www.xactaudio.com

Mr Atsushi Miura of Air Tight fame stands proudly beside a pair of his new Bonsai 2 standmount loudspeakers. The pair of 6.5in full-range drivers use Alnico magnets and were developed by Omura-san, a colleague of Atsushi Miura. The cabinet design is inspired by the classic LST from Acoustic Research although the Bonsai 2 is necessarily free of any crossover. The loudspeaker is provisionally rated at 88-89dB sensitivity and presents a nominal 4ohm load. www.airtight-anm.com



The flagship Florentia floorstander from Italy's Rosso Fiorentino Audio is really three boxes in one. The upper and lower modules house, respectively, a 250mm mid-bass unit with steel phase plug and a pair of 300mm (12in) bass drivers and 2x750W Class D amp acting as a subwoofer below 60Hz. The middle (treble) module features an open baffle. www.rossofiorentino.com

When Nola loudspeakers [p13] wanted the best analogue source it turned to United Home Audio and one of its Tascam-based UHA-HQ reel-to-reels. This souped-up tape deck is offered with an outboard power supply (the OPS) to eliminate EMI from the stock power transformer housed in the chassis itself. www.unitedhomeaudio.com



Inspired by the RP8, this is Rega's new £3000 RP10 skeletal turntable. It's based on the same plinth and surround as the RP8 but comes equipped with the new RB2000 tonearm (~£1200), white ceramic platter and custom outboard PSU. Fitted with the Apheta MC, the combination costs £3600. www.rega.co.uk



Distinguished by their two-tone fascias, the pair at the top are Primare's new PRE60 preamp (complete with network media streaming platform and DSD-cable DAC from the DA30) and the A60 power amp. The latter is rated at 2x250W/8ohm and uses Primare's award-winning UFPD Class D tech. www.primare.net

Next month

T.H.E Show at CES 2014 and Portugal's High-End event

Hearing aids & audiophiles

Is there such a thing as a hearing aid made for music? **Keith Howard** finds out

RIGHT: The reason hearing aids perform well with speech but can sound poor when listening to both live and recorded music lies in the fundamental differences that exist between the two types of signal. Music typically has a wider bandwidth, higher intensity and greater crest factor than speech

BELOW: 'Grim reading' – back in 2006 Wayne Sarchett reviewed a range of analogue and digital hearing aids reproducing music being replayed over loudspeakers. He found that 'old technology' analogue aids generally far outperformed their digital successors



Age-related hearing loss – known medically as presbycusis – used to be considered just that: an inevitable part of the ageing process. Study of remote tribes has shown that in fact this isn't the case. Hearing loss isn't an inevitable consequence of getting older; rather, it's another disease of Western industrial civilisation, caused by lifelong exposure to types

and intensities of sound that are not encountered on the savannahs or in the jungle. The message is: look after your hearing and you are much more likely to enjoy good hearing acuity into old age.

WHAT CAN BE DONE?

Unfortunately, such advice is of no use to audiophiles who already have hearing difficulties – due either to presbycusis or other medical conditions – and whose enjoyment of music is being affected as a result. Hearing aids can certainly bring marked improvements to speech intelligibility but users often complain that they make music sound terrible.

So what can be done? Is there such a thing as an audiophile hearing aid? And are there any tricks to help conventional aids perform better on music? Surprisingly, there

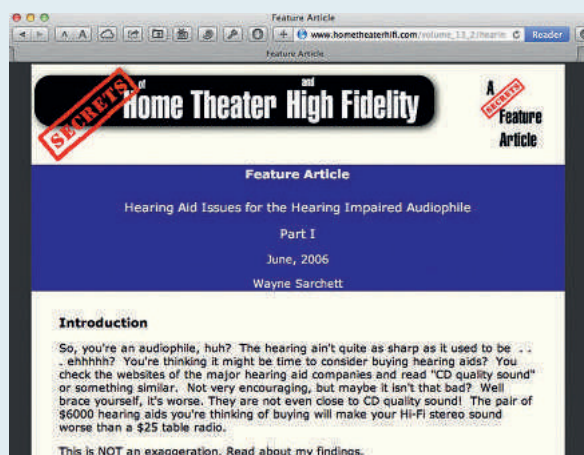
is relatively little that has been published on the sound quality of hearing aids from an audiophile perspective. But in 2006 the website Secrets of Home Theater and High Fidelity published an article by Wayne Sarchett, 'Hearing Aid Issues for the Hearing Impaired Audiophile', which made for grim reading (see http://www.hometheaterhifi.com/volume_13_2/hearing-aids-6-2006-part-1.html).

In it Sarchett reviewed a selection of analogue and digital hearing

aids reproducing music replayed over loudspeakers, with the 'old technology' analogue aids – usually discontinued or being phased out – generally far outperforming their digital successors.

Until somebody performs a similar exercise with the latest generation of hearing aids – and it is hard to do that properly as it

'Users complain often that hearing aids make music sound terrible'





LEFT: Two types of telecoil neckloop which allow reproduced music to be played via hearing aids having a T (inductive loop) setting. The first (left) plugs into an audio source via a minijack plug; the second, costlier type connects wirelessly to Bluetooth devices. The wire loop around the neck generates a fluctuating magnetic field received by the hearing aid

would require each to be optimally configured for whoever does the listening – it is difficult to say where we stand eight years later.

But the academic literature shows that greater consideration is now given to hearing aid performance on music, and that there is a more complete understanding of what is required to make hearing aids that can satisfy audiophiles and musicians. As a result, hearing aid manufacturers have begun to take the requirements of the hearing-impaired music lover more seriously.

GOING DIRECT

There are two separate strands to this story, according to whether the music is live or reproduced. With live music it is the performance of the hearing aid via its microphone that determines the resulting quality, whereas with reproduced music it is possible to bypass the microphone circuits. The latter is achieved by conveying sound directly to the aid using the telecoil inductive loop sensor normally included in behind-the-ear or in-ear hearing aids (but not CIC, Completely In Canal, types because they are too small) or else via the Bluetooth wireless interface.

The telecoil option has the twin advantages of being inexpensive to implement and universal. Carefully realised and in ideal circumstances, it is also capable of good sound quality. To listen to music sources the user has to wear a neckloop which receives the audio signal from an FM or infra-red transmitter to which the source is connected, and then re-broadcasts the telecoil signal to the hearing aid.

The telecoil's significant downside is that it is sensitive to electromagnetic interference from items like mobile phones, TVs and fluorescent lights, which

can result in distracting buzzing noises. The best modern telecoil implementations have superior rejection of this interference, and it can often be lessened by sitting well away from the interference source(s) – but it can still prove a problem, particularly when listening to music of wide dynamic range.

BLUETOOTH ISSUES

Bluetooth obviates the interference problem but has issues of its own. First, while the Bluetooth standard itself is universal, the implementations in different manufacturers' hearing aids are proprietary. Second, Bluetooth requires considerably more power to operate than a telecoil, which can have significant outcomes for hearing aid battery life. Third, Bluetooth introduces latency – time delay – to audio signals and this can be sufficient to be a problem, particularly if the sound accompanies moving pictures. ➔

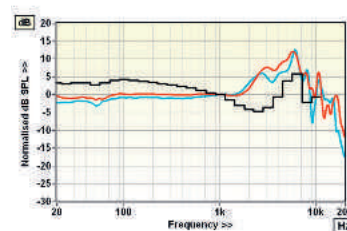


BELOW: Using headphones to listen to music is one way of overcoming frustrations with hearing loss. As headphones vary in tonal balance there's a good chance of finding a pair that will 'match' you

THE HEADPHONE OPTION

For many hearing-impaired audiophiles, headphones can provide a cheap and effective way of circumventing problems with their current hearing aid at a much lower cost than upgrading the aid itself. What's more, overall performance may even be better, particularly if you have similar hearing loss in both ears, despite the lack of response equalisation tailored to the user's individual needs.

If you choose this route then clearly the best advice is to listen to a range of headphones to see which best suit your particular hearing loss. Fortunately, headphones vary in tonal balance much more widely than loudspeakers, so there's a fair chance of finding a set that will suit you.



Of course, there may not be anywhere near at hand where you can readily perform such comparisons, in which case the best you can do is try to match your audiogram (if you have it) to the diffuse-field corrected response of the headphone, so that the two are a mirror-image. One thing to remember is that if your hearing loss is worse in one ear than the other, some compromise is probably needed.

This won't guarantee the best result but at least it may help you draw up a shortlist of likely candidates. Unfortunately, diffuse-field corrected headphone responses are not easy to come by but they are regularly measured as part of *HFN's* headphone reviews. An example is shown above (stepped trace) for the Sennheiser HD800 model.



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LEFT: Some newer hearing aids will now accommodate 105dB SPL peak or higher, which can be a real boon when it comes to listening to music. An audiologist who specialises in sourcing hearing aids for audiophiles and musicians will help you identify suitable models

The reason that hearing aids which perform well with speech can sound dire on live music or sound reproduced over loudspeakers lies in the fundamental differences that exist between the two types of signal. Generally, music signals have a wider bandwidth, higher intensity and greater crest factor (the ratio of peak to mean levels) than speech. Whereas speech, even shouted speech, rarely exceeds 85dB SPL in level, peaks when listening to a symphony orchestra can reach 110dB SPL or more, and 115dB or higher for orchestral musicians.

CREST FACTOR

The bandwidth of music is also more variable than that of speech, reaching out to both lower and higher frequencies. Whereas a telephone-like bandwidth has traditionally been considered sufficient for speech in hearing aids, it isn't for high quality music reproduction. Crest factor on speech is typically 12dB whereas on wide dynamic range music programme it can reach 20dB or more, and I have one percussion recording where it is over 30dB.

These differences between speech and music signals mean that hearing aid performance requirements for the two are quite different. Increasing the bandwidth of a hearing aid from a typical 5kHz to 10kHz or higher can considerably enhance the enjoyment of music. As an additional benefit it also aids speech intelligibility since all the consonant sounds that are so important to conveying meaning

are now encompassed. To quote a well-known example, the semantic difference between 'My son is sailing at school' and 'My son is failing at school' is considerable but spectrally the differences lie at frequencies above telephone bandwidth, the sibilant 's' in sailing generating a burst of frequencies that lie between about 4kHz and 14kHz. Pushing the low-frequency limit of a hearing aid down to 50Hz or lower also improves performance on music.

BRING THE NOISE

When hearing aids sound distorted on music – as they often can – it isn't a bandwidth issue, though, but a problem of being unable to accommodate the higher peak levels of music. As speech rarely, if ever, exceeds 85dB SPL it used to be common practice to design hearing aids for a maximum input of 85-90dB. Anything louder was

presumed to be noise and was subject to severe limiting, which introduces distortion.

Some hearing aids are still like this but others

will now accommodate 105dB SPL peak or, ideally for music listening, higher. Choosing such a hearing aid is the biggest single step you can take towards improving sound quality when listening to music, but this parameter isn't commonly specified by manufacturers as currently it isn't a requirement of any hearing aid standard.

An audiologist who specialises in sourcing and configuring hearing aids for audiophiles and musicians will help you identify suitable ➔

'Choosing such a hearing aid is the biggest single step you can take'

SMART MOVES

If your current hearing aid sounds bad when listening to live or amplified music, there are various things you can try that may improve matters.

If the problem is caused, as it often is, by the aid distorting at high sound intensities, make certain that you select concert seats that are sufficiently far away from the performers or the PA system in order to limit the sound pressure level you are subjected to.

Likewise, if you are listening at home over loudspeakers, reduce the volume level of the hi-fi system and, if necessary, increase the gain of the hearing aid to compensate.



If you can't do either of these then putting one or two layers of adhesive tape (Sellotape, Scotch Tape, etc) over the microphone opening will reduce the sound pressure reaching the microphone, typically by 5-10dB, without having an untoward effect on frequency response, at least up to 4kHz or so.

If you can disable the directional microphone feature then do, particularly in the concert hall, where you may otherwise find yourself listening to the whispered conversation of people sitting behind or alongside you.



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Just listen...



Can your hearing aid handle loud music? A quick test will tell you

By Marshall Chasin

There are five common scenarios that a hearing aid must handle in order to provide good music reproduction. While the listening test is not exhaustive, these five tests have been clinically shown to be effective in predicting good music reproduction. These parameters and their controls have been described previously in the *Hearing Journal*.

There are five common scenarios that a hearing aid must handle in order to provide good music reproduction. While the listening test is not exhaustive, these five tests have been clinically shown to be effective in predicting good music reproduction. These parameters and their controls have been described previously in the *Hearing Journal*.

...there is a quick but clinically valid method to determine if a particular hearing aid can transduce music and other intense stimuli properly...

These parameters may be implemented in a single hearing aid, or they may be implemented in a separate device. For example, the hearing aid may be implemented in a separate device, such as a preamp, or it may be implemented in a separate device, such as a preamp. The hearing aid may be implemented in a separate device, such as a preamp, or it may be implemented in a separate device, such as a preamp.

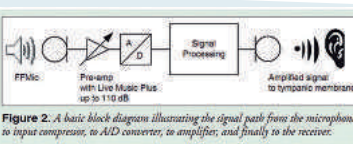


Figure 2: A basic block diagram illustrating the signal path from the microphone, to input compression, to A/D converter, to amplifier, and finally to the receiver.

Table 2. The THD (in percentage) at 1600 Hz is shown for five commonly used advanced digital hearing aids with a 90-dB-SPL input, a 100-dB-SPL input, and 10 dB of gain (all set with an output greater than 120 dB SPL). Only Aid #2 could handle the higher-level inputs, so it would be best able (of the five tested) to reproduce loud music optimally.

	Aid #1	Aid #2	Aid #3	Aid #4	Aid #5
90-dB input	10	3	16	21	16
100-dB input	22	4	54	58	57

models, and a relatively quick and easy check of the peak limiting level has been described by Canadian audiologist Marshall Chasin, who has published a series of papers on the subject of music reproduction via hearing aids ('Can your hearing aid handle loud music? A quick test will tell you', *The Hearing Journal*, December 2006, available for free download online). Unfortunately specialist equipment is required to perform the test; it's not something you can do yourself.

DISTORTION FIGURES

Just how bad the distortion can be is illustrated by a table in Chasin's paper, reproduced here, which lists the total harmonic distortion (THD) on a 1.6kHz sine wave input at 90dB SPL and 100dB SPL respectively for five popular advanced digital hearing aids of the time. Just one of the five aids – identified only as Aid No2 – achieved distortion figures that audiophiles would consider acceptable. On the 100dB SPL input it generated 4% THD while three of the remaining four recorded over 50% THD – and this at a level well below the peaks experienced with music.

The block diagram (top centre) shows the functional structure of a digital hearing aid. Premature limiting can occur in two places within the input stages immediately downstream of the mic: either in the initial preamp or in the analogue-to-digital converter (ADC). Nothing can be done in the subsequent

processing circuitry to correct this problem, so it is essential that such limiting is prevented.

In hearing aids designed for good performance on music the preamp will typically accept input levels up to 110dB SPL or more, and so will the ADC. Increasingly 20-bit or 24-bit ADCs are being used in preference to previous 16-bit types in order to accommodate these high peak levels and allow sufficient headroom for response equalisation while keeping noise levels sufficiently low. Sampling rates have also increased, better hearing aids now using 32kHz to provide an audio bandwidth of about 16kHz.

CORE MESSAGE

Getting the hardware right, though, is not the only prerequisite to achieving good results on music. It is also essential that the hearing aid has a dedicated music program which adjusts or defeats aspects of the signal processing that are essential for best results with speech but

compromise musical enjoyment. It is normal, for instance, to switch off the directional microphone feature and to select a compression algorithm that maintains both the dynamic contrasts and the tonal balance of the input signal.

There's obviously a great deal more to be said on this subject for hearing-impaired audiophiles, and we hope to hear of your experiences in this area in our letters pages. But the core message is plain enough.

'It's also essential the hearing aid has a dedicated music program'



TOP LEFT: Download the Dec 2006 *Hearing Journal* at <http://journals.lww.com/thehearingjournal/toc/2006/12000>

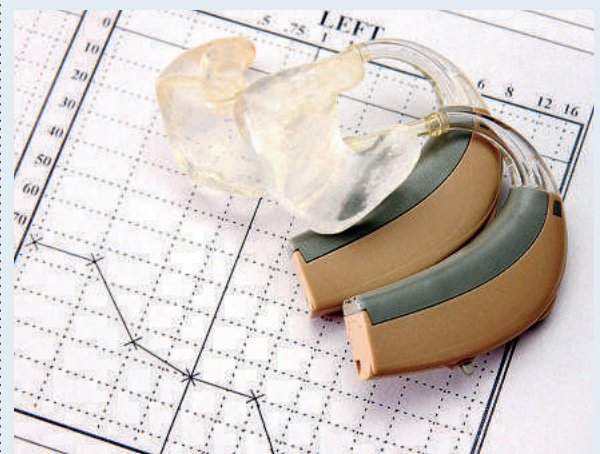
ABOVE LEFT: Chasin's table showing THD for five hearing aids and (right) block diagram of structure of a digital model

TOP & RIGHT: Wear your aid with pride! Two designs inspired by vintage audio

BELOW: Two behind-the-ear hearing aids atop an audiogram

The best of the latest generation of digital hearing aids can provide good performance on music as well as speech, but it is essential to choose the right model and to have it set up by an audiologist with experience of selecting and configuring hearing aids for audiophiles or musicians.

Saving money by buying a hearing aid online or from a retail outlet that lacks the necessary expertise is almost certain to result in disappointment. Find the right specialist, and consider the cost of buying and setting up a suitable hearing aid as a good investment. One that will make good on what you've already spent on your hi-fi system, and what you will spend on future concert tickets. ☺



Sony HAP-Z1ES/TA-A1ES

Audiophiles already know about hi-res audio downloads, but with its new hi-fi components Sony aims to bring better-than-CD sound quality to wider attention

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

Remember how HDTV transformed your viewing experience? Now high-resolution audio will take your listening enjoyment to a similar thrilling new level.' In fact it's music as we've never heard it before, according to Sony's new web portal for promoting hi-res audio and its new range of stereo components [www.sony.co.uk/hub/high-resolution-audio].

That's right: Sony has returned to pure, two-channel, high fidelity sound. From the multinational corporation responsible for audio milestones such as those gorgeous Esprit components of the late 1970s, the revolutionary Walkman, the fiendishly clever digital compact disc, and SACD at the turn of the century, there's an initiative to bring hi-fi replay back to the top of consumers' must-have wish lists.

A RAFT OF NEW PRODUCTS

In announcements made simultaneously at the annual IFA show in Berlin and a press event held in New York last September, Sony pledged its support to an industry campaign led by America's Consumer Electronics Association to promote hi-res audio – now dubbed 'HRA'.

It has produced a raft of new products focused around hi-res computer audio. All are compatible with files up to 24-bit/192kHz and, of course, DSD downloads. They've just started shipping and *hfn* is first in line to sample the top-of-the-range 'Elevated Standard' (ES) models: the HAP-Z1ES digital music file player featuring a built-in 1TB HDD and its partnering TA-A1ES integrated amplifier rated at 80W/8ohm.

This is the first analogue stereo amplifier Sony has developed in 15 years. Other HRA-compatible products being launched include the HAP-S1 (£800), a compact system with 500GB HDD and on-board 40W amplifier (add speakers to taste), a DoP-compatible USB DAC/amp (2x23W)

called the UDA-1 (£500), two bookshelf speakers sporting supertweeters, and – yes – new Walkmans set to challenge the likes of Colorfly and Astell & Kern for enjoying HRA (not DSD files, though) on-the-move.

These ES components are ultra-minimalist in design. First of all, the HAP-Z1ES is *not* a UPnP/DLNA network audio player. Yes, it connects to a home network via wired Ethernet or Wi-Fi, and it provides internet radio using the vTuner platform. However, playback of music files is directly from its HDD/local storage. (A USB port at the rear allows you add a supplementary external drive to expand capacity, so don't worry about that 1TB limit.) This is very much a purist approach.

Sony provides a small PC/Mac utility, called HAP Music Transfer, for moving files that you've downloaded to your computer to the HAP-Z1ES – although, once installed, it's not mandatory that you use it. When the Sony player is connected to a local network both its internal and connected

HDDs simply show up on the desktop of any computer with the HAP utility installed on the same LAN. You can drag/drop/delete files at will.

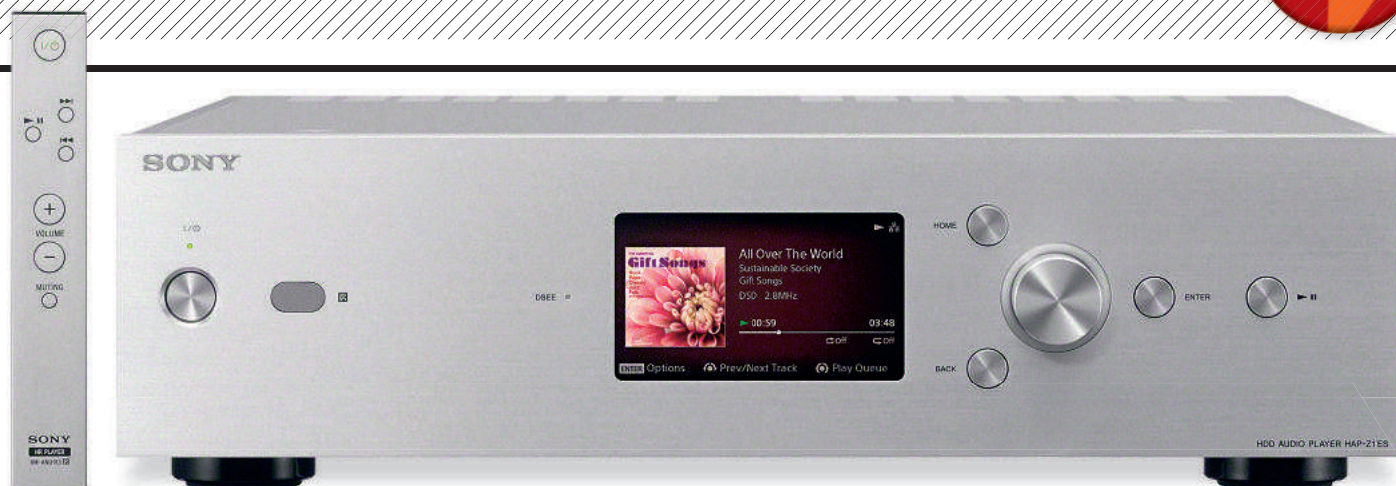
With the utility, however, you can set the HAP-Z1ES to 'watch'

folders on your computer and transfer files automatically at periodic intervals. You can also set it to 'grab' only certain file types – ignoring MP3s for example. Once all those DRM-free WAVs, AIFFs, DFF

'These Sony ES components are ultra-minimalist in their design'



RIGHT: Sony's TA-A1ES employs a simplified, single-ended bipolar power amp stage (see heatsinks left and right). Bias current is governed by the *position* of the volume control



and DSFs, FLACs, ALACs (and compressed files if you *must*) have been copied, the player logs everything into its database and interrogates Gracenote if any ID3 tags are missing. Whether you've put files onto the unit's internal or external HDD is an irrelevance, albums showing up sorted alphabetically. File navigation is via the front panel's jog knob and enter/back buttons; you search by artist, album, track, favourite, mood, whatever.

The minimalist handset only controls playback (play, pause, next, previous) once a track or album is playing. You *might* be content driving the Sony from its front panel, but naturally Sony has developed iOS and Android control apps – called HDD Audio Remote – free from the iTunes App Store and Google Play. It worked flawlessly on my iPhone, although as with all control apps browsing an extensive music library and creating/editing playlists is more fulfilling on a tablet.

DSB RESAMPLING

Under test the HAP-Z1ES worked flawlessly – full stop. Its display is excellent too, better than anything I've seen on a network player at any price. Yes: both the display and the app indicate file type/sampling rate, ticking all the boxes an

audiophile might want. But there are couple of disappointments. It's a pity it can't operate as a 'digital hub'. There are no inputs for other sources, no USB input for pushing in data directly from a computer. You can't even plug in a flash drive and play its contents, because the 'Z1 employs a robust ext4 journaling file system rather than FAT32 or NTFS.

One of the HAP-Z1ES's unique selling points is that it 'upsamples' all file types to 5.6MHz DSD128 [see Lab Report]. 'That 1TB drive will soon be gobbled up!' we thought. But then we discovered that 'DSD Resampling' is done on-the-fly during playback by its on-board SHARC DSP. Nor should you worry if you're not enamoured of DSD and would prefer your 24/96 and 192kHz PCM files left unsullied. While not immediately obvious – indeed, there's no setting in the configuration menu or mention of it in any manuals – DSD Remastering *can* be turned on/off. The option is buried alongside various settings (including gapless playback and volume normalisation) within the control app.

Another function of the DSP is the player's Digital Sound Enhancement Engine (DSEE). Sony makes a big deal of this, having included a DSEE indicator LED on the player's fascia. It's for 'restoring the

ABOVE/BELOW: Brushed aluminium front panels are an exemplar of modern minimalism, yet both components can also be operated using fascia control keys. Browsing music stored on the HDD player is best via a tablet

bandwidth' of lossily-compressed files. I tried it with a couple of MP3s. Recordings sounded louder, a bit brighter, but it's not a life-changer. And it can't function when listening to low-bitrate internet radio, where it might have been most beneficial.

ULTRA-PURIST AMP

Sony's all-new amplifier to partner its ES HDD player is its first two-channel analogue amp since the TA-FA777ES. It's not as luxurious as the copper-chassis'd '777, nonetheless it's a tasty £2k's-worth with a fairly meaty power supply on-board. I'd have wagered a 21st century Sony amp to be a Class D or even a digital design [see boxout, p25]... but, no, it uses a single-ended push-pull circuit employing just two transistors per channel. Dual-mono in layout, the TA-A1ES really is ultra-purist, with no emitter resistors, coils or capacitors in the signal line. A nice design touch is the inclusion of a separate dedicated headphone amplifier, which has switchable output impedance/gain optimisation. ➔



A-S3000

Integrated Stereo Amplifier



CD-S3000

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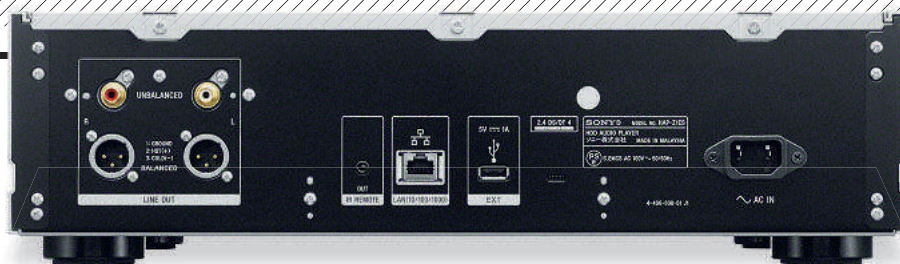
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Powered by music



ABOVE: The HAP-Z1ES offers single-ended (RCA) and balanced (XLR) analogue outs with a wired ethernet input and USB port for an external HDD. **BELOW:** Inside, music files are stored on a 1TB drive and upsampled to 5.6MHz DSD prior to filtering through a pair of Burr-Brown PCM1795 DACs

These smart-looking components make a perfect pair. But what does the HAP-Z1ES sound like as a digital audio source? And how good is the TA-A1ES amp?

SUPERB TRANSPARENCY

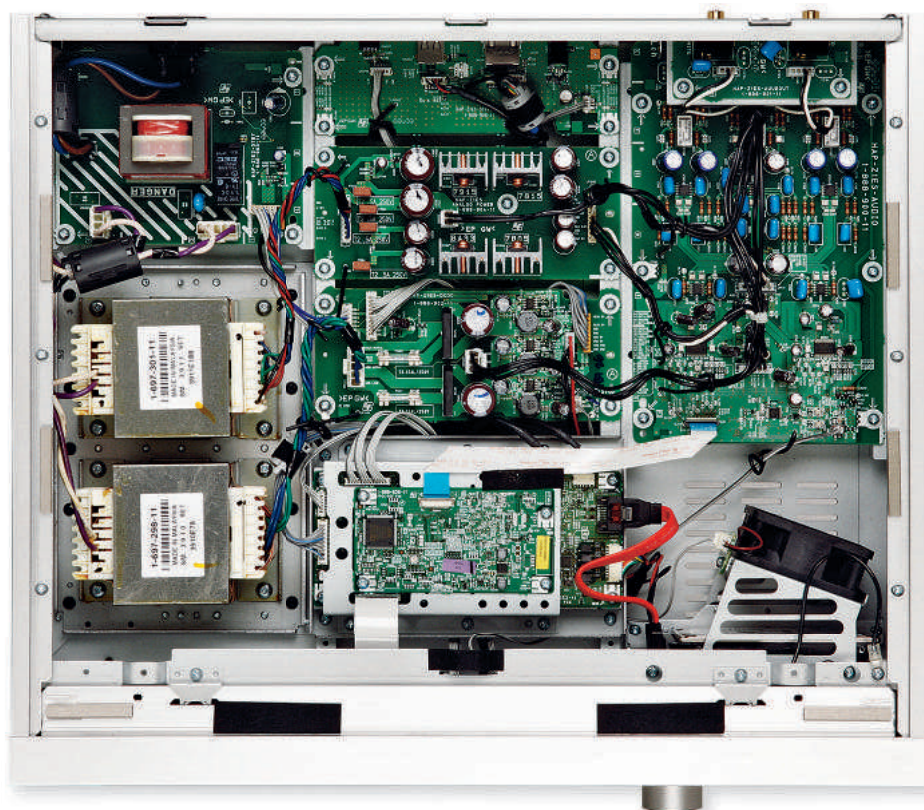
With my regular computer source pushing data into Auratic's Vega DAC [*HFN* Jan '14] via USB I was bowled over by the open and crystal-clear sound of the ES amplifier. It sounded relaxed and confident, with an inviting midband and natural, sparkling high frequencies that were free of grain and edginess. Its bass was powerful, extended and extremely well controlled.

In fact with top-notch recordings it sounded better than my 100W Mark Levinson, less creamily coloured and with better detail resolution at both frequency extremes. Playing Norwegian pianist Jan

Gunnar Hoff's acoustic jazz project, his Hoff Ensemble's *Quiet Winter Night* album recorded by 2L in a church in Oslo [2L-087, 24-bit/96kHz download], demonstrated fabulous detail, providing ample evidence of the amplifier's superb transparency.

I next focused on the performance of the HAP-Z1ES. It's certainly refined and super-clean sounding, with a 'pure' and delicate treble quality. But I thought it a tad soft-focused and laid-back, with a subjectively reticent bass delivery that made it appear lean and lacking verve compared with the sound I get using JRiver Media Center to push data into top-notch DACs such as T+A's DAC 8 (and the DoP-equipped Auratic Vega I used in order to judge the Sony's DSD128 playback performance). Don't get the wrong impression here: Sony's HDD player is no

'They deliver a sound quality that proved a joy to experience'



ERIC KINGDON

Eric Kingdon is an industry veteran of more than 30 years. He joined Sony in 1984, since when he has risen through the ranks and collected innumerable air miles travelling the globe. An obsessive music collector and committed audiophile, he's been responsible for several 'UK-tuned' products over the years. Today he fulfils several roles. 'I'm not too sure what my official job title is supposed to be,' laughs Eric. 'I suppose you could call me a technical marketing manager, although I get involved in product development whenever possible. Sato-san, our design engineer in Japan responsible for the TA-A1ES amplifier, is a close friend of mine. We've enjoyed countless hours listening to music together, tweaking and fine-tuning our products.'

'I've also worked closely with Inayama-san who designed the ground-breaking SCD-1, our first SACD player, introduced in 1999. He's been in charge of overseeing the HAP-Z1ES HDD player design project. We've had many lively discussions concerning whether or not the amplifier should be a traditional analogue or Class D design. Our conclusion was that it was vital to make it sound the best we possibly could and that the technology employed was secondary.'

'I never cease to be amazed by how small changes can affect performance. For example, late on we changed the volume indicator on the fascia to a more expensive static, non-switching, display and found it made a worthwhile improvement to the sound quality.'





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Tune Audio horn loudspeakers bring the true sound of musical perfection into the domestic environment. The range includes the Prime, Marvel and Anima models, and an active full-horn sub. Engineered and constructed to superb standards, the range is available in an almost infinite variety of finishes built to order.

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ModWright Instruments

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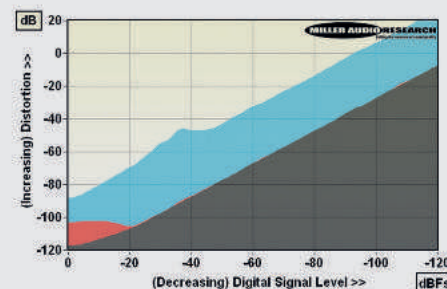
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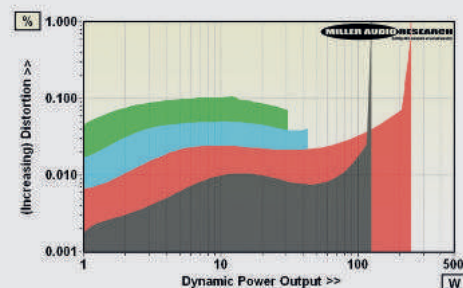
SONY HAP-Z1ES/TA-A1ES

Tested with DSEE and volume normalisation switched off, the HAP-Z1ES's upsampling to 5.6MHz DSD means the swell of ultrasonic requantisation noise normally associated with 2.8MHz SACD is much reduced (+25dB between 20kHz and 100kHz). This is consistent with incoming media sample rates from 44.1kHz to 192kHz as is the low 0.0001-0.003% peak level distortion [slightly higher on the right channel – see Graph 1], the 109.5dB A-wtd S/N ratio and vanishingly low jitter of just 10-20psec. Frequency responses are exceeding flat – to within ± 0.01 dB from 20Hz-20kHz with 44.1/48kHz media, ± 0.0 -0.1dB to 42kHz with 96kHz media (and a steep rolloff thereafter) and -4.7dB/90kHz with 192kHz files.

With its output stage bias linked to volume *position* rather than level the TA-A1ES's idle consumption ranges from 50W (min volume) to 150W (max volume), the internal heatsinks reaching temperatures of 56°C under test (10W/8ohm). With its load switch in the 8ohm position, the TA-A1ES readily exceeds its 80W specification at 110W/180W into 8/4ohm with a dynamic output of 125W/245W into 8/4 ohm falling to just 45W/31W into 2/1ohm loads [see Graph 2]. The latter is limited by protection and unaffected by the position of Sony's 8/4ohm load switch so, clearly, the amplifier is best partnered with moderate/high rather than low impedance loudspeakers. The response, meanwhile is ruler-flat from 5Hz right out to 100kHz (± 0.2 dB). Distortion also increases at HF from a low 0.004% (1kHz/10W) to 0.045% at 20kHz and 0.29% at 40kHz. The S/N ratio is very wide at 91dB (re. 0dBW). Readers may view comprehensive QC Suite test reports for Sony's HAP-Z1ES and TA-A1ES by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: THD vs. decreasing 24-bit/48kHz digital level (black = 1kHz, left; red = 1kHz, right; blue = 20kHz)



ABOVE: Dynamic output vs. THD into 8ohm (black), 4ohm (red), 2ohm (blue) and 1ohm (green) loads

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	112W / 180W
Dynamic power (<1% THD, 8/4/2/1ohm)	125W / 245W / 45W / 31W
Output imp. (20Hz-20kHz, HDD/Amp)	220ohm / 0.066-0.078ohm
Freq. resp. (20Hz-20kHz, HDD/Amp)	+0.0 to -0.01dB / +0.00 to +0.01dB
A-wtd S/N ratio (HDD/Amp)	109.5dB (0dBFS) / 90.8dB (0dBW)
Distortion (20Hz-20kHz, HDD/Amp)	0.0001-0.003% / 0.0040-0.045%
Digital jitter (48kHz/96kHz/192kHz)	11psec / 10psec / 19psec
Power consumption (HDD/Amp)	21W/337W (50-150W idle)
Dimensions (WHD, HDD/Amp)	430x130x390mm/435x108x365mm



ABOVE: Massive 4mm speaker cable binding posts are joined by four single-ended (RCA) inputs and one balanced (XLR) input. This is a 'purist' line-only analogue amplifier with no USB or other digital inputs

slouch. I'm comparing it with the best available.

Putting the two ES components together, using Signal Projects' gorgeous Hydra cables that (gulp!) cost almost as much as one of the units themselves, the player's slight leanness and lack of verve was ameliorated to a degree by the amplifier's open-mouthed clarity and dynamic clout. Together they make for a very persuasive system, delivering a tremendously informative and finely textured sound quality that proved a joy to listen to, and often revelatory.

It proved perfectly able to reveal subtle differences in file quality, as I discovered when comparing 44.1, 96, 192kHz and DSD64 versions of Rachel Podger playing Bach concertos with the Brecon Baroque, from Channel Classics [CCS SA 34113]. Improvements in authority, grip, pitch definition, tonal shading and ambience detail were all apparent with higher sample rates. Moreover, for collectors of SHM-CDs the Sony combo is also adequately transparent to highlight differences in CD mastering and manufacturing – and the quality of your rips!

PCM OR DSD?

So what sonic effect *does* the 'X1 player have in converting PCM files to DSD? Hearing its excellent sound quality when playing a rip of a beautiful-sounding CD such as Patricia Barber's *Companion* [Blue Note/Premonition 7243 5 27290 2 9], which was mastered at 24-bit from an analogue source, there's no way you would know you were listening to a PCM-to-DSD conversion. With good recordings Sony's new ES components sound just wonderful.

In 'Bye Bye Blackbird' the instruments and Barber's voice were depicted exquisitely in the holographic image, the sound of the drum kit tangible and the acoustic setting palpable. You can turn the

DSD Remastering on and off – on-the-fly – and decide for yourself if you like the slight smoothing and 'sweetening' effect that DSD clearly generates. As for 2.8MHz DSD64 files being upsampled to 5.6MHz, I thought the sonic effect so subtle I doubt I'd reliably determine the difference under blind listening.

Only when comparing DSD directly with high-speed PCM did I tend to feel short-changed, the sound losing some of its sparkle and with leading edges and dynamics seemingly blunted. (I'm also aware that many listeners *prefer* what I observe to be a slightly rose-tinted version of events, claiming DSD to sound 'more analogue' and organic. Each to their own.)

I'm bound to conclude that the amplifier is the sonic star here, but the HDD player is also excellent given its price. Intriguingly, as PM's Lab Report explains, the ES amplifier's bias current increases with volume *position*. This implies that changing the volume might momentarily alter its sonic character. I tried to see if I could hear this, by listening to a few seconds of music, moving the volume and then listening to the same segment a few minutes later. But I couldn't spot any variation. ☺

HI-FI NEWS VERDICT

Hats off to Sony for making some very desirable stereo components once again. The HDD player offers excellent functionality and operability, the amplifier sounds fabulous, and as a duo they're a most capable partnership, boasting solid build and handsome design. In the realm of high-end audio – and high resolution audio sound quality – these new ES components represent tremendous value.

Sound Quality: 85%



Brodmann Acoustics JB155

Should a speaker enclosure be totally inert or, as acoustician Hans Deutsch contests, designed as a musical instrument?
 Review: **John Bamford** Lab: **Keith Howard**

Viennese piano marque Brodmann put its brand name on a range of loudspeakers in 2009. We've been listening to Brodmann Acoustics' ultra-luxurious JB155, a 1400mm-tall monolith whose 480mm-deep enclosure is trimmed handsomely in glossily lacquered burr walnut veneer befitting a finely-crafted piano. It's the smaller of two models in the company's flagship Joseph Brodmann Series – the 'JB' in the speaker's nomenclature. If you're going for broke, the company's JB205 is even more statuesque at just over two metres tall, priced at £52,000 in standard gloss black finish and rising to £70k in premium veneers.

While its JB models are priced in the same ball-park as high-end speakers from the likes of Wilson Audio, TAD Labs and Magico, Brodmann Acoustics' loudspeaker line-up isn't exclusively the preserve of the very well-heeled. Its Festival range starts at £2500 for the FS standmount and £3700 for the F1 floorstander, while the Vienna Classic (VC) range comprises three handsome floorstanders priced between £7250 and £13,750. There are several in-wall and on-wall models available as well.

DEFYING CONVENTION

These are the creations of maverick designer Hans Deutsch, an Austrian acoustician whose loudspeaker designs fly in the face of conventional thinking. Where speaker manufacturers the world over pursue a never-ending quest to find ways of making their cabinets as inert and resonance-free as possible, Deutsch – who trained as an opera singer in the 1960s before studying acoustics – deliberately rejects this approach.

Rather than trying to banish cabinet resonances and rely solely on a speaker's drive units to generate sound, he uses sections of the loudspeaker enclosure as vibrating sound boards – 'to allow the creation of

a three-dimensional, transparent, true to life sound.' States Brodmann's literature: 'We build speakers not as mere vessels, but as instruments themselves.' It's a radical approach that most, if not all, other speaker designers might consider heresy [see boxout].

BÖSENDORFER REINCARNATED

Hans Deutsch's 'Acoustic Active' design approach recalls a range of loudspeakers made a few years ago by the famous Bösendorfer piano company of Vienna. Indeed, Brodmann speakers are those Bösendorfer models reincarnated, the designs having been further tweaked and refined over the years. Bösendorfer was acquired by Yamaha Corporation in 2008, since when the licencing of Hans Deutsch's radical speaker designs has switched to Brodmann.

The Brodmann firm is headed up by a former board director of Bösendorfer and some of the company's former technicians, its brand name trading on the heritage of the Viennese piano craftsman Joseph Brodmann, who once had Ignaz Bösendorfer as a pupil in the early 19th century. Brodmann's headquarters is in Vienna, but its pianos are built in China.

Brodmann's speaker manufacturing, however, is in workshops in Austria where everything is made in-house. This includes the drivers themselves, the company's latest low-mass mid/bass units (called 'The Pure Voice') designed to deliberately swing free on lightweight mounting frames to deliver 'the marvellous dynamics and splendour of singers and instruments in the direction of

RIGHT: The cabinets of these flagship Joseph Brodmann models are sumptuously finished. Soft-dome tweeters and paper composite bass/mid drivers are made in-house to designer Hans Deutsch's specifications, as well as the enclosures

"We build speakers not as vessels, but as instruments themselves"





ACOUSTIC ACTIVE

Whereas the role of a musical instrument is to amplify and add characteristic timbres to the resonant modes of, usually, vibrating strings or columns of air, that of a hi-fi loudspeaker is to be *inert*, adding no character of its own to the sound. That, at least, is the classic view – but it's one challenged by Brodmann Acoustics, whose speakers incorporate features designed to add resonance to the reproduced sound. The philosophy is called 'Acoustic Active', although its originator – Austrian Hans Deutsch, who has been developing speakers along these lines since 1970 – makes clear that actually there is nothing *active* about it. 'Brodmann loudspeakers are instruments in themselves. Of course they don't employ active resonators with instrument-specific sounds, as musical instruments do, but instead they use passive resonators, creating a neutral sound. Without resonances, there cannot be lifelike sound.' Most will respond: with resonances, there cannot be *accurate* sound. KH

original sound patterns,' says the designer. The JB155's narrow front baffle sports three soft dome tweeters made of silk fibres soaked in acrylic. On the outside panel of the enclosure lie three 130mm drivers whose composite cones of hemp and carbon fibre are made 'like fine hand-made papers: soft inside, for optimal damping, and hard on the outside for optimal sound projection'. Their suspension is UV-resistant Styrofoam. Both the tweeters and main drivers employ magnets with very small gaps, with four-ply and six-ply voice coils respectively, on Kevlar mounts. Says Hans Deutsch: 'Their design leads to maximal conversion of energy into acoustic pressure instead of a substantial loss of energy as heat.'

Inside the sturdy MDF cabinet there is (purposely) no damping material, the main drivers acoustically coupled via an internal resonator tube. Frequencies above 130Hz are projected by the drive units' front sound field, while the drivers' rear sound field drives the 'Horn Resonator'. At the rear are two large 'sound boards' designed to act as vibrating diaphragms, attached by strategically placed clamped bolts which can modify the amplitude of vibration in an effect 'similar to the stiffening board of a grand piano'.

The JB155 sits on a large base plinth to ensure good overall stability, supplied with spikes as standard, although these can be replaced by the company's Black Diamond inverted cones, priced £220 for a set of four.

PAINTS A BROAD PICTURE


The JB155 delivers a sumptuously smooth and inviting sound. High frequencies are sweet and refined, with notable absence of 'splash' or graininess other than with truly raucous pop/rock recordings. Rather than projecting vivid images, the big Brodmann paints a broad and slightly diffuse sound picture across the end of a listening room. Under our listening conditions it had a 'dark', warm midrange balance. Low frequencies

were generous and subjectively reasonably extended, but quite plummy and ill-defined. And with rock music they sometimes fell apart, with the bass intolerably boomy.

Several of Bösendorfer's – and now Brodmann's – smaller models have received complimentary reports over the years. Having heard some of them at hi-fi exhibitions (fed by top-quality source components, naturally), I've found them creating creditably large and open sound images, delivering rich and extended bass frequencies given their room-friendly form factors. They're an attractive proposition for many and well worth auditioning if your interest is piqued.

However, this monolithic JB155 is far removed from being a room and/or family-friendly speaker – unless one's listening room is of stately proportions. While its front baffle is narrow it nevertheless made an imposing, statuesque sight in editor PM's generously-proportioned media room. We fed the JB155s a variety of CD-quality and high-resolution recordings and drove them with a Devialet D-Premier, using no-expense-spared Absolute Dream cables from Crystal Cable.

Sometimes the speaker proved tantalisingly seductive. With simple music programme such as the lovely recording of Buddy Holly singing 'True Love Ways' on the album *From The Original Master Tapes* [MCA DIDX-203] the image created was gloriously wide and deep, the atmosphere of the recording studio served up most graciously.

Similarly it sounded open and quite refined with chamber music pieces. In an excerpt from Haydn's 'Fifths' string quartet performed by Holland's Ragazze Quartet, a high-resolution recording on Channel Classics [CCS SA 34613], the musicians appeared clearly separated with oodles of space around them. The big Brodmann created an immersive sound image – again, with a subjectively warm midband and delicate, finely-etched treble. The sound was criticised only for appearing dynamically 

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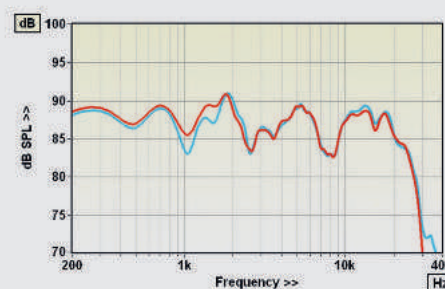


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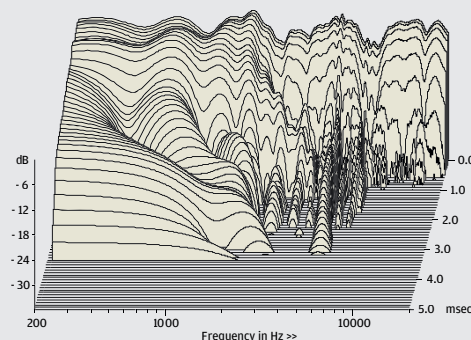
BRODMANN ACOUSTICS JB155

Brodmann's claim of 91dB for '1.05W sensitivity' for the JB155 begs the question of input voltage. Our 87.7dB pink noise figure for 2.83V (1W/8ohm) shows that, for its size, the JB155 is not notably sensitive – this despite its 4ohm rated impedance, which is (almost) consistent with our measured minimum modulus of 3.1ohm. Impedance phase angles are modest, though, so the EPDR (equivalent peak dissipation resistance) drops to a minimum of 1.8ohm at 138Hz, making the JB155 no more challenging to drive than many a smaller floorstander.

The frequency response at 1m on the tweeter axis [Graph 1, below] exhibits a slight downwards tilt towards high frequencies, despite which the frequency response errors are quite well controlled at ± 4.1 dB (200Hz–20kHz). Pair matching error over the same frequency range was disappointing at ± 2.1 dB, although the largest disparities were confined to quite a narrow frequency band around 1.5kHz. This is with the tweeter level switch in the middle position, which gives the flattest and most extended result – although output still falls away rapidly above 20kHz. With the switch in the down position there is a small attenuation above 10kHz, while in the up position the response falls away faster to be about 5dB down at 20kHz relative to the middle position. Bass extension is poor – our diffraction-corrected near-field measurement recorded a high 91Hz (–6dB re. 200Hz) – and the nearfield response also indicated resonances at about 270Hz, 185Hz and 68Hz, corresponding with blips in the impedance graph. The CSD waterfall [Graph 2] is quite clean, though, bar a prominent resonance at 5kHz. KH



ABOVE: The undulating forward response shows a slight downward trend through presence and treble



ABOVE: Cabinet modes are (probably) confined to lower frequencies than are shown here. Note mode at 5kHz

softened compared with 'traditional' high-end monitors. But with some recordings the sound simply fell apart. For example, when playing Dire Straits' 'Private Investigations' from *Love Over Gold* [Mercury 8000882] what started off as terribly promising (that smooth and easy-going presentation...) became, well, simply terrible as the bassist made his grand entrance, when we were greeted by a thick, booming muddiness swamping the room that made the recording unintelligible.

... A ROBOTIC 'THUNK'

Another stern hi-fi test, the track 'Gone Buttlefishin'' from Sheffield Lab's immensely dynamic *James Newton Howard And Friends* [CD-23] revealed the speaker's lack of resolution. The ultra-vivid crispness of the cymbals and drummer's rimshots were softened and the speaker proved unable to describe the detail and texture of bass and drums, instead reproducing a robotic 'thunk' at low frequencies.

Recordings with seismic bass content such as Me'Shell Ndegéocello's 'Mary Magdalene' on her album *Peace Beyond Passion* [Maverick 46033] were so thunderous as to blur the entire piece. We were forced to conclude the JB155 is most definitely *not* a loudspeaker for rock music fans!

On a positive note, with simple recordings the JB155 can deliver an engaging rendition of the music, its tonal balance giving you a cuddly hug rather than slapping you in the face. But its thick and uncontrolled bass will make it a non-starter for many audiophiles. ☹

HI-FI NEWS VERDICT

These are idiosyncratic speakers that you really must hear for yourself – in your own listening room. On some music they sounded quite delightful – open and relaxed with a naturally sweet treble quality – but at other times would fall apart as the bass became boomy and indistinct. And you might balk at the price of these specially finished JB Series models; Brodmann's smaller designs offer much better value.

Sound Quality: 65%

0 - - - - - 100

ABOVE: In between the two 'acoustic sound boards' is a single set of gold-plated multi-way input terminals, along with a three-position switch to adjust the output of the tweeters

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	87.5dB/87.7dB/87.6dB
Impedance modulus min/max (20Hz–20kHz)	3.1ohm @ 305Hz 11.6ohm @ 96Hz
Impedance phase min/max (20Hz–20kHz)	–41° @ 114Hz 34° @ 45Hz
Pair matching (200Hz–20kHz)	± 2.1 dB
LF/HF extension (–6dB ref 200Hz/10kHz)	91Hz / 25.7kHz/26.0kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	1.2% / 0.7% / <0.1%
Dimensions (HWD)	1420x230x480mm

Icon Audio MB90 MkIIIm-150

Introducing the brand-new KT150 output tube, the most powerful yet in its class, this latest version of Icon Audio's big monoblock looks to be something rather special

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

Like the hardy perennials of audio horticulture, the standard valve amplifier circuits keep coming up fresh year after every year. Time-honoured varieties are blossoming like never before, thanks to the grafting-on of new tubes that are bigger and better than the previous standard types.

Most exotic perhaps is KR Audio's T1610, the prize marrow of a tube used in the Kronzilla power amp [see *HFN* Aug '13]. But there has also been a new flowering in the family of beam tetrode tubes that started, in the UK at least, with the venerable KT66. This is the new Tung-Sol KT150, and the first amplifier manufacturer to feature it is Icon Audio.

The KT150 is now an option with Icon's Stereo 60 Mk IIIIm, both integrated and power amp versions, and with the single-ended MB30 monoblock. You can have two pairs of KT150s in the MB150 monoblock, giving 150W in ultralinear mode and 100W even in triode mode.

NEW DESIGN, OLD CONCEPT

But arguably, this new tube is shown off to best advantage in the MB90 MkIIIm monoblock power amplifier. Still also available with KT120 tubes at £2700 a pair, the design has been re-worked to suit the KT150, and in this form, reviewed here as the MkIIIm-150, it sells at £2900 per pair.

Although this amp is a recent design and comes with brand-new tubes, both the 'KT' concept and the basic circuit date back to the 1930s. In the early days of valves, the addition of a fourth element called the screen grid, between the grid and anode (or plate), had made a triode into a tetrode. Adding a further element, the suppressor grid, between this and the anode, created the pentode.

The suppressor grid got rid of a kink in the characteristic performance curve of the tetrode. But as the pentode had been

patented by Philips, engineers at EMI came up with another solution, using beaming plates to guide the electron stream, and so the 'kinkless' or 'beam tetrode' was born. Then, in 1937, came the 'ultralinear' circuit invented by Blumlein, with the screen grid connected to a tapping on the output transformer. As the name suggests, this exploits the power of a pentode or beam tetrode while giving low distortion. However, it's also possible to run the tube as a triode, with the screen grid connected to the anode. Like many of today's audiophile amplifiers, the Icon gives you this option too.

Built in Icon's factory in China but, like all the company's products, finished and tested in Leicester, the MB90 MkIIIm looks solid and handsomely-proportioned. The tubes spring proudly from a chunky 6mm-thick copper-coloured plinth, although this is actually anodised aluminium.

On the right is the small 6SL7 double-triode for the first stage of amplification, while the 6SN7 on the left is the phase-splitter, creating the two 'halves' of the audio signal to be fed to the two KT150s in the push-pull output stage. In the middle, adding its own pale blue glow, is a 0D3 ionising voltage regulator.

Underneath the chassis, as with all Icon products, the circuitry is built up by

traditional point-to-point wiring, with never a printed circuit board in sight.

DUAL-USE RETRO METER

You expect a valve amp to be a bit more complicated in use than a solid-state one, just as a vintage Bentley is more demanding to drive than an electric car. But Icon Audio seems to know how to make valve amplifiers simple and comfortable to use. You get some additional controls, but everything is well thought out for the non-techy user and, incidentally, well explained in the instruction manual.

While the main power switch is on the side, the front panel controls start with a standby switch. In standby mode, the valves' heaters are kept on so the amplifier is

ready to come to life almost instantly. It's sensible to use this mode when listening intermittently during the day, but Icon doesn't recommend leaving the amplifier in standby for more than 24 hours.

Next comes the Triode/Ultralinear switch. Running the valves as triodes may be expected to produce the best subjective sound quality, even though the claimed power output is then reduced from 115W to just 60W.

Suitably retro in design, the illuminated analogue meter in the centre is primarily

'Voice, piano and guitar each had a glossy perfection of their own'

RIGHT: With its perspex cage removed, the MB90 MkIIIm's complement of 6SL7 and 6SN7 triodes are revealed in front of the pair of KT150 beam tetrodes. Note manual bias adjust points





LEFT: Tung-Sol's new, egg-shaped KT150 tubes are said to give better heat dissipation, superior vacuum and freedom from microphony. They can be run in ultralinear or triode modes

with the excellent B&W CM10 speakers, for example, I found the 4ohm setting preferable. But there's also one more toggle switch, which gives the choice of High or Low sensitivity.

'Low' is the standard setting, designed to work with normal valve and solid-state preamps while giving the best damping factors for difficult speaker loads. 'High' gives more gain (as there is less feedback) and is suitable for use with passive preamps or other source devices with a volume control. But also, says Icon, 'purists may prefer this low feedback sound.'

GETTING HIGH

It was fascinating first of all to compare the sound on its Triode and Ultralinear mode settings. I found that the triode mode was often just more atmospheric-sounding, and ultralinear was generally just not quite so sweet. With Marta Gomez and *Entre Cada Palabra* [Chesky JD301] the vocals could appear to be more focused, as, with the ultralinear, the singer seemed almost to be splashed across the stage rather than placed clearly. In triode mode, the bass was seemingly not so deep and at the same time perhaps less well-controlled, but somehow with a coherent connection to the upper registers that made it satisfying.

Experimenting with the High and Low sensitivity settings (allowing for the change in level of course) I did find myself preferring the 'low feedback sound' of the High position. With the amplifier set to Low, there was still depth in the soundstage, but it lost some of the great overall sense of freedom and perspective you got with High. There was just a bit more ambience, a bit more air around each of the instruments.

On the 'Maria Mulata' track, for example, you really got more of the quick slapping and cracking sounds of the various percussion instruments. Conversely, the Low position was fine on the voice and smoother on the bright, sharp solo flute sound, which on the High setting seemed to be on the verge of spitting at you. But overall, it was the High setting for me, and I continued to listen that way...

For me a good system is one that gets the best out of all material, not just the finest recordings. So I put on Elmore James's 'Dust My Blues', recorded in mono in the 1950s and remastered much later by Ted Carroll of Ace Records [*Let's Cut It*, ☺

an output power meter, although rather than watts or dB, it's just marked with a scale of 0 to 100 where 100 corresponds to maximum output. In practice, as the average power to the speakers will be quite low, you will hardly see it move.

But it does have another and much more useful function, which is to make it easy to check the bias on the output tubes, using the three-position toggle switch on the right. Switch it up for 'V1' or down for 'V2' and the meter will indicate the bias level on one or other of the output

tubes. If the meter needle moves into or at least very near the black section between 60 and 70 on the scale, all is well. If not, you can adjust the bias up or down as necessary by using a small screwdriver on the little preset adjacent to the valve. There will be OCD enthusiasts who'll flip this switch on a daily basis, but Icon suggests that once a month is enough.

On the back of the amp is a single unbalanced (phono) input socket and set of three speaker terminals, providing 4 and 8ohm matching options. Listening

THE KT150 TUBE

Looking rather different from its predecessors, the KT150 still follows the line of development that started in the late 1930s with the first beam tetrodes, RCA's 6L6 and EMI/Marconi's 'kinkless tetrode', the KT66. Higher-power versions, the 6550 in the US and the KT88 in the UK, were introduced in the mid-1950s and the 1990s brought the beefed-up KT90. Then, in 2009, Tung-Sol, now part of the New Sensor empire that embraces the main Russian brands, launched its substantially more powerful KT120. Now, Tung-Sol's KT150 is billed as 'the most powerful octal beam tetrode ever produced', with a plate (anode) dissipation of 70W, against 60W for the KT120, or about 40W for a KT88. It's said that a pair of KT150s can give an amplifier output 'approaching 300W', while the egg-shaped glass envelope improves thermal dissipation and reduces microphony.



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Precision 6.2 / 6.1 / 6C /
TS2.12 system



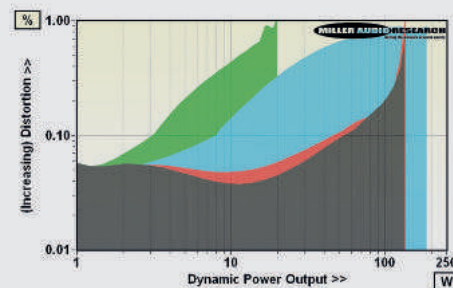
Precision 6.2 / 6.1 / 6C /
TS2.12 system

LAB REPORT

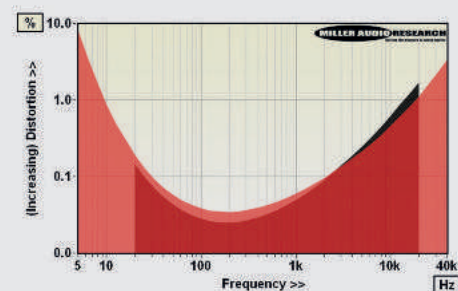
ICON AUDIO MB90 MKIIM-150

There are a handful of hi-fi companies including Audio Research, VTL, McIntosh and Icon Audio that regularly demonstrate how tube amps need not be weedy, speaker-shy apparitions. The MB90 MkIIm, with its KT150 output tubes, is a case in point as it delivers a full 120W into both 8/4ohm loads (via 8/4ohm taps respectively) in Ultralinear mode, increasing to 135W into 8/4ohm and 185W into 2ohm (4ohm tap) under dynamic conditions [see Graph 1, below]. Distortion is reasonably constant at ~0.05% from 1-10W/8ohm through the midrange but steadily increases at higher output to the notional 1% clipping point at 120W. Distortion also increases at the frequency extremes, reaching 1.1% at 20kHz/10W even though Icon specifies enough iron in its transformers to hold THD down to 0.2% at 20Hz/20kHz. Distortion rises very quickly at subsonic bass frequencies, as we might expect [see Graph 2, below].

Via its 8ohm tap, the MB90 MkIIm-150 offers a reasonably uniform 1ohm output impedance from 20Hz-20kHz but there is still some load-dependent variation in frequency response. Into 8ohm, the amp offers a slightly 'sweetened' -1.1dB/20kHz treble but this increases to -3.3dB/20kHz into 4ohm via the 4ohm tap. The knee in response before the transformer resonance at ~50kHz makes the HF roll-off more obvious into lower impedance loads. Otherwise the MB90 MkIIm-150 offers some impressive numbers – including a fine 95.6dB A-wtd S/N ratio (re. 0dBW) and an idle power consumption of 110W (low by tube standards). Readers may view a comprehensive QC Suite test report for Icon Audio's MB90 MkIIm-150 by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



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



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

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	120W / 120W
Dynamic power (<1% THD, 8/4/2/1ohm)	135W / 135W / 185W / 165W
Output impedance (20Hz-20kHz)	0.083-1.11ohm
Freq. response (20Hz-20kHz/100kHz)	+0.15dB to -1.1dB/-10.5dB
Input sensitivity (for 0dBW/115W)	88mV / 952mV
A-wtd S/N ratio (re. 0dBW/115W)	95.6dB / 116.2dB
Distortion (20Hz-20kHz re. 10W/8ohm)	0.025-1.7%
Power consumption (Idle/Rated o/p)	110W/250W
Dimensions (WHD) / Weight	200x220x500mm / 50kg



ABOVE: Rear socketry includes the usual 4 and 8ohm speaker connections, plus a switch to select High or Low sensitivity settings for the inputs. This helps make the amplifier suitable for use with passive preamplifiers too

Ace CDCH 192]. It was loud, exciting and vibrant, just as I'd hoped.

But then again, the amplifiers did sound great on more obviously audiophile selections. With Patricia Barber's *The Cole Porter Mix* [Blue Note 50999 5 01468 2 6] it seemed that the voice, piano and guitar each had a glossy perfection of their own. On Barber's song 'Snow', which nestles unintimidated among the Porter standards, the timbral correctness and fine yet unexaggerated detail of the vocal made this a gripping performance.

DIVINE INDEED

In classical music, I always felt that the Icon really did justice to recordings where there is delicacy, space and subtlety. It was delightful in *Les Nuits d'été* with Dame Janet Baker [Virgin Classics 7243 5 61489 2], with just the right sensation of height in a slightly distant but appropriate perspective that gave a real feeling of performers on a stage.

On familiar rock tracks, it seemed that the Icon could always give the music a lively bounce, rather than the effect of a weighty grind. With Kings Of Leon and *Come Around Sundown* [Sony 88697782412] the Icons gave you the power of the drums and bass, even though the bass weight was moderate, and seemed to revel in the over-the-top

guitar sounds too. And the amplifier could convey real joy in music. I put on Gwyneth Herbert's *Clangers And Mash* [NaimEdge, NaimCD137], and I really enjoyed the lovely, buoyant feeling of the track 'Perfect Fit'. It was all there, as the ukelele sound possessed real substance and the handclaps had an immediate, genuinely fleshy quality.

And the first few bars of 'April In Paris', from *Sarah Vaughan With Clifford Brown*, recorded in glorious Mercury mono in 1954 [Emarcy 814 641-2], were enough to remind me why Sarah Vaughan was called 'The Divine One'. With the Icons, she was divine indeed. ☺

HI-FI NEWS VERDICT

With ample power for most systems, freedom from noise and user-friendly operation, there's also a great sound that justifies Icon's design approach. It's tremendously inviting, smooth as silk without being at all 'rounded'. Stereo images have convincing depth and a tactile quality, instruments and voices almost tangible within the soundstage. These enjoyable amplifiers are very easy to recommend.

Sound Quality: 85%



"The P10 will have an effect ranging from positive to positively startling".

Hi-Fi News



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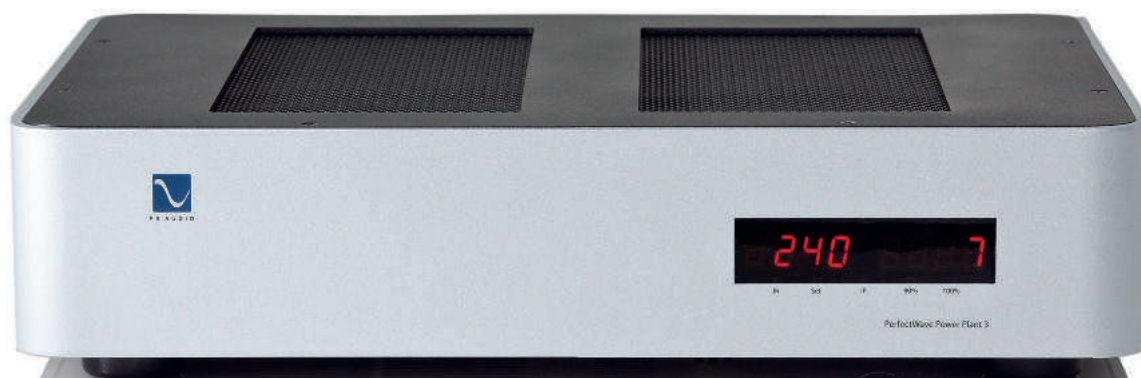
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hi-fine GROUP TEST

Maybe it's time to treat yourself to a speaker that really delivers. Here we test and compare five key models that embody some of the most exciting new technologies in the field

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Great sound, great
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Craving a sound with all the sweep, drama, scale and intensity of your favourite music? Why not look to the most recent crop of highly-developed, high-tech floorstanding speakers? Manufacturers have been working harder than ever to give us a great full-range performance in speakers that are easier to site, easier to drive and easier on the eye than their predecessors.

Also, advances in design and economies in manufacturing have made today's speakers better value than ever, to the point where it nearly always makes more sense to go for a floorstander than a standmount. A floorstander need take up no more floor space, but it can include the extra cabinet volume needed to give really decent bass performance. So why spend money on stands which could be put towards a better speaker?

There's no longer really a downside. Back in the 1980s, especially in the UK, enthusiasts in search of a sound with real speed and attack reacted against the sluggish-sounding audio wardrobes of an earlier generation. They

plumped instead for ever-tinier mini-monitors perched on ever more elaborate and expensive stands. Since then, you could say that sanity has prevailed, as designers have found ways to make sure that bigger, taller speakers can sound just as agile as small standmounts.

All the speakers in this group test set out to offer the essence of high-end sound in an acceptably-sized package, but the design approaches used are as fascinatingly diverse as their national origins. For example, Cabasse makes good use of its coaxial drive units and retains the traditional French preference for high sensitivity, while Dynaudio sacrifices efficiency for neutrality. Tannoy offers the latest and most refined version of its classic Dual Concentric driver, while Sonus faber and Wharfedale can boast effective use of new materials and new constructional methods.

A RANGE OF MUSIC TRACKS

We used a wide range of music to put these speakers through their paces. For a start, there was the always illuminating Marta Gomez *Entre Cada Palabra* [Chesky JD301],

with its vast church acoustic and intricate percussion sounds.

Then there was a true classic of rock production, Jennifer Warnes' *Famous Blue Raincoat* [Classic RTHCD 5052], while male vocals were represented by Eric Bibb's *Get On Board* [Telarc CD-83675] and Bob Dylan's *Blood On The Tracks* [Columbia 512350]. Coming more up to date, it was fascinating to hear how the speakers fared with Florence And The Machine's *Lungs*, [Island/Moshi Moshi].

Our inevitable jazz classic was *Art Pepper Meets The Rhythm Section*, the saxophonist's 1957 recording with what was then three-fifths of the Miles Davis quintet, Red Garland, Paul Chambers and Philly Joe Jones [Contemporary/Original Jazz Classics 57532]. Finally, we sampled Fauré's *Requiem*, a 1986 recording made in the Henry Wood Hall with the Royal Philharmonic Orchestra and London Symphony Chorus under Richard Hickox [Carlton Classics 30366 00092]. It also features Aled Jones, then the supreme boy treble. ➔

REVIEWS BY STEVE HARRIS
LAB REPORTS BY KEITH HOWARD

• CD PLAYERS • TURNTABLES • CARTRIDGES • LOUDSPEAKERS • AMPLIFIERS • HEADPHONES • STREAMERS •

Cabasse Java MC40

Launched a few years ago now, the MC40 series was the first to bring Cabasse's signature coaxial drive unit technology, the Spatially Coherent System [SCS], to speakers in a moderate price range.

With a dome tweeter at the centre, SCS units can provide two-, three- and even four-way coaxial combinations, the surrounding annular lower-frequency diaphragms curving rearward like extensions of the dome, to give a spherical radiation pattern. In the Java's SCS tweeter/midrange unit, a midrange diaphragm measuring 85mm in diameter forms a ring around a 25mm polyester-dome tweeter.

Below this are two 170mm bass units connected in parallel, making this a three-way system. Like the midrange diaphragm above, the woofer cones are made of Duocell, an exclusive processing of Rohacell foam material, which first appeared in Cabasse speakers back in 1985.

With curved, non-parallel sides to avoid standing waves, the cabinet is built of MDF with a varying wall thickness of up to 31mm. Bass loading is via a flared port exiting vertically from the bottom. With the cabinet supported on short pillars from the plinth, radiation from the port emerges all round, close to the floor. Screw-in spikes are provided.

Amplifier connection is via a single pair of sturdy 4mm socket/binding posts, with no provision for bi-wiring. Finishes are gloss black, gloss white and dark oak.

FOOT-TAPPING

Listening, we heard a bright, lively sound that soon turned out to be quite foot-tapping on Marta Gomez's 'Maria Mulata', with its incisive handclaps, although other percussion sounds lacked detail compared with, say, the Tannoy. On the Jennifer Warnes album, that impeccable voice seemed to suffer a slightly tunnel-like coloration, the

drummer's offbeats rather spiky, while the bass seemed softened. Even so, the music again seemed to rock along well.

That complex ensemble in Eric Bibb's 'Spirit I Am' track sounded a little messy, while the bass seemed ill-defined. Yet Dylan's 'Tangled Up In Blue' got our feet tapping again, with the vocal clear and upfront.

'Dog Days Are Over' started off well with a great vocal sound from Florence, though limitations were heard in the complexities of the mix. The big bass drum could have done with more definition and wallop.

Art Pepper's sax sound was conveyed well, perhaps by the same presence effect that had helped vocalists on other material. However, on the Fauré, the choral sound was coarsened compared with the other speakers, while the orchestral sound lacked bass weight.

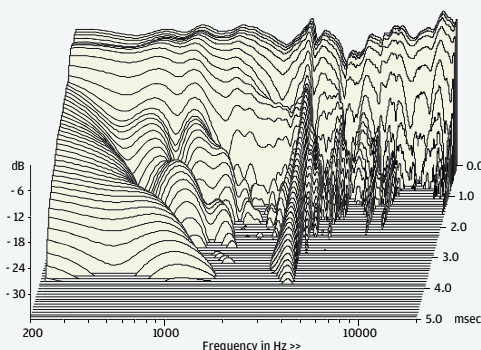
Sound Quality: 75%



LAB REPORT

Cabasse claims a high 90dB sensitivity for the MC40 but our measured pink noise figure of 91.0dB was even higher. While the claimed 3.4ohm minimum impedance is incompatible with the nominal 8ohm, it is close to the 3.3ohm minimum we obtained. Impedance phase angles are well enough controlled that the EPDR (equivalent peak dissipation resistance) fell to a low of 2.1ohm at 116Hz – good for this group – but it remained less than 2.3ohm all the way from 250Hz to 660Hz, so the MC40 is still a challenging load.

On-axis response errors of ± 5.6 dB and ± 5.8 dB indicate the unevenness of the output around an essentially flat trend, while the pair matching error of ± 4.0 dB – highest in the group – doesn't bode well for stereo image precision. Bass extension (-6 dB at 67Hz, re. 200Hz) suffers because of the high sensitivity and the CSD waterfall [see Graph] shows a strong resonance at about 3.5kHz. KH



Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	92.5dB / 91.0dB / 90.5dB
Impedance modulus min/max (20Hz–20kHz)	3.3ohm @ 179Hz 16.2ohm @ 1.2kHz
Impedance phase min/max (20Hz–20kHz)	-36° @ 101Hz 49° @ 814Hz
Pair matching (200Hz–20kHz)	± 4.0 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	67Hz / 31.4kHz/24.2kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL at 1m)	0.5% / 0.2% / 0.6%
Dimensions (HWD)	1100x250x350mm

Dynaudio Excite X34

Despite its range name, the Excite X34 is intended to be 'particularly discreet'. It's the smallest speaker in this group and the only one without any curves in its cabinet, which is finished in an unassertive Satin Black, rather than a showy gloss lacquer. But it's also available in Satin White and Rosewood or Walnut veneers.

As the smaller of two floorstanders in the Excite range, the X34 looks like a grown-up version of the standmount X14, which has a 30mm soft-dome tweeter plus a single 130mm Magnesium Silicate Polymer [MSP] bass/mid driver.

For the X34, Dynaudio has added a second 130mm MSP unit, and the speaker is bass-reflex-loaded with a slightly flared port in the back of the cabinet. Foam bungs are supplied, which can be fitted to the ports if room conditions make it desirable to attenuate the low bass output. The strong metal base with outrigger feet at the corners is equipped with adjustable spikes.

All drive units feature Dynaudio's usual aluminium voice coils and large, powerful magnet systems. There is no provision for bi-wiring, because, as the company firmly puts it, 'Dividing the frequency sections through bi-wiring or bi-amping is neither beneficial nor optional.'

NEUTRAL TERRITORY

From the start, the Dynaudio offered an attractively neutral presentation, restrained by comparison with any of the other speakers. It had most in common with the Tannoy, though without the latter's overtly ear-catching treble detail. It had a deeper bass the Tannoy, and although this was light compared with the other two models, it made up for this with poise and accuracy.

With Marta Gomez, there was an attractive, velvety quality to the voice, and a sense of air around it. Treble sounds were free of

exaggerated sibilants or spittiness and could even seem smoothed-off. Drums and percussion sounds had a natural quality, though without any great sense of attack or zest. Background vocals were clean and free of any muddle.

On Warnes' 'First We Take Manhattan' the speaker revealed all the colour and power of Stevie Ray's masterful lead guitar, and there was a good combination of sweetness and lifelike ambience. With Eric Bibb's 'Spirit I Am' the evocative sounds in that picture-painting mix worked really well too.

From the Art Pepper album the speaker extracted a really good piano sound, while the bass here had acceptable weight and wasn't sluggish. With the Fauré, the choir had a convincing sense of location, clarity in its different sections and a sweetness to the treble sound.

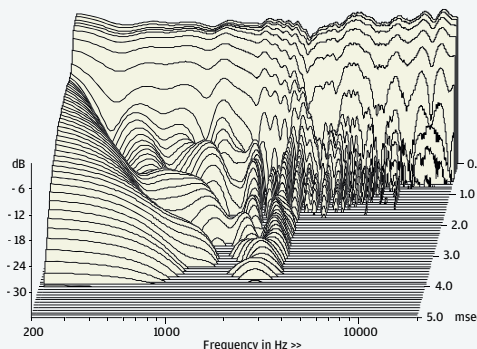
Sound Quality: 80%



LAB REPORT

As the X34 is the smallest speaker here it's no surprise that it has the lowest specified sensitivity of 86dB, but our pink noise figure of 83.7dB indicates that even this is optimistic. Payback comes in the form of a very amp-friendly load, the minimum impedance modulus of 6.8ohm justifying the 8ohm nominal figure while the well-controlled phase angles result in a minimum EPDR (equivalent peak dissipation resistance) of 4.2ohm at 323Hz – comfortably the highest in this group.

The X34 also scored in having the flattest frequency response with commendable error figures of just ± 3.2 dB and ± 3.1 dB respectively (200Hz to 20kHz). Pair matching error of ± 1.2 dB isn't quite as impressive but still equal-best here. Bass extension was competitive at 55Hz (-6 dB re. 200Hz) and the cumulative spectral decay waterfall [see Graph] shows a fast initial energy decay with resonances kept to an impressively low level. KH



Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	84.3dB / 83.7dB / 83.4dB
Impedance modulus min/max (20Hz–20kHz)	6.8ohm @ 190Hz 25.9ohm @ 1.2kHz
Impedance phase min/max (20Hz–20kHz)	-31° @ 2.1kHz 35° @ 498Hz
Pair matching (200Hz–20kHz)	± 1.2 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	55Hz / 30.0kHz/29.2kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL at 1m)	0.5% / 0.2% / 0.1%
Dimensions (HWD)	959x200x290mm

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Sonus faber Venere 2.5



Like the other models in this new series, the Venere 2.5 is visually every inch a Sonus faber. It's built into a superbly-finished lute-shaped cabinet, made more striking by the angled top in tempered glass. The same material is used for the stand, which is really an integral part of the design. As well as giving greater stability to this tall speaker, when fitted with its spiked feet the stand provides a tilt, said to bring the drivers into time alignment.

The drive unit line-up starts with a German-made DKM 29mm silk dome tweeter, its housing forming a vestigial horn. Below this comes a pair of 180mm drivers, featuring Sonus faber's proprietary Curv cone material. Curv starts life as a textile woven from polypropylene fibres of carefully-chosen thickness and section, which is heated in a mould to form the permanent cone shape.

These two units are identical, but this is a two-and-a-half-way design, so they don't cover the same frequency range. The upper 180mm driver is a bass/mid that crosses over directly to the tweeter, while the second unit is brought in at a lower crossover frequency and is strictly a woofer. Its output is reflex loaded by the slot-shaped port at the foot of the cabinet front.

Along with the gloss black lacquer seen here, the Venere 2.5 is available in gloss white or wood veneer, the latter at extra cost.

POWERFUL BASS

Playing our familiar tracks through the Venere 2.5, it was quickly obvious that this model gave a fuller, more powerful bass than the Dynaudio or Tannoy, and even the Cabasse. Yet even on the bass-heavy Marta Gomez track, 'Maria Mulata', it was quite well controlled and in proportion. There was a beguiling sweetness brought to the vocals, and a good feeling of performers placed in the soundstage.

The strong bass helped to really drive the Warnes track along, while the drummer's high-energy slashing offbeat was quick and natural-sounding, never mechanical. Warnes' vocal soared effortlessly, even when the keyboard sounds powered in. In 'Bird On A Wire' those massive tom-tom sounds had real texture, and the bass backing voices had real depth.

Bibb's 'Spirit I Am' was truly impressive, the vocal vibrant and intense and the powerful, monolithic notes of the simple bass part holding sway without swamping everything. Not surprisingly, this speaker could do full justice to the big drum sound on Florence's 'Dog Days' too.

Warm and intimate, the Art Pepper disc sounded almost as if it were recorded yesterday, while the Fauré recording came over with a great sense of scale and gravitas.

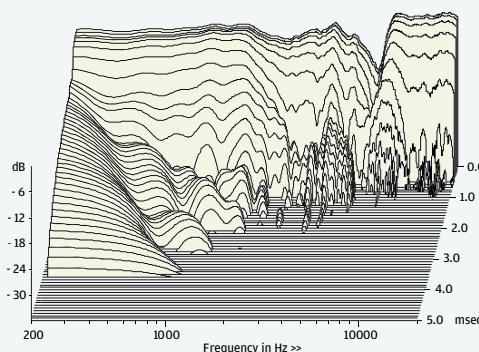
Sound Quality: 85%



LAB REPORT

Sonus faber offers no specification of sensitivity or impedance for the Venere range but our measurements of pink noise sensitivity (88.2dB) and minimum modulus (3.5ohm) indicate that 88dB and 4ohm nominal are appropriate figures. Impedance phase angles are moderate so the minimum EPDR is a relatively amplifier friendly 2.1ohm at 90Hz but there are other dips to 2.2ohm at 464Hz and 2.3ohm at 39Hz.

On-axis response errors are high at ± 6.4 dB and ± 6.6 dB principally because of a deep but narrow notch at about 7.5kHz, followed by shelved up output in the octave above 10kHz. Pair matching was average at ± 1.4 dB but bass extension the best in group at 30Hz (-6 dB re. 200Hz), albeit with a steep roll-off thereafter. The cumulative spectral decay waterfall [see Graph] shows fast energy decay across the spectrum and no resonance associated with the 7.5kHz response notch. KH



Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	89.4dB / 88.2dB / 87.6dB
Impedance modulus min/max (20Hz–20kHz)	3.5ohm @ 113Hz 33.8ohm @ 3.2kHz
Impedance phase min/max (20Hz–20kHz)	-37° @ 79Hz 55° @ 1.6kHz
Pair matching (200Hz–20kHz)	± 1.4 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	30Hz / 34.0kHz/33.4kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL at 1m)	0.5% / 0.2% / 0.6%
Dimensions (HWD)	1107x340x437mm

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Tannoy Precision 6.2

For the Precision range, Tannoy has introduced a new 150mm (6in) version of the Dual Concentric driver, which also implements Tannoy's WideBand philosophy as the 25mm titanium tweeter gives a frequency response that extends well beyond 20kHz. Tannoy's Tulip WaveGuide blends the tweeter output into the flare of the surrounding 150mm bass/mid cone, which handles frequencies up to 1.6kHz. Though it looks metallic, the cone is of treated paper pulp, with a rubber surround.

Completing the driver array in the 6.2 is an additional 150mm bass unit, using the same cone material and boasting a 44mm diameter edge-wound voice coil. The system is reflex-loaded by a rear-facing port.

With just a graceful curve to the sides to reduce internal standing waves, the cabinets use a heavyweight fibreboard construction with internal bracing and a combination of materials for damping in what Tannoy calls DMT, or Differential Material Technology. A solid base plate with outrigger feet provides for screw-in spikes. There's also provision for mass-loading, by filling a cavity in the bottom of the cabinet with sand.

Tannoy's speaker terminal array offers the option of bi-wiring along with a grounding terminal that can be used to connect the chassis parts of the speaker to the hi-fi system ground. As well as gloss black, the speakers are available in gloss or satin finished walnut veneers.

RELAXED CLARITY

On audition, the Precision 6.2 could seem light and dry rather than full-bodied compared with the Wharfedale, for example, yet it was welcoming and appealing too. It was excellent on the gallery of percussion in 'Maria Mulata', holding everything together cleanly behind the singer. You could really feel the relaxed clarity of Jennifer Warnes'

vocal in 'First We Take Manhattan', for example. And with plenty of mid/treble detail, you could appreciate the ensemble build-up in Eric Bibb's 'Spirit I Am', all the guest voices and horns laid out clearly.

With Florence's 'Dog Days', the big drum wasn't as big as it could be with the Sonus faber or Wharfedale. But the revelation of small details opened up the music in a different and even an exhilarating way. Florence's vocal did take on a slight extra edge at the top, though.

Art Pepper's sax became really gripping, and Garland's piano intense even if not as natural as with the Dynaudio or as warm as with the Sonus faber. With the Fauré, there was a fine orchestral sound, the choir full-throated in their crescendos, and beautiful in the soft passages. Orchestra, organ and singers all had space around them.

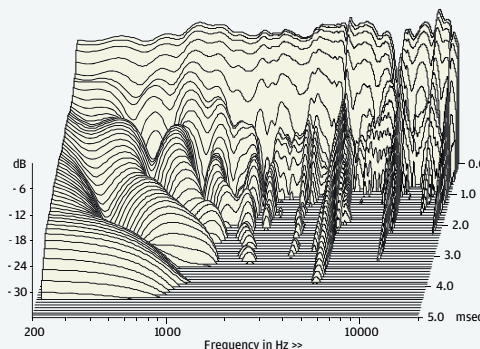
Sound Quality: 80%



LAB REPORT

Tannoy specifies 89dB sensitivity for the Precision 6.2 but our pink noise figure of 90.0dB suggests this is conservative. Minimum impedance modulus of 2.9ohm makes a mockery of the 8ohm nominal rating, though. Impedance phase angles are large enough to drop the EPDR to a low of 1.5ohm at 106Hz with another dip to 1.8ohm at 41Hz, so the Precision 6.2 is quite a tough load.

The on-axis frequency response is a rollercoaster in the upper treble with error figures of ± 6.5 dB and ± 5.4 dB. Pair matching was also poor at ± 2.4 dB but the largest disparities occur around 10kHz and are narrowband. Bass extension of 39Hz (-6 dB re. 200Hz) is good but flattered by unevenness in the response resulting from the length mode of the enclosed air at around 190Hz. The bass response is 6dB down at 58Hz (re. 300Hz) – a more relevant figure. The CSD waterfall shows a series of high-Q treble resonances. KH



Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	90.6dB / 90.0dB / 90.2dB
Impedance modulus min/max (20Hz–20kHz)	2.9ohm @ 120Hz 30.0ohm @ 3.1kHz
Impedance phase min/max (20Hz–20kHz)	-47° @ 92Hz 51° @ 2.0kHz
Pair matching (200Hz–20kHz)	± 2.4 dB
LF/HF extension (-6 dB ref 200Hz/10kHz)	39Hz / 35.3kHz / >40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL at 1m)	0.5% / 0.4% / 1.0%
Dimensions (HWD)	1000x310x283mm

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T+A

Wharfedale Jade 5



In this visually striking speaker, the tweeter and midrange are embraced in a combination housing that's common to all the Jade models, raising the axis of the tweeter's 25mm aluminium dome to peep above the front edge of the curved, sloping cabinet top.

While the midrange has a 75mm concave aluminium/pulp diaphragm, the twin 165mm bass units use a new cone material called Acufibre, said to 'marry the responsiveness of glass and carbon fibre' in a self-damping woven matrix. They are impressed with a moulded pattern to break up standing waves.

The Jade cabinets are made from laminations of wood and a composite material, Crystalam. These layers reduce the 'Q' of panel resonance peaks and also spread resonances over a wider frequency range. Bass loading is described as Aperiodic, with a resistive acoustic filter rather than the usual simple reflex port.

Ports in the bottom of the cabinet are tuned by the slot formed by the small gap between cabinet and plinth, this being filled with resistive foam to control the airflow from the ports.

Bi-wiring terminals are provided, and the plinth comes with ready-fitted spikes along with optional seats for use on wood floors. Veneer finish options are the Black Oak seen here, Vintage Cherry and Rosewood, and they are also available in Piano Black or Burgundy Burr lacquer.

NATURALLY INVITING

Natural timbres and an inviting soundstage were in evidence here. With the Wharfedale Jade 5, you felt that acoustic instruments could bloom unforced in a presentation that was always relaxed and almost never strident.

With Marta Gomez there was good depth in the acoustic, and the bass seemed natural and articulate. The vocal was sweet and plaintive,

while the flute seemed to take flight with real air around it.

On *Famous Blue Raincoat* the sound was smooth, glossy and detailed, yet strangely here I felt that the bass was less admirable, even tending to sound one-notey.

In Eric Bibb's 'Spirit I Am' the Jade 5 let you really hear into the mix, all the incidental voices and instruments clearly placed. 'Tangled Up In Blue' had the same kind of clarity, with Dylan's vocal full of character, energy and life.

The speaker seemed to reveal fresh nuances in Florence's 'Dog Days...' vocal too, and here once more there was an inviting clarity. The big drum was reasonably convincing, though it lacked the weight delivered by the Sonus faber.

With Art Pepper, the sound was open and easy-going, seemingly well free of the speaker boxes too.

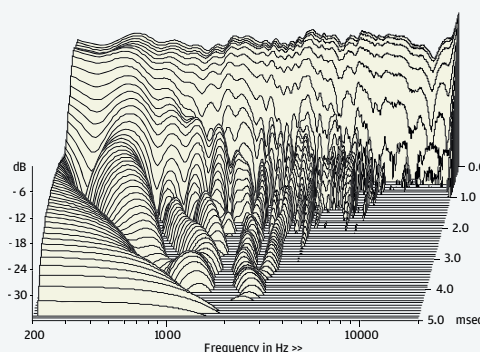
Sound Quality: 83%



LAB REPORT

Wharfedale's claim of 87dB sensitivity for the Jade 5 looks a little optimistic given our measured pink noise figure of 85.8dB, while the nominal impedance of 6ohm is given a minimum modulus of 2.7ohm. Poorly controlled impedance phase angle results in the EPDR dipping to a minimum of 1.2ohm at 73Hz – a pretty scary figure for a speaker in this price range.

However, the on-axis frequency response (200Hz-20kHz) is more even than the ± 5.4 dB and ± 5.7 dB errors suggest, these resulting primarily from a rising response above 15kHz caused by the breakup resonance of the metal dome tweeter occurring only just above 20kHz. Pair matching of ± 1.2 dB, over the same frequency range, is OK if not top-notch. Bass extension of 57Hz (-6dB re. 200Hz) is typical of the group. Initial energy decay is fast in the CSD waterfall [see Graph] but breakup resonances are clearly visible at lower treble frequencies. KH



Sensitivity (SPL/1m/2.83Vrms – Mean/IEC/Music)	86.3dB / 85.8dB / 86.0dB
Impedance modulus min/max (20Hz–20kHz)	2.7ohm @ 91Hz 12.5ohm @ 42Hz
Impedance phase min/max (20Hz–20kHz)	-57° @ 56Hz 39° @ 1.7kHz
Pair matching (200Hz–20kHz)	± 1.2 dB
LF/HF extension (-6dB ref 200Hz/10kHz)	57Hz / >40kHz / >40kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL at 1m)	0.6% / 0.3% / 0.1%
Dimensions (HWD)	1055x246x400mm

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GROUP TEST VERDICT

• CD PLAYERS • TURNTABLES • CARTRIDGES • **LOUDSPEAKERS** • AMPLIFIERS • HEADPHONES • STREAMERS •

Listening to this very varied group of loudspeakers proved thoroughly enjoyable, and if it's hard to sum up the results, that's only because all of them have a lot to offer. It's intriguing that each of the five comes from a range that covers both stereo and multichannel needs (including a centre channel); while in each case it's the smaller of the two floorstanders in the range.

In every instance, it seems, the manufacturer has tried to offer a speaker that's a big enough step up from the standmount to give real long-term satisfaction, but one that will be more versatile than its larger brother in room placement and use. Only if you have a very big room will you need to head straight for the senior models.

DIFFERENT QUALITIES

All the speakers tested are technically interesting in one way or another, but none more so than the Cabasse MC40 Java, even though this is in fact the oldest design here. With its special coaxial mid/tweeter system and high sensitivity approach, this speaker offers a rather different presentation from the expected UK norm. It was always lively and often exciting, with a real foot-tapping quality, yet by comparison with others in the group it could sound a little bright, or even ragged, and it didn't excel in extracting fine inner detail. Nonetheless, we experienced an enjoyable sound.

By contrast, the Tannoy Precision 6.2 lives up to its name, with an arresting ability to pick out fine detail in the mid and treble. It could sound a little bass-light, especially compared with the bigger models in the group, but its unexaggerated

bottom-end sound had a quickness and sense of detail that helped the music to remain lightfooted and hang together. It could actually be a great choice in a smaller room, especially for someone who wants pin-sharp detail.

Dynaudio's Excite X34 always sounded smooth and neutral, with a soft and refined top end. If played after the Tannoy it could sound almost dull by comparison, but it did not really lack detail. Though not impressively powerful, its bass sound was impeccably correct and tuneful, making for enjoyable long-term listening. Once again, an excellent speaker, which will work well in relatively confined spaces.

THE TOP CHOICES

With the Jade range, it seems that Wharfedale has thrown every possible new technology and material into the design,

and still aimed to offer more speaker for the money than its competitors. So the Jade 5 is physically almost the

largest speaker here, although it's also the least expensive. Its rather Odeon-like styling may suggest that it is primarily aimed at home theatre users, but it does have a lot to offer on music.

On most material its relatively weighty bottom end provides a good foundation, yet there were times when the bass didn't seem convincingly accurate

at all. Its great strength, though, is an inviting, effortless midrange and treble quality that tempts you to carry on listening.

Finally, we come to the Sonus faber Venere 2.5, approximately the same size as the Jade 5 but a very different design – and also by contrast quite easily the most expensive speaker in the group.

It also has the largest bass units and it undeniably produces the deepest and weightiest bass of any model here, matched by an impressive and often majestic sound overall. With its distinctive styling and unique brand cachet, the Venere 2.5 is clearly a winner. ☺

'Its Odeon-like styling might suggest home theatre intent'



RIGHT: While the Sonus faber Venere 2.5 [left] had the deepest bass and an impressively grand manner, Wharfedale's Jade 5 sounded warm, musical and inviting



• CD PLAYERS • TURNTABLES • CARTRIDGES • **LOUDSPEAKERS** • AMPLIFIERS • HEADPHONES • STREAMERS •

Krell Connect

As previewed at trade shows last year, Krell has entered the world of music streaming with its Connect network player. Would you like it with or without a DAC built-in?

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

We've said it before: while streaming music across a home network was once limited to lossily-compressed digital files and consequently only of relevance to 'convenience audio' installations, it is now a legitimate source for high-end hi-fi systems. Even Krell Industries of Connecticut, doyen of the high-end audio world, announced at CES in 2013 its intention to introduce a UPnP/DLNA-compliant network media player later in the year – the rather aptly named Connect, now available in the UK.

Tech-savvy observers might glibly murmur, 'Well about time too...', but like many companies designing audio components for demanding listeners, Krell has been wise to wait for network streaming technology to reach a satisfactory level of maturity. While simply 'pushing' data from a computer's USB socket to a hi-res-capable USB-equipped DAC has become reasonably seamless for audiophiles, 'pulling' audio across a network has been fraught with niggles, as we've noted when testing many (albeit modestly-priced) network media players during the last couple of years.

Would it play lossless CD-resolution files? Check. But what about FLAC compatibility? And is it 24/192-capable or does it max out at 24/96? Frustratingly, where many players ticked *most* boxes for audio enthusiasts, until recently they often failed to offer gapless playback, inserting annoying gaps of momentary silence between segued tracks – making the streaming proposition a non-starter for serious music lovers.

Last year several companies' models benefited from firmware updates. Network audio players from Pioneer and Cambridge Audio, for example, now offer gapless playback where they didn't when first

going on sale. So the feature sets of clients/renderers (the players) have been evolving.

Now that streaming functionality lacks for nothing other than very niche applications – such as compatibility with Direct Stream Digital DFF/DSF files and PCM resolutions *beyond* 24-bit/192kHz – high-end manufacturers like Krell Industries clearly feel satisfied they can design products worthy of their premium status and their discerning customers' high expectations. This follows a number of British firms like Linn Products and Naim Audio who, it must be said, have been leading the networked audio pack.

TWO OPTIONS

There are in fact two versions of Krell's Connect player. For hooking up to an existing DAC of choice (via RCA or Toslink

S/PDIF) there's a digital output-only model (£2500), while the one featured here has an optional built-in DAC with balanced (XLR) and single-ended (RCA) analogue outputs: it costs £3500. The £2500 'transport' version of the Connect – the one without on-board D-to-A conversion – makes a perfect complement to Krell's Foundation AV preamplifier with its suite of digital inputs, adding network connectivity and internet radio functionality to the multichannel processor. It matches cosmetically with the Foundation's fresh aesthetic too [see boxout], its moderately slim profile allowing placement in regular-sized equipment racks.

While less imposing than many a Krell component, needless to say it is still vastly overbuilt compared with most music streamers. At its core lies a

RIGHT: At the core of the Connect player is a hard-wired StreamUnlimited network audio board [right of picture]. A 32-bit ESS Sabre DAC and Krell's own Current Mode analogue stage drive the 4V balanced outputs





familiar BridgeCo-based StreamUnlimited platform including vTuner internet radio functionality – also seen in many much less elaborate network audio players. But massive power supplies have always been the cornerstone of Krell product designs, the Connect featuring an over-specified linear power supply with a 94VA toroidal transformer large enough to power a modest amplifier.

WITHOUT DIGITAL INPUTS

Meanwhile, the optional on-board D-to-A converter section uses ESS Technology's flagship ES9018 Sabre 32-bit DAC chipset and has a fully discrete balanced analogue output stage employing Krell's Current Mode topology. Again, this is a highly-specified DAC, so it's a shame that Krell hasn't fitted it with digital inputs so that it can be used with additional sources. At the rear are three mini-jack sockets. Two are 12V triggers, the third is for an external IR receiver should the Connect be positioned out of line of sight of your listening seat. There is also a solitary A-Type USB input for direct playback of files from 'local storage' such as a USB hard drive or memory stick.

'The Connect delivers really meaty, deeply extended bass'

These must be formatted for the FAT32 file system, not NTFS.

The Connect's minimalist fascia sports no controls other than a standby on/off button on the left, the unit coming with a chunky aluminium IR system controller handset [shown on p53] that provides navigation and transport keys for playing/pausing/skipping selected music files. Naturally there's also the option of operating everything via a tablet or smartphone using Krell's (or anyone else's open-source) control app.

On the right is a 3.5in QVGA (320x240 pixel) colour LCD screen. Menu settings include a choice of four colour/design 'themes' and timeout settings for the display which can also be dimmed or turned off from the handset. Getting the player up and running, either hooked up with an Ethernet cable to your home's modem/router or communicating with the network via Wi-Fi, takes barely five minutes. It's that easy.

Of course, your computer or NAS drive requires server software running in the background in order for a network player to access music files. Krell suggests using Twonky Server, which costs €14.95 and is

ABOVE: New styling matches Krell's Foundation AV preamp/processor. File navigation is via a 3.5in LCD screen and the Connect's IR handset, or via tablet/smartphone control

available for Windows and Mac OS X – but there are myriad others one can use. The Connect will render WAV and FLAC files up to 24-bit/192kHz along with WMA, Apple Lossless, MP4A and MP3 file formats. (Macintosh computer owners should note that it doesn't currently support AIFF files.)

Krell's free-of-charge iOS app functioned perfectly well enough on my iPhone. There's an Android version too but, unless you've only a couple of hundred or so albums, you're probably going to want a tablet for more comfortable browsing of a large music collection. When you've a thousand or more albums, scrolling through them using the small screen on the Connect's fascia, or on a miniature telephone screen, really *is* a chore.

Krell's Connect app affords switching between 'servers' seen on your home network, access to the world's many thousands of podcasts and internet radio stations via your router/modem, and selection of the unit's rear panel USB input. It also displays a file's data rate and provides a volume control.

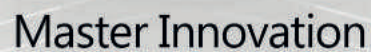
MAKING A CONNECTION

The Connect is an extremely supple and expressive digital player. With good recordings it delivers really meaty and deeply extended bass, and refined high frequencies that lack any sense of hardness or fatiguing glare.

My first experiment was to see if there was any detectable difference between sound quality using a wired Ethernet hook-up or wireless connectivity. There wasn't much in it, but I noticed the sound did lose a smidgen of detail and focus when using Wi-Fi, the music appearing subtly less vital and immediate. Listening to a familiar recording of mostly acoustic jazz, *Quiet Winter Night* by the Hoff Ensemble (a sample track can be downloaded from www.2l.no) revealed that via wireless

RINGING THE CHANGES

The form factor of the Connect mirrors that of Krell's Foundation multichannel AV preamp/processor (£6500), a component which ran off with a coveted EISA Award in the high-end home theatre category last autumn. It heralded a new 'look' for the marque's high-end separates: uncharacteristically slim compared with Krell products' typically colossal chassis, yet still exuding a machined-from-solid feel to their build quality. At the centre of the black fascia is a silver-coloured sculpted aluminium block with dominant Krell logo at its base, the section concealing a subtle backlight that glows red when the unit is in standby and changes to blue when operational. Do these latest components indicate the beginning a new series from Krell? Can we expect similarly-styled amps and CD/SACD players in the future? Says Krell Industries' Peter Mackay: 'The new industrial design of the Foundation and Connect will be included with all new Krell product offerings. Going forward, each of our components will have a specific name – simply Krell Connect, Krell Foundation, and so on – and will no longer be part of a 'series' within our product portfolio, such as KAV or S-Series.'



sound foundations
www.soundfoundations.co.uk

NETWORK AUDIO PLAYER



ABOVE: Single-ended and balanced (XLR) analogue outputs are provided, along with RCA and Toslink digital outputs. USB socket allows direct playback from a flash drive

connection the Connect delivered a marginally softer-focused image of the musicians in the church venue. And in a manner not dissimilar to the effect I've observed when comparing hi-res PCM with DSD playback, when listening to some of the latest appropriately-equipped DACs, a faint blunting of transients lent the performance a lazier feel.

The Connect's wireless receiver appears pretty robust, since my listening den is in the basement of my house and the DSL modem/wireless router lives on the ground floor. Playback was seamless and 100% glitch-free with music files up to 24-bit/96kHz, but did suffer intermittent dropouts with 24/192 files. You're always best advised to make an Ethernet cable connection whenever a network player is for use as a primary source for enjoying better-than-CD digital audio.

MOVING INTO OVERDRIVE

Then I listened to a selection of tracks played from a flash drive, using the Connect's USB input. Sound quality moved into overdrive, with gains in dynamic shading and an improved sense of 'being there'. The Connect already sounded great when streaming files via the network, but now the performance was even better, both spatially and tonally, with soundstage cues more apparent and tonal hues more fleshed out.

Hearing a naturally lifelike recording by sound engineering veteran Barry Diamant, proprietor of Soundkeeper Recordings, who likes to capture musicians playing live and record them directly to stereo at 24/192 (he calls this 'recording without a net'), showed just how capable the Connect's DAC is at

delivering the *feel* of a performance, preserving both the musical balance and dynamics.

Playing 'Dragon Boats' from Work Of Art's *Lift* album [www.soundkeeperrecordings.com] highlighted the Connect's delightful midrange purity and outstanding bass extension, with no bloat or overhang. Image scale and focus were exceptional, the musicians presented as a seamless spread of images across the soundstage. It sounded magical at 16/44.1 but simply fabulous at 24/192, with improved image depth and more finely-described harmonic textures.

As a 'transport-only' music streamer the Connect might be considered a sledgehammer to crack a nut. But with its optional DAC on board it certainly makes for an audiophile-quality network audio player that's a perfectly legitimate source for high-end systems.

I revisited several tracks from the CD version of Carlos Franzetti's *The Jazz Kamerata* [Chesky Records JD283] ripped to my digital library. Chesky's beautiful recording, with so much space you feel you could walk up to the jazz ensemble and shake hands with the musicians in turn, sounded exquisite. ☺

HI-FI NEWS VERDICT

Given that it's only a network media player the Connect is not inexpensive – but it is a Krell, and built in a commensurately luxurious enclosure. The version with in-built DAC sounds bold and confident with CD-resolution files and it certainly delivers the high-end goods when rendering hi-resolution recordings. What a pity that such a great-sounding DAC doesn't have inputs for other sources as well.

Sound Quality: 82%



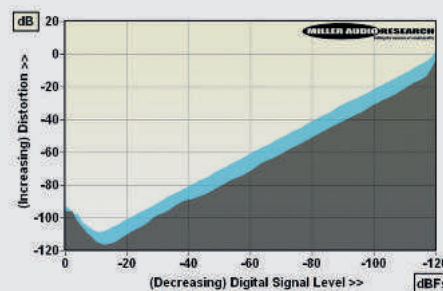
LAB REPORT

KRELL CONNECT

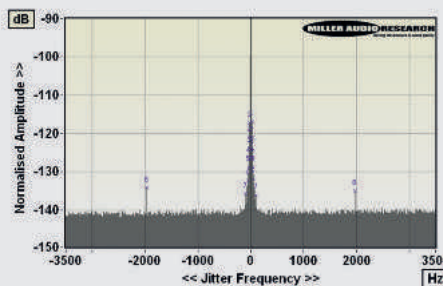
Krell's choice of a BridgeCo-based StreamUnlimited network audio platform stands the Connect in good stead, for the player will render 24-bit WAV and FLAC files up to 192kHz while also handling 32-bit floating-point files in the WAV format. The technical performance of all format types was glitchless and identical, even with the jitter test which yielded 100psec (48kHz), 65psec (96kHz) and 105psec (192kHz) across the board. The nature of the jitter, a low-rate (5Hz) pattern from 5Hz-80Hz, was also consistent regardless of file type or sample rate [see Graph 2, below]. These figures are very low but, if they were eliminated completely, might add that extra percent of stereo focus and sharpness in the most revealing of systems.

Our sample was equipped with the 'optional' 32-bit ESS Sabre DAC with Krell's fully discrete and balanced Current Mode analogue output (rather pointless reviewing the Connect without the onboard DAC, in my view). In practice it's the latter that determines the player's distortion, noise, response (*etc*) rather than the former. Indeed we know the ESS Sabre DAC can deliver far lower levels of distortion than the 0.002-0.0025% witnessed here (20Hz-20kHz at 0dBfs) even if this is perfectly low enough. The lowest distortion is realised at -10dBfs for a figure of 0.00016% [see Graph 1, below]. The A-wtd S/N ratio is rather better than Krell's 96dB specification at 110.8dB and the response(s) are very flat: out to -0.1dB/20kHz (48kHz media), -0.9dB/45kHz (96kHz) and -2.2dB/90kHz (192kHz files).

Readers are invited to view a comprehensive QC Suite test report for the network audio performance of Krell's Connect (with onboard DAC) by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



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



ABOVE: High resolution jitter spectrum from 24-bit/48kHz data over wired Ethernet connection

HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	4.03Vrms at 164ohm
A-wtd S/N ratio	110.8dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0020% / 0.0012%
Dist. & Noise (20kHz, 0dBfs/-30dBfs)	0.0025% / 0.0028%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0dB to -0.14dB/-0.9dB/-2.2dB
Digital jitter (48kHz/96kHz/192kHz)	100psec / 65psec / 105psec
Resolution @ -100dB	±0.5dB
Power consumption	25W (4W standby)
Dimensions (WHD) / Weight	433x88x428mm / 8.2kg

Parasound CD 1

Bucking the trend towards DAC/CD drives, US company Parasound has worked with Holm Acoustics of Denmark to produce an innovative player that's purely for CD

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

These days we expect an expensive CD player to double as a high-resolution DAC, and in fact the ability to play those old-fashioned silver discs may be a secondary consideration. So you might wonder why a feet-on-the-ground American company like Parasound should launch a new high-end player that does nothing but play CDs.

The answer, in a word, is that this is no *ordinary* CD player. Says Parasound's founder and owner Richard Schram: 'Billions of CDs are in circulation. It stands to reason that there are some people who don't have any interest in computer audio and simply want to play their CDs on a fabulous-sounding player.'

RED BOOK ONLY

Anyone who doubts that Parasound has its finger on the pulse need only take a look at the company's other recently-launched CD player, the Zcd. Priced at £399, this doesn't pretend to act as a DAC, but it plays MP3 files from CD-R or USB flash drive, and accepts analogue input from a smartphone. The CD 1 has no truck with any of that stuff. As the manual warns, 'The CD 1 plays only Red Book CDs (and CD-Rs)' – which means audio CDs, the CD layer of SACD discs, and CD-Rs that are burned as audio CDs.

And the CD 1 is a complete contrast to the last disc player in Parasound's upmarket Halo range. Discontinued in 2008, this was the Halo D 3, a high-end universal AV/hi-fi player that would handle almost any kind of disc you threw at it including DVD-A and SACD. 'We had no reason to build another universal player,' says Schram, 'Because a small company simply cannot build a superior product at a competitive price, nor can it redesign and retol new models frequently, to keep up with rapidly changing technology. The CD 1 wasn't intended to be a successor to the D 3.'

Before I met Holm Acoustics we had no plan for a new source component, other than our Zcd.'

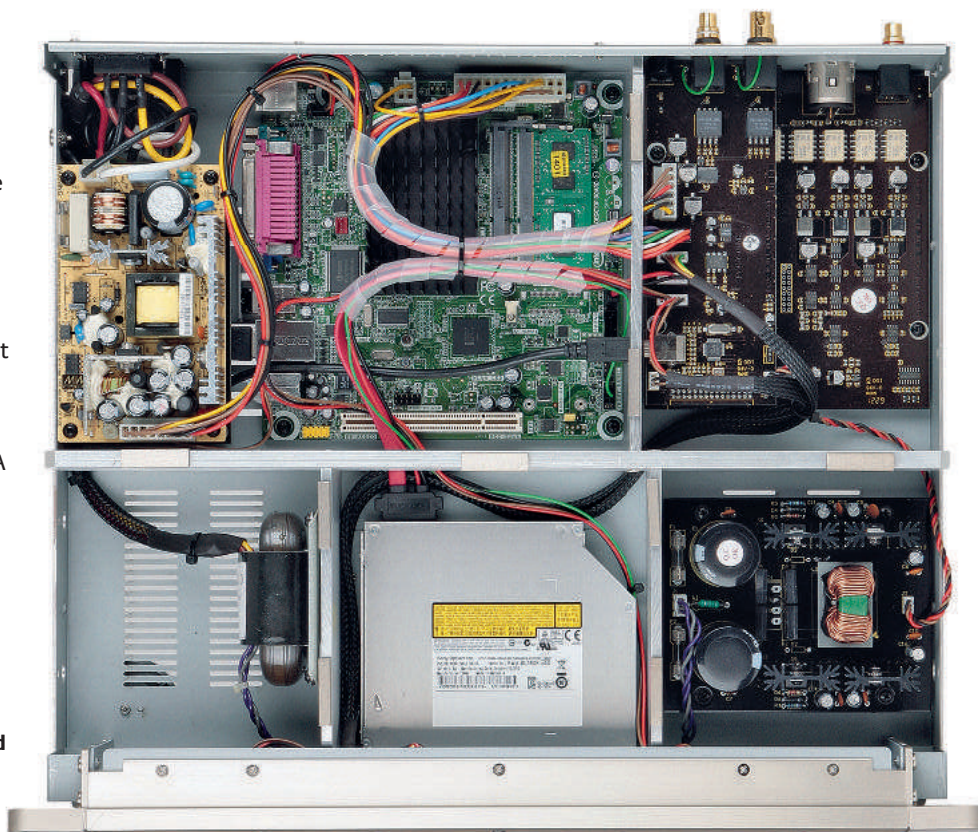
Schram encountered Thomas Holm and one of his software engineers at CES three years ago. 'One only needs to spend a few minutes with these guys to realise that they have prodigious insight and talent,' he says. 'They had developed and built a small number of the Holm Acoustics two-chassis CD 1. We borrowed one and were utterly amazed by it – at this stage in my career an audio product has to be very special to amaze me!

'I thought it would be relatively easy to modify it to become a Parasound product. This was one of my biggest miscalculations in my career, because the CD 1 design and user interface was more ambitious, and the hardware and software needed to be revised countless times.'

What Holm Acoustics had devised, and what Parasound has embodied in its own product, is claimed as 'a new method of playing compact discs'. It's effectively a computer which is used to improve disc-reading accuracy beyond what can be achieved by a conventional CD drive. Instead, it uses a CD-ROM drive, set to run at four times CD speed, which is connected to an Intel ITX computer that uses Holm's proprietary software.

ELIMINATING ERRORS

The high speed means that there is time for the drive to read each section of the disc more than once to eliminate errors, passing the data into a very large buffer memory that equates to 30 seconds of play. Each data sector is initially read twice, and if the two reads match, this indicates no errors and the data is passed into the buffer.



RIGHT: The fanless (green) ITX PC motherboard has its own switchmode PSU as does the (dark brown) audio board and CD-ROM drive. The PC and DAC boards are connected via a USB link



If the two reads do not correspond, the sector is read repeatedly until good data is obtained. Only if a maximum-repeat-read threshold is reached and space in the buffer is about to run out will the system resort to interpolation.

For the DAC stage, Holm chose the Analog Devices AD1853 converter 'for its neutral, highly resolving, but still warm sound'. The Halo CD 1 uses a single AD1853 in stereo mode, upsampling to 352.8kHz. The analogue output stage is derived from the design used in Parasound's DAC-2000 back in the 1990s, with LME49990 op-amps.

On the outside, the CD 1 follows the long-established Halo fascia styling. All the control buttons are lit by little 'halos' of blue light as soon as you power-up, by touching the oval-shaped on/standby key to the left. The other two oval buttons are for Stop/Eject and Play/Pause, while two small buttons above give search and skip, pressed briefly to skip tracks, or held down for fast-forward or reverse.

Fast search is normally silent, but one arrow key can also access a menu option to give two seconds of sound every 20 seconds in fast mode. From first switch-on, you need to wait around 20 seconds while the CD 1's internal computer boots up before a disc can be read and played.

After this, a disc will start to play within ten seconds after pushing it into the slot.

Parasound warns that the CD 1 isn't designed to play 'CDs that have had anything applied to them, including so-called damping mats or dots, fluids or treatments that are purported to improve CD reproduction', but the player throws a crumb to tweekers with its choice of 'Discrete' or 'Op-amp' analogue output stage, selected by the lone small button to the left of the transport. The manual explains that 'the discrete output stage uses discrete transistors that operate in the feedback loops of the op-amps so that the specifications for distortion and noise are the same for both settings. The Discrete output setting subtly changes the sonic character of the CD 1 and there is no "wrong" choice.'

Back-panel connections include XLR balanced outputs as well as the usual unbalanced RCA phonos. Three digital outputs include a 75ohm BNC connector as well coaxial phono and Toslink optical.

Functional, rather than arty or elegant, but easy and pleasant to use, the plastic remote [see p57] duplicates all the front-

ABOVE: Available in silver or black, the CD 1 has a slot-loading ROM drive, running at 4x CD speeds. It also offers optional 'Discrete' and 'Op-amp' analogue output modes

panel functions except the Discrete and Op-amp switching feature. It also provides numeric keys for direct track selection, a control for display brightness (three levels or off) and phase-invert.

ALERTED TO SUBTLETIES

To start with, I had to try the Discrete and Op-amp output stage options. Making the

comparison on vocal recordings ranging from Jennifer Warnes to Rosa Passos, the differences were indeed subtle but they were discernible. On the Discrete setting, with Jennifer Warnes and *Famous Blue*

"Op-amp" mode highlighted the subtle vibrato of Pepper's sax'

Raincoat [Classic Records RTHCD 5052], there seemed to be a slight extra warmth on the voice, as if it had a bit more body, more of a 'purring' quality, while distant backing instruments seemed less sharply-etched. Conversely, with the Op-amp setting, the voice was just a little less smooth at the top end and yet it seemed easier to hear into the detail of the various backing instruments.

Making the same comparison on *Art Pepper Meets The Rhythm Section* [Contemporary 0025218633826], I found that switching initially from Op-amp to Discrete gave a sound that seemed subjectively a bit quieter, almost recessed. Yet the sound of Philly Joe's brushes was somehow actually more realistic, while I felt that the double-bass sound could be heard more completely as a line, rather than just a series of notes.

On the other hand, the Op-amp setting seemed to highlight the very subtle vibrato audible on Pepper's saxophone notes, perhaps giving a slightly different insight into his playing style. But in the end, ☺

THE PC CD

While Parasound's CD 1 looks just like a conventional player it is, in effect, a PC with CD-ROM drive and external USB soundcard combined into a less 'audiophile-threatening' chassis. Switch on the CD 1 and the Linux OS, running on a passively-cooled Intel D425KT Mini-ITX desktop PC board, boots to engage its proprietary disc management software. The motherboard still has its PS2 mouse/keyboard, serial/parallel ports and SATA connections in place, one of the latter hooked up to a Sony AD7800 (rewritable) CD/DVD drive. There's also more than sufficient RAM on the board to accommodate 30 seconds of buffered 16-bit/44.1kHz audio which is finally clocked out via one of its USB sockets. There's even a short USB cable running between this USB port on the PC board across to the (USB) DAC PCB sitting in the adjacent cubby hole. This internal USB DAC utilises an Analog Devices AD1853 converter, a very early-generation 24-bit/192kHz compatible part first launched in the late 1990s. PM



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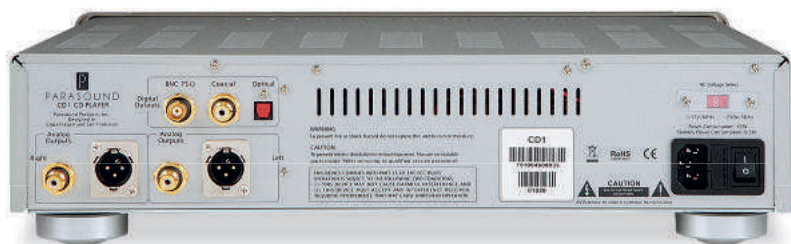
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CD PLAYER



ABOVE: Outputs are via balanced XLRs or unbalanced (RCA) phonos, plus BNC, coaxial or Toslink optical digital outs. Remote [below] allows polarity selection

almost out of sentiment, I stayed with the Discrete mode.

Listening further, I found that I was able to relax into an enjoyable sound, while at the same time being pleasingly alerted to previously unnoticed subtleties in the music. The sound was relaxing because it just seemed to do things right without effort, and yet at the same time it piqued your interest with new nuances and discoveries in the presentation of familiar favourites.

On one of the most familiar of all, Rebecca Pidgeon's *The Raven* [Chesky SACD 329], right from the opening notes of 'Kalerka', the CD 1 showed that there was still more to catch the ear than I'd thought. It gave a fabulous treatment of the voice, which seemed fresher and more alive than ever, focusing attention on the words and phrasing. At the same time there was great realism in the detail around it – for example in the way you'd hear the sweep of the studio echo as it followed the singer on a sliding upward note.

CLUES UNCOVERED

With well-trying instrumental recordings on the Halo player, I quite often felt that it was helping to uncover subtle acoustic clues, which other players had not revealed so clearly. Sometimes it could bring a little more life and resonance to what I'd previously thought of as a dry recording. This was so with Myriam Alter and *Where Is There* [Enja 9312], when the whole recording sounded less damped or over-controlled than it often does, with a feeling of a natural acoustic.



The CD 1 seemingly brought out good dynamics in the piano sound, a great singing quality to the cello and a nice woody feeling to the clarinet. On this recording there is some rather strange brushwork on the drums that can sometimes just sound amorphous and odd, like Hoffnung's famous vacuum cleaner. But here those sounds were well-defined and self-explanatory, making sense as part of the arrangement.

Live recordings seemed to benefit from the CD 1's ability to place low level details within a large and unstressed stereo space. Stacey Kent's *Dreamer In Concert* [EMI 5099968093228] is a really well-balanced and natural live recording that conveys the sound of the singer and her group as she delights her French fans on a big, wide stage in the broad but well-padded space of La Cigale theatre in Paris.

Here you could get absorbed in the occasion, as the player was able to present a sound picture that had audience sounds in a convincingly-scaled venue while Kent's musicians inhabited their own more intimate space on the stage, working together with tangible rapport. ☺

HI-FI NEWS VERDICT

Unlike so many of its competitors, this player can't be used as a DAC for hi-res downloads, and indeed Parasound says that including a DAC of appropriate quality to do this would have made it much more expensive. But thanks to the innovative technology from Holm Acoustics, it does play CDs exceptionally well, and its pure, engaging sound on disc is easily enough to justify the price. Warmly recommended.

Sound Quality: 83%

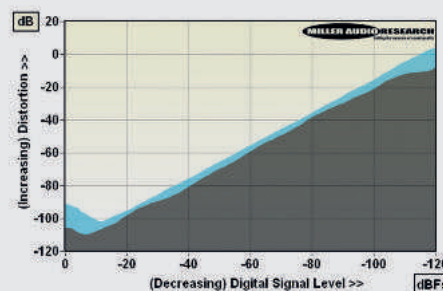
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LAB REPORT

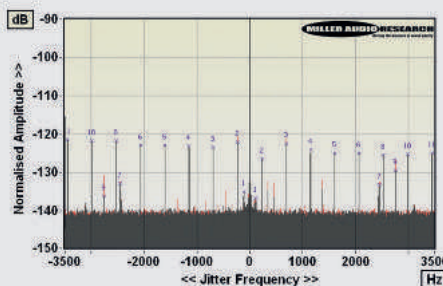
PARASOUND CD 1

According to Parasound's literature, the CD 1's 'discrete output stage uses transistors that operate within the feedback loop of the op-amps, so that the specs for THD and noise are the same.' Parasound isn't kidding for while its numbers are basic in the extreme (THD <0.06% at 1kHz and A-wtd S/N ratio >108dB) even our state-of-the-art measurements revealed little significant difference in output level, distortion or noise (or, indeed, the 50ohm balanced output impedance). Nevertheless, simply flicking the switch between 'Discrete' and 'Op-amp' may be enough to 'suggest' a difference! Maximum output is 3.9V via the balanced XLRs, yielding a 107.4dB A-wtd S/N ratio and distortion as low as 0.0004% at 1kHz–10dBfs, rising to 0.0006% and 0.0027% from 1kHz to 20kHz at 0dBfs [see Graph 1, below]. Unusually, distortion is highest at lowest frequencies (0.035% at 20Hz/0dBfs) just as the noise floor is not completely 'white', spectral analysis revealing some granular components whose regularity looks to be associated with one or more of the (switchmode?) power supplies.

While Parasound states that the default output mode is phase positive, like so many of today's players it's not, so the output phase is the opposite of what's indicated. There are no fancy DSP filters at work – the standard FIR oversampling filter defined by the legacy AD1853 DAC – but the frequency response is astonishingly flat from –0.05dB at 20kHz to within ±0.01dB thereafter up to 20kHz. Clock accuracy is superb at 3ppm and jitter at the limit of the 16-bit CD test at 120psec [see Graph 2]. Readers may download a full QC Suite test report for the Parasound CD 1 by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Distortion versus digital signal level over a 120dB dynamic range (black = 1kHz, blue = 20kHz)



ABOVE: High resolution jitter plot. Jitter is at the measurable limit for 16-bit data at 120psec

HI-FI NEWS SPECIFICATIONS

Maximum output level/Impedance	3.90Vrms/50ohm (Bal.)
A-wtd S/N Ratio	107.4dB
Distortion (1kHz, 0dBfs/–30dBfs)	0.0006% / 0.0032%
Distortion & Noise (20kHz, 0dBfs/–30dBfs)	0.0026% / 0.0013%
Frequency response (20Hz–20kHz)	–0.05dB to +0.00dB
Digital jitter	120psec
Resolution @ –100dB	±1.0dB
Power consumption	32W (1W standby)
Dimensions (WHD)	437x105x350mm

JBL Synchros S700

Does the LiveStage localisation technology work to give a more lifelike listening experience?

Review & Lab: **Keith Howard**

Although Harman International, which owns JBL, has a 'specialist' headphone company under its wing (AKG), that hasn't stopped what is probably the world's most famous loudspeaker brand joining the growing number of other speaker makers in adding headphones to its product line-up. Up to now JBL's headphones have seemed rather 'me too' but that has changed, and dramatically so, with the introduction of two new over-the-head models, the S500 and top-of-the range S700 reviewed here, both of which incorporate what JBL refers to as 'LiveStage'. I believe it is the first digital signal processing system [DSP] ever to be fitted to a headphone.

IN THE ROOM

Precisely what it does is not something that JBL elaborates upon, beyond saying that it 'adds localization cues to deliver a more lifelike listening experience, recreating the warm natural feeling of 'being in the room''. We'll have to see JBL's pending patent to know exactly what's afoot but it's a fair guess from this description that LiveStage provides frequency-dependent crosstalk between the two channels to mimic the acoustic crosstalk of stereo loudspeakers, and imposes a room-like impulse response to aid externalisation of the sound [see boxout, below].

LiveStage is switchable – via a neat central button recessed into the frame of

RIGHT: JBL makes much of the S700's diecast aluminium capsule frames. Colour options are onyx black or glacier white

the left capsule – and of course it requires battery power, provided by an internal lithium-ion cell. This is recharged using a special connecting lead terminated in a type A USB plug which can be inserted into a suitable socket on a computer, or whatever, for power.

A small LED inset into the button then flashes orange to show that recharging is taking place. When the flashing is replaced by solid orange, recharging is complete – a process that can take up to 2½ hrs to deliver 28 hours of processing time.

The same LED, in normal use, also shines blue to indicate that LiveStage is engaged. A short tone is also then replayed via the capsules, while switching it off is signalled by a double beep. According to our measurements LiveStage also introduces a latency (delay) of about 1.8ms but this won't

be noticeable even when the sound accompanies moving pictures.

AN ODD TONAL BALANCE

The semi-open-back capsules (JBL doesn't classify them) have diecast aluminium frames containing 50mm drivers about which JBL gives no more detail. The headband – which includes graduations at each end to aid consistent setting of capsule position – I've seen described as 'steel' and 'stainless steel' but the latter is unlikely, given that it is attracted to a magnet. Two short (1.2m) leads are provided, each with an inline remote to control different classes of mobile device and mini-jack plugs at both ends. Connection at the headphone is via a socket in the left capsule. Although the capsules don't fold up into the headband they do rotate flat for fitment into a supplied semi-rigid zip-up carrying case.

Comfort, for me, was compromised by the S700's soft earpads not being quite of



EXTERNALISATION

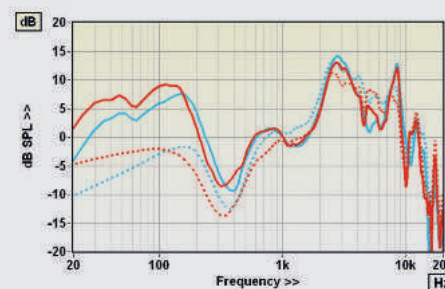
Persuading the normally in-head stereo image experienced with headphones to migrate to a more natural, external position is a trick that has been attempted, with varying degrees of success, for decades. Setting aside binaural recording – which itself often fails to create an externalised image – initial attempts focused on recreating the acoustic crosstalk of stereo loudspeakers (where the left ear hears some of the right channel and vice-versa) using external circuitry. In an AES paper of 1961, the famous Ben Bauer of CBS Laboratories described a passive circuit for this, and active filters would later allow the same to be achieved more elegantly. But it was with the arrival of digital signal processing that exciting new possibilities opened up. What DSP brings to the party, apart from the ability to perform crosstalk filtering far more precisely, is the option to apply room simulation – although even with this, externalisation remains hard to achieve.

JBL SYNCHROS S700

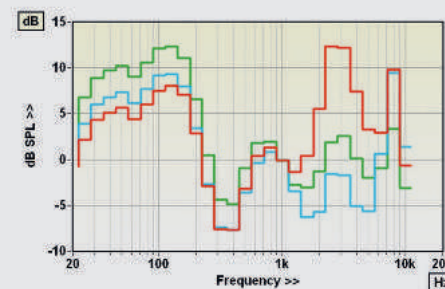
JBL claims an output of 117dB for 30mW for the S700 but offers no specification of nominal impedance to allow this to be converted into a voltage sensitivity. Our measurements indicate that a nominal impedance of 35ohm is appropriate, which would make 117dB/30mW equivalent to 116.8dB for 1Vrms – close to our measured value of 115.9dB at 1kHz, averaged for the two capsules. In fact the impedance varies from 32.4ohm to 38.2ohm across the audible spectrum (20Hz-20kHz), a modest variation that introduces a frequency response change of only 0.32dB with a 10ohm source impedance, rising to 0.66dB for 30ohm – small variations that are unlikely to be noticed in practice. This is for the S700 in passive mode, with the LiveStage DSP switched off; with it engaged, input impedance rises to an almost constant 1.9kHz.

The frequency responses are also quite different in the two modes, with the S700 driven passively [solid traces, Graph 1 below] showing a stronger bass output. With LiveStage engaged it is clear that the notably shelved-up bass of its passive operation is curtailed [dotted traces, Graph 1]. The capsule matching error is also reduced from ± 6.4 dB in passive mode to ± 4.2 dB in active mode, but that is almost certainly an artefact of the inherent variability of the ten response measurements averaged to generate these mean responses, between each of which the headphone is removed from and then replaced on the artificial ear.

As the corrected third-octave responses show [Graph 2, below], compared to a diffuse-field corrected target response the S700 in passive mode is relatively flat down to 250Hz but by an octave lower the output has increased by almost 12dB. Bass and treble are more balanced in active mode but there is a trough in output of about 10dB centred on 350Hz. KH



ABOVE: Passive mode (solid traces) has an excess bass that's curtailed in active mode (dotted traces) but both show an obvious lower-midrange suckout



ABOVE: 3rd-octave freq. resp. (red = uncorrected; cyan = FF corrected; green = DF corrected). Note change in Y (amplitude) scaling

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL at 1kHz for 1Vrms input)	115.9dB
Impedance modulus min/max (20Hz-20kHz)	32.4ohm @ 328Hz 38.2ohm @ 20kHz
Capsule matching (40Hz-10kHz)	± 6.4 dB
LF extension (-6dB ref. 200Hz)	17Hz
Distortion 100Hz/1kHz (for 90dB SPL)	0.1% / <0.1%
Weight (inc cable and 0.25in connector)	372g

large enough internal diameter to accommodate my pinnae without some squishing, and while JBL has avoided headband resonances of the magnitude encountered in the PSB M4U 2 and NAD HP50 [HFN Dec '13 and Jan '14], nevertheless if you play pink noise through one channel you can distinctly hear some low frequency energy being carried over to the other capsule.

It was manifest from a quick listen to the S700 prior to measurement that in passive mode it has a very odd tonal balance which causes bass sounds to make loud intrusions. The lab testing revealed why. Today it's not uncommon for headphones to have excessive bass output but usually it is developed slowly, with a gradually rising frequency response below 1kHz or so. Not so with the S700: the uncorrected response first falls below 600Hz to a dip of -8.5dB (re. 1kHz) at about 300Hz before making a spectacular comeback to be +7.9dB by 150Hz: a shelf-up of over 16dB over just one octave. Below 100Hz the output then declines gently before the slope steepens below 30Hz.

So the upper-bass sticks out like a sore thumb, particularly relative to the lower midrange, and this has an inevitable effect on sound quality. It's not simply that the bass sounds excessive, though. What's more noticeable generally is the hole in output between bass and treble, which gives the S700 a distinctly coloured, boom and tizz type of sound. In isolation the bass is well controlled and tuneful, but it just isn't integrated into a neutral whole.

LIVESTAGE IMAGING

Whatever you listen to, this coloration intrudes. You can, for instance, hear it from the moment the rain begins falling at the start of 'Riders Of The Storm' (a 24-bit/88.2kHz conversion from a rip of the Analogue Productions SACD release of *LA Woman*). And once the music gets going, you miss the surprising quality of this early '70s recording, mediocre vocal sound and rather L-R imaging notwithstanding. Over a

tonally well-balanced headphone it's a delight; via the S700 you might as well stick with the CD.

Jazz fared no better. I recently tracked down a CD of Duke Ellington's 1960 *Unknown Session* [Columbia COL 472084 2]. Although it has a 'period' sound to it, it oozes class; the S700, though, made 'Black Beauty' sound even more coloured – Ellington's piano became clanky and his delicate touch was obscured, while the whole sound was overlaid with an excessive contribution from the double-bass.

With Vaughan Williams' Oboe Concerto and the 1991 Jonathan Small/RLPO/Handley recording on EMI Eminence, the JBL's excess bass and that hole in the lower mid made Liverpool's Philharmonic Hall sound not unlike an underground cavern.

With LiveStage engaged the bass excess is pegged back to achieve a better overall balance but the hole in output centred on 300Hz remains and so, consequently, does its associated coloration. In fact the tonal balance takes on a hard quality. As for externalising the sound, LiveStage failed completely for me. You can hear it narrow the stereo image somewhat, but at no time did I experience the soundstage being projected out into the room, even on recordings using simple microphone techniques in naturally reverberant spaces. ☹

HI-FI NEWS VERDICT

With its inbuilt DSP, the S700 could have been a breakthrough product for JBL but its peculiar tonal balance prevents it achieving class-leading sound quality, whatever the digits are up to exactly. Perhaps LiveStage will prove its worth incorporated in a better-balanced headphone, but it's hard not to conclude of the S700 that JBL would have done better to concentrate its design effort on the fundamentals.

Sound Quality: 68%



'What's most noticeable is a hole between bass and treble output'

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Audioquest DragonFly v1.2

This DAC-in-a-stick has been updated. For budding computer audiophiles it's the best £129 you'll spend this year. Review: **John Bamford**

For playing music from a computer what could be more convenient than a miniature DAC built into a USB dongle? You might think it little more than a 'handy gadget' with no *real* hi-fi pretensions, but Audioquest's diminutive DragonFly was designed in collaboration with Wavelength Audio's Gordon Rankin.

It incorporates his Streamlength asynchronous USB protocol with a 24-bit ESS Sabre DAC and Burr-Brown amplifier with 64-step analogue volume control (that you adjust via your computer). The DragonFly's 3.5mm stereo mini-jack socket can drive headphones directly (it's rated at 125mW @ 32ohm) or provide a line level output for hooking up to a hi-fi system. Its variable output further allows it to drive powered speakers.

We're told that updates for this latest v1.2 model include improved regulation of the incoming 5V from the host's USB bus and a more direct signal path between the DAC chip and the analogue output stage. Best of all, the price has been reduced from £200 to just £129!

As with the original DragonFly, this is a USB Audio Class 1.0 device – so it is limited to 24-bit/96kHz maximum resolution – but this also means that no special drivers are required. There are two discrete on-board clocks dedicated to 44.1/88.2kHz and 48/96kHz playback, while micro LEDs change the colour of the stick's dragonfly emblem according to the sample rate of the file being played: green (44.1kHz), blue (48kHz), amber (88.2kHz) or purple (96kHz). It draws around 200mA according to

Audioquest, so while it will work in any USB socket on a desktop or laptop computer, using it to play music stored on a tablet may require the services of a powered USB hub. Apple iPad owners currently need to invest in a Camera Connection Kit (£25). One important note for those with ageing PCs: while it will work with Windows XP it is not compatible with Vista OS.

AIR AND SPACE

Whether you are a budding computer audiophile or an enthusiast looking for a mobile solution, the DragonFly is sure to delight with its clear and vivid sound quality. And whether listening on headphones or via a home hi-fi rig the benefits of bypassing a computer's built-in sound card can be heard within just a few bars of music playing.

Most obvious is the improved spatial performance, the DragonFly's resolution of fine detail providing the ability to hear the air and space in good recordings. Listening to passages from David Chesky's *The Zephyrtine – A Ballet Story* [see p88] demonstrated the fabulous rendition of acoustic space and sense of openness provided by the DAC. Bass performance is also satisfyingly muscular, with vibrancy and a good sense of drive. 'Willow' from Joan Armatrading's *Show Some Emotion* [A&M 394663-2] sounded lively and richly-toned, the song's bass delivered with power and control, with just the right amount of reverb.

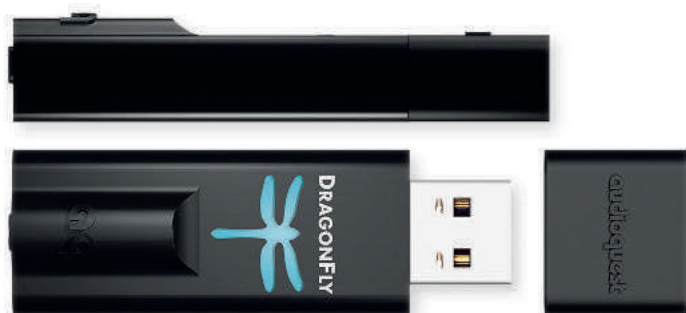


Nor will you feel short-changed when using the DragonFly to listen to downloads from the likes of Channel Classics and 2L. It really is that good, giving more than a hint of the flavour of DACs costing ten times the price. For hooking up to a line input of a preamplifier it's worth investing in a decent quality stereo mini-jack cable to go with it. Audioquest makes a range to suit all pockets, starting at just £30 for 1m of its Tower cable. For a longer 2m lead its Golden Gate cable is strongly recommended. ☺

HI-FI NEWS VERDICT

Given the DragonFly's modest price there really is no excuse for listening to music from your computer's headphone socket and then complaining that computer audio playback doesn't sound as good as from finely-tuned LP and CD sources! It sounds really tremendous both with good quality lossless CD rips and hi-res audio files – and can be strongly recommended. I'll be carrying one in my laptop bag for sure.

Sound Quality: 82%



LEFT: Simply plug the DragonFly into a computer's USB port and enjoy high-res digital audio (up to 24-bit/96kHz) in an instant. Its 3.5mm stereo socket can drive headphones or provide a line-level output

Pro-Ject 1 Xpression Carbon

With a beefed-up arm and bespoke Ortofon cartridge with silver wiring, this new version of Pro-Ject's 'classic' solid-plinth turntable looks to be another winner

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

Twenty-three years ago Pro-Ject Audio's first budget-priced record player was called, simply, the Pro-Ject 1. It was the start of a global brand. By the end of the 1990s it was selling its entry-level Debut model for just £109 – including tonearm and Ortofon OM5E MM cartridge – making it the go-to brand for LP lovers on a tight budget.

Never ceasing to experiment with different manufacturing techniques and combinations of materials that will inevitably flavour the sound of a record player, the company has subsequently designed countless models, while always concentrating its parts budget where it mattered most, ensuring tremendous value for money throughout its model range.

SIXTH VARIATION

The Pro-Ject 1 has been reincarnated several times during the past two decades, its design variously tweaked – most notably fitment with improved tonearms as they've been developed. In fact this is the sixth variation on the 'P1' theme, which remains a straightforward solid-plinth design with manual speed change, its synchronous motor driving a subplatter via a flat belt.

The MDF plinth of this latest 1 Xpression Carbon is handsomely finished in gloss lacquer paint. Our photographs show it finished in midnight blue; the deck is also available in Bordeaux (a lustrous deep burgundy red) and gloss black. Like many budget-priced decks it's designed to be as simple as possible to set up, since it comes pre-fitted with an MM cartridge and is pretty much ready to go. All that's required is to place the belt around the pulley and subplatter, place the main platter on top, and attach the arm's counterweight and anti-skate thread and weight.

The plinth is supported on three inverted cone feet – two at the front, one centrally-placed at the rear – made in two

parts with compliant rubber decoupling in between their two sections.

They're screwed into threaded inserts on the plinth's underside. Consequently they can be unscrewed a little to afford correct levelling – but I don't recommend this, since there are no locking nuts and they do wobble around if not fully 'seated'. I suggest it's better to ensure your supporting shelf is perfectly horizontal in the first place!

This new turntable package includes a special version of Ortofon's 2M Red high output moving-magnet of longstanding [*HFN* Oct '08] called the 2M Silver, made exclusively for Pro-Ject by the Danish pick-up specialist. Where the Red currently costs £85, the Silver is likely to be priced at around £150 when at some time sold separately, says Henley Designs, since the coil windings are of pure silver wire.

This bespoke pick-up is housed in the same wedge-shaped body as other 2M Series models, formed of Noryl (a rigid pastic/glass composite), with threaded mounting holes in its top plate. The generator system features split pole pins, which Ortofon claims reduces distortion as well as

delivering a higher than usual output [see Lab Report]. It has a 'tipped' elliptical stylus and recommended tracking force is 1.8g.

The pivoted tonearm fitted to the 1 Xpression Carbon is also a fresh-up

design. Inspired by Pro-Ject's more robustly formed Evolution tonearms it features a one-piece arm tube and headshell formed of carbon fibre, now with a larger and sturdier bearing housing and resonance-damping decoupled counterweight.

Says Pro-Ject, this over-sized bearing support is more effective at dissipating

'Particularly impressive was the crisp quality of the drum kit...'



RIGHT: Gloss-painted pressed steel platter rests on a belt-driven subplatter. An AC synchronous motor is driven by a small generator circuit fed by a 15V DC plug-top power supply



resonances and better isolates the arm from the rigid plinth. As with Pro-Ject's Debut decks, 'P1' models are fitted with arms a little shorter than the 9in (230mm effective length) 'standard'. Mounting distance from centre spindle to arm pivot centre is 200mm, and with 18mm cartridge overhang the effective length is 218mm/8.6in. It's of little consequence – unless you ever wanted to change the arm on the deck at a future date. Should you feel the urge to swap the cartridge – to a modest moving-coil, perhaps – the arm's height is adjustable.

CHOOSE BETWEEN MATS

Pro-Ject has also modified the motor drive. While the deck is powered by a 15V DC plug top 'wall wart' supply that connects via its cable to a socket at the rear, the DC power supply signal is converted to a 'clean' AC signal by a small generator circuit fitted to the deck's underside. 'This allows the 9V AC synchronous motor to perform at its optimum level.' Pro-Ject also claims this offers a sonic upgrade equivalent to that provided by its external Speed Box units that can provide electronic speed switching with some of its manual turntables (but not this one). The motor is isolated from the main plinth

by two rubber grommets designed and manufactured by Ortofon's specialist rubber division.

Power on/off is via a small rocker switch located under the front edge of the plinth, positioned in the left-hand corner. Speed change between 33.3 and 45rpm is achieved by lifting away the platter and manually moving the belt on the stepped pulley. The deck can also be made to spin at 78rpm by the addition of a supplementary pulley kit priced £20.

The inner platter of the 1 Xpression Carbon is formed of a resin composite, with a stainless steel spindle running in a bronze bearing housing with a Teflon thrust pad at the bottom. Meanwhile the gloss black main platter is of pressed steel. Tap it with a knuckle and it does ring with a resounding '*do-oiing*'. Two platter mats are provided to dampen it down. One is a traditional felt mat, the other is made of cork. 'You can tailor the sound for your ears and your environment,' says the brochure.

The tonearm's internal wiring terminates at a junction block fitted with two gold-plated RCA output sockets and an earth terminal [see photo, p65]. A serviceable interconnect cable of indeterminate internal construction is provided, as is a plastic centre hole adapter

ABOVE: An 8.6in tonearm employs one-piece carbon fibre arm pipe/headshell, fitted with an Ortofon 2M Silver cartridge. Both cork and felt platter mats are included

for playing punched-out/ex-jukebox 7in singles. A hinged clear acrylic dust cover completes the package.

SURPRISINGLY CAPABLE

It can't have taken more me more than 15 minutes to unpack the 1 Xpression Carbon and get it up and running. Alright, I admit it helped having an electronic stylus downforce gauge to hand, and an Ortofon test record to ensure that the tracking and anti-skate settings were optimal. With the deck feeding a Graham Slee GRAM AMP 2 Special Edition phono stage I soon settled in to listening.

Don't be fooled by this package's modest price. This is a surprisingly capable little record player that is highly enjoyable to listen to, even in a revealing system, thanks to its fine speed stability and highly communicative music making. Naturally it doesn't deliver the sort of bass precision and extension of heavyweight decks. And it is quite microphonic, so paying attention to careful siting will pay dividends. My 'floating' Townshend Seismic Stand – the price of which would buy four Pro-Ject 1 Xpression Carbons! – certainly cleaned up some muddiness in the low frequencies and helped open up the sound image.

The infra-bass on Grace Jones' *Slave To The Rhythm* [ZTT/Island GRACE 1] and the 45rpm 12in single of Frankie Goes To Hollywood's 'Two Tribes' [ZTT/Island 12 ZTAS 3] showed the player to have pretty good control of low frequencies, the deck delivering a creditably stable and powerful sound even when tasked with tracking challenging cuts.

I don't recommend using the player with its steel platter naked. I found the supplied cork platter mat the best, as it firmed up the bass and focused the

THE PRO-JECT PROJECT

Founded in 1991 by Heinz Lichtenegger, at a time when turntables were in danger of becoming all but extinct, Pro-Ject 'hit the spot' with its first budget-priced record player. Lichtenegger wasn't wrong in believing that there would always be demand for affordable turntables, and thanks to the LP's dogged continuance Pro-Ject has grown to become a world leader in vinyl replay. While best known for its entry-level designs, its portfolio covers all bases, its luxuriously appointed higher-end models also offering extremely good value. It makes decks for DJs too. The company's HQ is in Vienna while its production plant is a formerly state-owned facility situated in Litovel in the Czech Republic. These days the factory is operating 24/7, running three eight-hour shifts, producing in excess of 100,000 turntables a year. The UK accounts for around 10% of Pro-Ject's sales. Oxfordshire-based distributor Henley Designs has represented the brand since its inception and enjoys a close working relationship with the company.



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TURNTABLE



ABOVE: A solid MDF plinth rests on inverted cones incorporating compliant dampers. Tonearm wiring terminates at an RCA connector block

image considerably. Bass notes stopped and started with more precision, revealing more of the tonal texture of bass instruments and providing better differentiation between low bass guitar notes and kick-drums.

However I can imagine some listeners preferring the felt mat, especially if listening through small monitors with limited bass output capability, as it imbues the player with a more relaxed and sweeter tonality. But it was the cork mat for me, since this provided a more immediate and dynamically expressive musical delivery, with improved definition both at low and high frequency extremes.

With really dynamic LPs, such as Sheffield Lab's old direct-cuts, the little 1 Xpression Carbon sounded vivid, open and impressively 'stable'. The LAPO's 1985 recording of Stravinsky's *Firebird Suite* under Erich Leinsdorf [LAB 24] sounded bold and full-blooded, the recording's explosive dynamics preserved surprisingly well by this modestly-priced player package.

The treble was brightly lit, but with no sign of brittleness or unnatural sheen. Indeed, treble detail had fine clarity with pristine discs, although end-of-side-worn records soon sounded ragged given the player's forthright demeanour.

STIRRING MEMORIES

Delving into my extensive vinyl collection was hardly a chore; it brought back fond memories of albums acquired over the decades, when and where they were bought, and I enjoyed plenty of musical treasures. I sat through both sides of *Waiting For A Miracle* by Sheffield's post-punk band The Comsat Angels [Polydor 2383 578], playing air bass guitar to the rousing 'Independence Day' and marvelling at the stark

nakedness of 'Total War' with its powerful percussion arrangement.

This track was presented as a cohesive whole, no particular frequency or instrument dominant. Particularly impressive was the crisp and lifelike quality of the drum kit that was both explosive and delicate where appropriate, the cymbals possessed of lifelike splash and 'ring'.

This may not be a record player for audio perfectionists or vinyl obsessives, yet a finer example of budget esoterica would be hard to find. It just goes to show that when a good quality cartridge is accurately aligned and given a rigid platform from which to operate, the result can often be more than the sum of the parts.

Pro-Ject's motor unit is quiet and provides a stable drive and the excellent tonearm is satisfying to use, its lift/lower device operating smoothly. Given the improvement in bass clarity and 'slam' when using the cork mat I'd be inclined, were the deck mine, to try a slightly heavier platter mat. Tweakers could also listen to the effect that various interconnect cables had on perceived sound quality. ☺

HI-FI NEWS VERDICT

Good hi-fi doesn't have to cost a small fortune. The 1 Xpression Carbon is a cracking little package for the money. Music lovers on a tight budget really can't go wrong here. Moreover for vinyl virgins it's a doddle to get it up and running, since the cartridge is pre-installed and you only have to set the downforce and bias. Pay careful attention to siting and you'll be rewarded with surprisingly fine sound quality.

Sound Quality: 81%

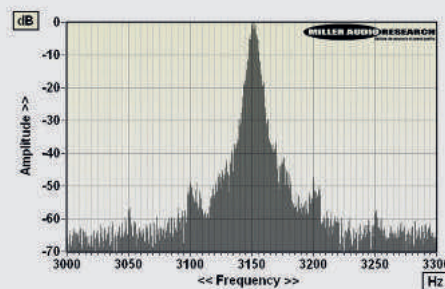


LAB REPORT

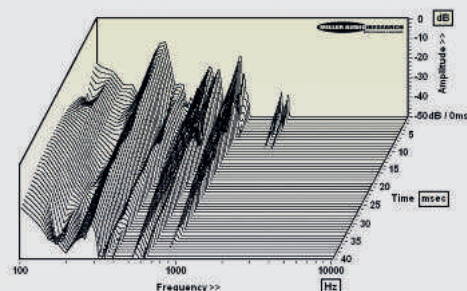
PRO-JECT 1 XPRESSION CARBON

Ortofon's 2M Silver is a silvered-wired version of the popular 2M Red [HFN Oct '08] and offers a similarly high 6.0mV output with a characteristic +1.5dB lift through the presence region. This, and its secure tracking beyond the extreme 80µm groove, make it the perfect choice for a low cost, high performance deck like the Xpression 1 Carbon. As with Pro-Ject's Debut Carbon [HFN May '12] and related decks, the undamped metal platter benefits from the use of a felt or cork mat, the former reducing in-groove rumble by a full 1dB to -67.7dB. The 0.09% peak wow and flutter and *shape* of the spectrum [see Graph 1, below] are very similar to the results we recorded for the Pro-Ject V-Pack [HFN May '11] and Debut Carbon. Note the mild $\pm 100\text{Hz}$ flutter sidebands and 1Hz wow, possibly from a slight 'rocking' of the sorbothane-decoupled motor. The Xpression Carbon features Pro-Ject's AC motor and weighted rumble, through the captive steel bearing, remains very acceptable at -68.7dB. Start up time is rapid too, at 3 seconds.

Pro-Ject's 8.6in carbon-tubed tonearm is equally familiar, though improved here with a more substantial bearing yoke. With integral carbon headshell, the arm offers a low effective mass of just 6g making it ideally suited to compliant MM pick-ups like Ortofon's 2M series. Bearing friction is low at $\sim 10\text{mg}$ in both planes while the stiff armtube shows the same deferred resonance at 270Hz we saw with the Debut Carbon [see Graph 2, below]. Readers are invited to view full QC Suite reports for Pro-Ject's 1 Xpression Carbon turntable and arm 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 $\pm 150\text{Hz}$, 5Hz per minor division). Absolute speed accuracy is excellent but note $\pm 100\text{Hz}$ flutter



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	33.33rpm (+0.007%)
Time to audible stabilisation	3sec
Peak Wow/Flutter	0.04% / 0.05%
Rumble (silent groove, DIN B wtd)	-67.7dB
Rumble (through bearing, DIN B wtd)	-68.7dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-54.8dB
Power Consumption	3W
Dimensions (WHD inc lid)	415x130x355mm



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Vinyl Frontier

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

You'll find something new in familiar repackaged albums by Dire Straits and The Eagles, says **Chris Heard**, who contrasts 1988 hip-hop with regal Ella and Billie reissues

Familiarity breeds contempt. In a former life as a crime reporter I walked straight past my corner shop on the way to work not noticing it was being held up by two armed robbers. It's the same with music: there are bands and records with which we have developed, perhaps, a somewhat jaded relationship, like a long-term marriage from which the magic has disappeared.

It doesn't have to be like this, though: the modest growth of the 180g vinyl reissue market, has led to a treasure trove of wonderful music being reinvigorated, to be devoured by both old-timers and newcomers to the joys of the LP. Two of the biggest rock acts of the 1970s and '80s, The Eagles and Dire Straits, are now the subject of comprehensive vinyl reissue projects, with each band's significant studio repertoire becoming available in comprehensively-annotated box sets.

It doesn't matter how many times you may have heard *Hotel California* or *Brothers In Arms*, the chances are that with a remastered LP on a half-decent system there will always be something new to pick up on: a small guitar lick or a vocal inflection, enhanced by the best contemporary engineering to create a new listening experience – vinyl as it is meant to be heard today. The Eagles set, *The Studio Albums 1972-1979*, is a high-end offering from Rhino containing the titles *Eagles*, *Desperado*, *On The Border*, *One Of These Nights*, *Hotel California* and *The Long Run*.

One critic unkindly described these records as being 'the sound of cocaine',



➔ Studio recordings by The Jam are reissued as an 8LP Polydor set

and there's no getting away from the slumberous, laid-back nature of much of this material, but, in the words of singer Glenn Frey, 'The only difference between boring and laid-back is a million dollars'.

All the money in the world couldn't make up for the band's deep-seated desire to win over a largely sceptical music press: a feat that was accomplished in spades with *Hotel California*.

The Dire Straits offering, *Studio Albums 1978-1991* [Universal], is made up of *Dire Straits*, *Communicue*, *Making Movies*, *Love Over Gold*, *Brothers In Arms* and *On Every Street*. The first four titles have been reworked from the analogue masters by the legendary Bernie Grundman, with lacquers co-cut with Chris Bellman, while Bob Ludwig has taken care of the mastering (from digital sources) on the final two. Many of these records are like old friends; despite frontman Mark Knopfler's unfathomable insecurity about the quality of *Brothers In Arms*, it became the first CD to sell a million. But this is the better way to hear these timeless vehicles of songcraft.

WELLER AND THE JAM

Given the questionable nature of much of Paul Weller's recent work, his solo career has been surprisingly enduring. Yet nothing comes close to the spirit, energy and, well, just *brilliance* that characterised the clutch of albums he recorded with The Jam between about 1978 and 1982. *The Jam Studio Recordings* [Polydor] includes all of these

CHRIS HEARD

Chris Heard is a music journalist and a vinyl fanatic. He runs an online record store, Classic LPs, specialising in vinyl reissues and new releases, and a physical shop, Carnival Records, purveying 10,000-plus records amid the splendour of the Malvern Hills. Visit www.classiclp.co.uk and www.carnivalrecords.co.uk.



great albums – *All Mod Cons*, *Setting Sons*, *Sound Affects* and *The Gift* – plus their first two (lesser) works, *In The City* and *This Is The Modern World*, and a couple of LPs' worth of singles into the bargain.

Weller really began finding his songwriting feet on 1978's *All Mod Cons*, one of the key LPs of the new wave era which harks back to the sharp-suited sonics of The Who, and apes Ray Davies and The Kinks' pastoral English whimsy. With the advent of punk Weller had found a way to replicate the best of homegrown 1960s rock music in a fresh context, combining his bang-on reference points with an articulate fury that mirrored the frustrations of white working-class teenagers in the late 1970s.

Songs such as 'In The Crowd', 'Mr Clean', 'Billy Hunt', 'To Be Someone' and 'Down In The Tube Station At Midnight' provided the perfect focus for a restless mass of youth born ten years too late to experience the thrills of 'My Generation', 'Substitute' and 'Waterloo Sunset' the first time round.

With subsequent albums, Weller honed his writing to sublime levels: 1979's *Setting Sons* was the ideal antidote to newly-Thatcherite Britain, while *Sound Affects* (1980) took Paul's *Revolver* [Village Green Preservation Society] fixations to their natural conclusion.

The Gift (1982) embraced the spiritual soul of Geno Washington and Curtis Mayfield, hinting at the direction Weller was to take little over a year later as he sensationally sacked the rest of his band and pursued brass and Hammond organs with The Style Council. There has been the odd moment of solo brilliance, of course, but these were the records that cemented Paul Weller (alongside Joe Strummer) as arguably his generation's most profound artistic spokesman.

NEW WAVE TEXTURES

Through The Hill was a 1994 collaboration between Andy Partridge, the driving force behind Swindon post-punk legends XTC, and the US jazz composer Harold Budd, a



➔ The Eagles' studio recordings from 1972-79 come in a Rhino set

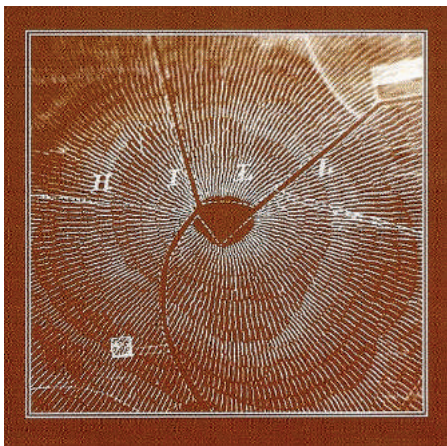


➔ Ella Fitzgerald with Louis Armstrong: a Verve LP now on Universal at 180g

master of the neo-classical avant-garde, known for his work with the sympathetic rock underground (Brian Eno, Cocteau Twins). This meeting of minds produced a little-known ambient gem, dominated by Budd's lush spacious keyboards, cut in with Partridge's processed angular guitar lines. Despite the joint billing it feels more like Budd's album, but it will be of some interest to anyone enamoured by the Eno-David Byrne-Robert Fripp axis that produced some of the most texturally interesting records of the new wave era and beyond [All Saints, 2LP].

HIP-HOP'S FINEST

Every genre has its golden age, its key recordings, and hip-hop is no exception. While fans hark back fondly to the old-school and classic artists and tunes of the early- to mid-1980s, there is a huge place in the hearts of rap lovers for two particular LPs reissued by Universal as part of its Back To Black series. Public Enemy's *It Takes A Nation Of Millions To Hold Us Back* was a seething record of righteous fury in the tradition of Marvin Gaye's *What's Going On* and the agit-funk of Gil Scott-Heron or The Last Poets – even Stevie Wonder during his mid-'70s 'conscious' phase. Essentially a protest album with beats and some quite extraordinarily potent rhyming by frontman Chuck D, *Nation Of Millions*, released in



➔ *Through The Hill* [All Saints, two discs] 'a little-known ambient gem'



1988, had more in common politically with The Clash or early Bob Dylan than it did, say, Run DMC or The Beastie Boys. Here was an LP of quite fearsome intent, its contents bursting with controlled aggression: 'Bring The Noise', 'Rebel Without A Pause', 'Night Of The Living Baseheads', 'Don't Believe The Hype', 'Black Steel In The Hour Of Chaos'... Hip-hop's single finest album.

Not far behind it is NWA's *Straight Outta Compton*, released in the same year but with a mindset and hinterland a world away from Public Enemy's metropolitan posturing. Based in Los Angeles, NWA unleashed their debut album to a stunned and envious East Coast scene, effectively birthing West Coast hip-hop and 'gangsta' rap as they did so. At its worst moments the record stood accused of glorifying violence ('F... Tha Police') and objectifying women in a way that tarnished hip-hop's reputation, yet the sheer explosion of the music and the mesmerising nature of Ice Cube and Eazy-E's lyrical flow are irresistible.

QUEENS OF ALL THEY SURVEYED

If Public Enemy and NWA established a high watermark for urban black music in the 1980s, Billie Holiday and Ella Fitzgerald represented the best qualities of African-American pride, strength, guile and art in an earlier (gentler?) age. Two Verve reissues released via Universal shine a light on some of the most durable vocal

➔ Billie Holiday tracks from Capitol Studios 1954 and NY '56, *Lady Sings The Blues*, is reissued by Universal

performances of the post-war US jazz scene: *Lady Sings The Blues* finds Holiday in fine voice in a series of recordings made at the Capitol studios in Los Angeles in 1954 alongside some New York sessions from 1956; while on *Ella And Louis* Ella Fitzgerald is paired with Louis Armstrong for the first time on an album cut during the same era, with backing from The Oscar Peterson Quartet.

Both LPs are characterised by downtempo, sumptuous smoky balladry delivered with an authenticity that set these two singers apart, for a moment or two in time, as queens of all that they surveyed.

THE LATE SINATRA 'DUETS'

Duets by Frank Sinatra is a fascinating if flawed collection of Sinatra standards recorded with guests including Charles Aznavour, Bono, Gloria Estefan, Julio Iglesias and Barbra Streisand. Universal's 20th anniversary issue has done little to change my feeling that it was a great idea badly executed – the 'duets' were in fact Sinatra's vocal tracks augmented by the guests recording their pieces remotely – yet there's an undeniable poignancy about the apparent fragility of Ol' Blue Eyes in what was the winter of his career. ☹

Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Red Hot Chili Peppers *Blood Sugar Sex Magik*

Though released on a major label, it helped kick-start the early 1990s alt rock explosion. **Steve Sutherland** on the Red Hot Chili's fifth studio LP, now reissued on 180g vinyl

I think the energy and excitement of rock 'n' roll has gone from most records we hear. Everything is becoming so processed and digitised and *stiff*. If I can get a band's head in the right direction and show them what the goals are, then I'll be doing the right job.'

The voice you're hearing while he shovels pasta into his beard in a bijou diner on Santa Monica Boulevard belongs to Frederick Jay Rubin, a 27-year-old *wunderkind* who, at this precise moment in time, can boast that the first three major jobs he ever did as a producer – LL Cool J's *Radio*, The Beastie Boys' *Licensed To Ill*, and Run DMC's *Raising Hell* – shifted in the region of nine million records.

That's why he is feted by his industry peers and feared in pretty much equal measure by the parents of white Middle America who place the blame unfairly but squarely on his hunky shoulders for infecting their offspring with a hankering for hip-hop and all that nasty ghetto behaviour that goes along with it.

It was Rubin – better known as Rick – for example, who put Aerosmith and Run DMC together for the ground-breaking MTV

crossover hit 'Walk This Way', and it was the sort of stuff he's saying to us now over spaghetti that had a local LA band of ne'er-do-wells hounding him to work with them.

'As a producer, as much as the arrangements and the songwriting, a big value to instil is that it doesn't really matter what it sounds like. It just has to be a representation of *you*. Who cares about the radio? Who cares about anything?

'You can't think about those things

because they're the things that are gonna limit your career and make you the same as everyone else.

'If more bands had the courage to go with their instincts, music would be in a better state than it is right now. You can't condescend to your audience, you have to respect them. You just have to do what you love and make it great, do your best effort and hope that people like it. That's the difference between "art" and "product".'

The band we're talking about had already been pretty badly bruised by their

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...



studio experiences. Their first producer, Andy Gill of Gang Of Four, craved a hit single above all else so he polished up their sound more than they'd bargained for. Then they got involved with one of their heroes, George Clinton, whose funkpunk sound was ok and all but the drug-induced chaos during recording put the band in a bad place physically and psychologically.

Then there was a fellow called Michael Beinhorn who they ended up with, when they asked Rick and he turned them down because he was no fan of smackheads.

Beinhorn, again, tried to squeeze a hit out of them and by the time Rick changed his mind, the band

had lost a guitarist to H and, scared stiff, cleaned up their act.

"Our motto? 'Set up the mics, go play!'. Who cares what it sounds like?"

MUSIC TO THEIR EARS

The band we are talking about is Red Hot Chili Peppers and work started with Rick Rubin in May 1991, exactly a month after the interview you're now eavesdropping on. What he said to the band is pretty much what he is explaining to us now:

'I'm not saying, "Don't make good records", I'm saying, "Make *your* records". It's personality that's important. Instead of spending a week trying to get the world's greatest guitar sound, if you set up a mic in front of the amp and you're playing, it's *your* guitar sound; from *your* fingers.

'We make records very, very quickly. Our big motto in the studio is, "Set up the mics, go play!". Who cares what it sounds like?' Literally music to their ears.

The challenge which Rick confronted looked like this... The singer, Anthony Kiedis – a sex-obsessed, drug-inclined, pretty messed-up dude with a smart way with words; Michael 'Flea' Balzary – a funk-obsessed bassist with a tendency to jam and overcomplicate; Chad Smith, a bit of a mis-matched heavy metal drummer; John Frusciante – a promising guitarist in



© ELLEN VON UNWERTH

The Red Hot Chili Peppers pose for promo shots in 2011 (l-r) bassist Michael Balzary aka Flea, guitarist Josh Klinghoffer, drummer Chad Smith and vocalist Anthony Kiedis



➔ Priced £22.99, the 180g re-release of The Red Hot Chili Peppers' *Blood Sugar...* is available from <http://shop.badlands.co.uk>

search of a style who was an avid fan of the band, auditioning for and joining them when Hillel Slovak OD'ed. All of these guys were extremely susceptible to the many attractive distractions available to a band well-connected on the LA scene.

So what Rick did was got them all holed up and out-of-the-way in a haunted house in the Hollywood hills which used to belong to Harry Houdini. Then he encouraged them to follow their muse, cut down on the jamming, and think about writing some songs which actually had something to say about their lives. Flea was encouraged to cool it on the fret-popping. Frusciante was encouraged to chill and stop turning it all up to 11. And Kiedis was urged to look deep inside himself for something more personal to say.

The results were astounding. Recorded with an honesty and intimacy that made you feel as if you were in the room with the band, the sessions saw the band grow in confidence creating, in the process, a funky new take on alternative rock with



©CLARA BALZARY

➔ Kiedis stares into the camera as Klinghoffer, Flea and Smith look on



songs which stood out from the crowd and up for themselves. 'Under The Bridge', written after Rick found a poem in one of the initially reluctant Kiedis's notebooks, turned out as a ballad about the singer's time slumming it as a junkie. 'My Lovely Man' was Kiedis confronting, at long last, the devastation of Slovak's death. 'I Could Have Lied', 'Breaking The Girl' and 'Blood Sugar Sex Magik', which became the album's title simply 'cos it sounded so good, dealt with the singer's tangled and sometimes tortured past relationships. 'Suck My Kiss' and 'Mr Psycho Sexy' were X-rated fornicatory anthems and in 'Give It Away' they put personal philosophy into the grooviest groove imaginable.

STORMED IT ON MTV

The latter, complete with a magnificent video, stormed it on MTV and despite some radio stations initially snubbing it for lack of a tune, Rick's instincts again proved correct and the track launched the band, and the album, into the stratosphere. *Blood Sugar Sex Magik* has sold to date 13 million copies – yet more evidence of Rick's utter awesomeness when it comes to challenging and reshaping mainstream tastes and trends.

The main man, though, remains ever humble. 'Oh, it's happened throughout history,' he shrugs. 'Y'know Elvis was a bad guy. The Beatles were a punk rock band.

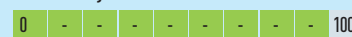
The Doors were the most horrible thing ever. That's rock 'n' roll! Traditionally the best stuff is well-hated at the beginning. So the thing to do is not give in. I just keep doing my thing and hope that, eventually, people will realise it's alright.

'Not that I could really care less what others think of what I do,' he chuckles. 'I just want to make my own favourite records and be really proud of them. If other people appreciate them, great. If not, that's ok too. Just as long as, at the end of the day, I'm proud of them, that's all that really counts.' ☺

RE-RELEASE VERDICT

Cut from the original analogue master tapes and pressed at Record Technology Inc in California, this 180g Warners reissue sees all 17 tracks spread over two discs. Despite Rubin's encouragement to simply 'set up the mics and play' the production sparkles, the band sounding punchier and more vibrant here than ever. True, some solo hi-hat work can sound a touch 'hot', but this is masked when the rest of the band pile-drive along. In all, an impressive and clean-sounding release, our copy being mercifully free of surface noise. HFN

Sound Quality: 87%





The Band *Music From Big Pink*

As The Beatles released *Sgt Pepper* and Hendrix wowed audiences with a wall of wailing sound, the debut studio album by Bob Dylan's backing band drew upon influences as traditional as country, folk and even classical. Yet it marked a milestone in rock 'n' roll

Words: **Johnny Black**

In 1965, Bob Dylan chose a hoary and somewhat grizzled rock 'n' roll combo, The Hawks, as his backing group when he famously 'went electric'.

Their 1968 debut album, *Music From Big Pink*, not only put them on the path to lasting international fame in their own right, but also set the music world on its head by rejecting virtually everything that defined rock music in that era.

Between the summer of 1965 and spring of 1967, Dylan and The Band toured the world until they were all exhausted. In a move which was very probably the first recorded instance of a '60s rock band 'getting its head together in the country', they shelled out \$125, the first month's rent for Big Pink, a pink-painted middle-class ranch house at 2188 Stoll Road, in the shadow of Overlook mountain, at West Saugerties, a few miles east of Woodstock in upper New York State.

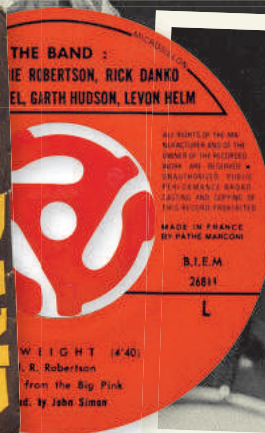
HAVEN FOR BOHEMIANS

Woodstock – not yet famous as a festival venue – had long been known as a haven for bohemians of all sorts, from painters to poets, sculptors and musicians.

'In Woodstock,' as The Band's guitarist Robbie Robertson pointed out, 'we would meet in a little diner



HEINRICH KLAFES



HEINRICH KLAFES

↑ The Band (l-r) Manuel, Helm, Danko, Hudson, Robertson

↑ The single 'The Weight' was released in 1968 and made the US Top 20 charts

↑ Levon Helm behind the kit at the Musikhalle in Hamburg, Germany, May, 1971

← The master of the Lowrey organ, Garth Hudson, plays accordion on stage in 1971

in the country and be greeted like a mechanic from down the road. You feel like you're in the mountains, because you are in the mountains.'

The band's bassist, Rick Danko, and keyboardist Garth Hudson were the first to move in. 'Garth washed the dishes, Richard Manuel [pianist] did the cooking, and my job was to keep the fireplace going and hire the young girls to clean. Bob Dylan would come by and we'd record and write. Eventually Levon [Helm, drums] came up from New Orleans, and the music from *Big Pink* was born.'

Helm has spoken of how, 'we cleaned out the basement of Big Pink, and Garth put together a couple of microphones and connected them to a little two-track reel-to-reel tape recorder, and that was our studio.'

During these informal summer sessions with Dylan, several songs emerged, including 'Tears Of Rage', 'This Wheel's On Fire' and 'I Shall Be Released' which would end

up on *Music From Big Pink*, but a meeting at Halloween that year with record producer John Simon would transform the songs and take The Band on a new course.

'I got very infatuated with them,' Simon told Band biographer Barney Hoskyns. 'I

thought it was just the best music I'd ever heard. They were true originals, they didn't listen to the music of the day. They

were absolutely like brothers, all of them. I can't recall a single real argument during those sessions.'

CHOPPING LOGS

Consider, for a moment, the context in which *Music From Big Pink* was being birthed. While the band were in Woodstock, The Beatles released *Sgt Pepper*, the most sophisticated and technically complex album of the period. Jimi Hendrix was taking guitar pyrotechnics in a direction that would lead to heavy metal and Al Kooper was planning *Blood, Sweat And Tears*, the band which would

“We cleaned out the basement of Big Pink and that was our studio”

PRODUCTION NOTES

In sharp contrast to the primitive recording set-up of the Big Pink basement where The Band first started recording the songs that would become *Music From Big Pink*, A&R Studios in New York City was a far superior facility. For example, in the Big Pink basement, according to Robbie Robertson, 'if you played loud, it was really annoying, because it was a cement-walled room. So we played in a little huddle: if you couldn't hear the singing, you were playing too loud.'

The basement was also a two-track set-up, whereas A&R Studios' barn-shaped seventh floor studio, while hardly state of the art, boasted four-track recording. Ironically, despite the more expensive and technically advanced circumstances, what The Band were actually determined to achieve was the sound of that cement-walled room at Big Pink.

'Producer John Simon understood the recording console, he understood tape machines,' acknowledged Robbie Robertson, before adding, 'he asked us how we wanted the record to sound, and we told him, "Just like it did in the basement".'

The final sessions for Big Pink were held in Capitol's famed Los Angeles studios, with a couple of brief excursions to Gold Star, known for its associations with Phil Spector and The Beach Boys. But no matter where they were The Band insisted on the no nonsense, down-home vibe of the Big Pink basement.

It's a tribute to the skills of John Simon that, despite the variety and diversity of recording environments involved, *Music From Big Pink* hit the streets sounding like a coherent, consistent piece of work.



JOHN DAN



BIG PINK

A pink house seated in the sun of Overlook Mountain in West Saugerties, New York. Big Pink bore this music and these songs along its way. It's the first witness of this album that's been thought and composed right there inside its walls.

THE BAND

Jaime Robbie Robertson
Rick Danko
Richard Manuel
Garth Hudson
Levon Helm
John Simon, Producer



SIDE ONE

Tears of Rage 5:21
B. Dylan, R. Manuel
To Kingdom Come 3:19
J. R. Robertson
In a Station 3:31
R. Manuel
Caledonia Mission 3:53
J. R. Robertson
The Weight 4:34
J. R. Robertson

SIDE TWO

We Can Talk 3:02
R. Manuel
Long Black Veil 3:02
M. J. Wilkin, D. Dill
Chest Fever 3:15
J. R. Robertson
Lonesome Suzie 4:02
R. Manuel
This Wheel's On Fire 3:11
B. Dylan, R. Danko
I Shall Be Released 3:12
B. Dylan
(All selections ASCAP except Long Black Veil, BMI)



initiate jazz-rock. Meanwhile, in *Big Pink*, The Band were chopping logs, walking their dog and laying down simple, rootsy Americana songs.

'We were rebelling against the rebellion,' is how Robertson summed it up. 'If everybody else was going east, we were going west. It wasn't like we even discussed it; there was this kind of ingrained thing from us all along. It was an instinct to separate ourselves from the pack.'

WORLD BEATING

Early in 1968, funded by money hustled up by Dylan's infamous manager Albert Grossman, Simon took them into A&R Studios, (formerly CBS Studio) at 799 7th Avenue, New York City.

It was here, on January the 10th, that they transformed the demo of 'Tears Of Rage' from a rough-hewn spine-tingler into a world-beating completed track. 'We were into gospel music,' Robertson has pointed out, 'Not particularly spiritual gospel music, black gospel music, but white gospel music. It was easier to play, and it came more natural to us. We were trying to get a bigger sound going on. We had, like, piano, guitar, bass and drums for a long time, and we tried horns and all kinds of things but there were too many people. So we realised that the only instrument that could make that fullness, and take the place of horns or anything like that, was an organ.'

The organ, of course, was Garth Hudson's domain, and he knew

exactly how to achieve the sound they were searching for. 'It was all on the Lowrey FL, then later on the Lincolnwood, and then the big one – the H25. All of the textures and so on are from Lowreys. I've tried to describe why a Lowrey fitted right in with our guitar work, and the singing – it complements the voices. One reason for using an organ other than the Hammond is that the Lowrey has a wider harmonic structure. It has, I think, 27 different harmonics at various levels to get a sound, while the Hammond has eight or nine.'

Just two days later, they laid down the song that would introduce them to the world – 'The Weight'. 'I was thinking of it as maybe a fallback,' remembers Robertson. "The Weight"

was like, if we ran out of songs, I had an extra one there just in case.'

Robertson points out that a lot of imagery in the song was inspired by the way in which the film director Luis Bunuel would include characters in his movies whose good intentions would turn out badly.

'No-one recognised "The Weight" as being a potential rock classic'

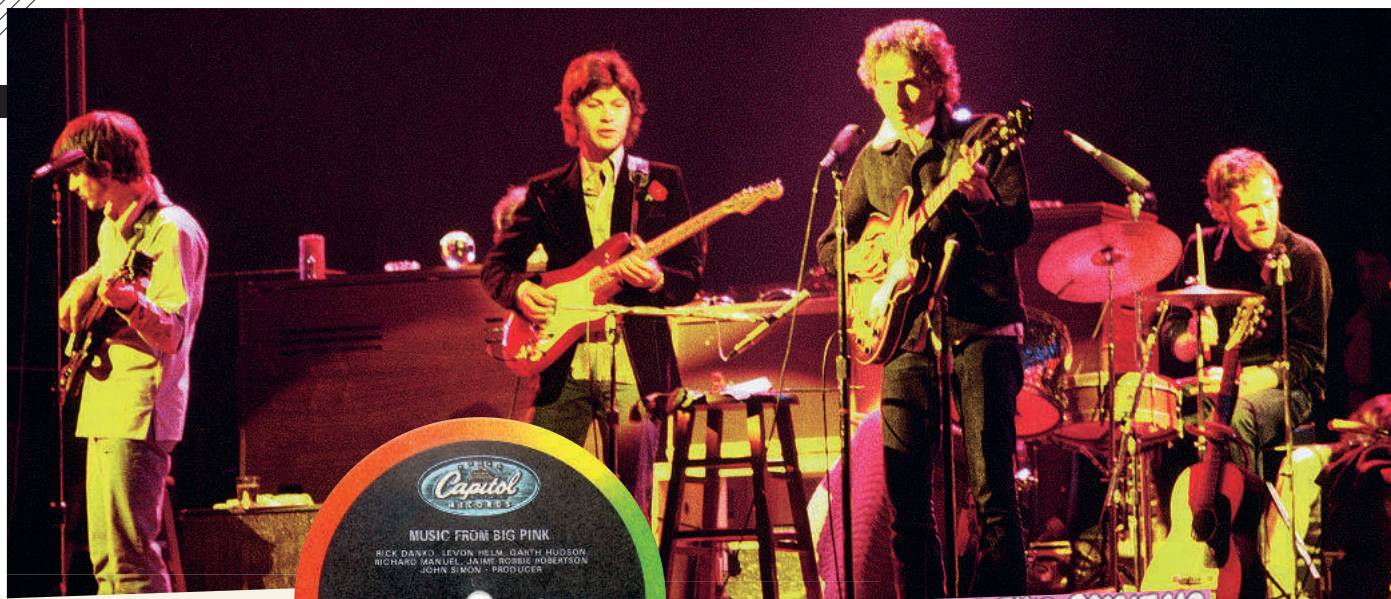
↑ The LP's inner sleeve pictures the band standing in a field at Woodstock and a colour photograph taken at Rick Danko's brother's farm showing the group with family and friends

↙ 'Big Pink' itself, the house in West Saugerties, New York, where the group began laying down tracks

↓ Richard Manuel behind the keyboards in the early 1970s



HEINRICH KLAFFS



↑ On stage with Bob Dylan in Chicago in 1974 (l-r) Danko, Robertson, Dylan and Helm

↖ Capitol Records promotional poster for the LP (inset). The painting on the cover was, of course, by Bob Dylan

↖ On stage in 1971 – Robertson (far left) and bass player Danko

↖ The group ended its touring career in 1976 with a performance immortalised in the 1978 film *The Last Waltz*. They hit the road again in 1983 without Robbie Robertson

Levon Helm revealed that the characters in the song were based on people they knew around Woodstock. 'Luke was Jimmy Ray Paulman. Young Anna Lee was Anna Lee Williams from Turkey Scratch. Crazy Chester was a guy we all knew from Fayetteville who came into town on Saturdays wearing a full set of cap guns and walked around town to help keep the peace. He was like Hopalong Cassidy... two big cap guns he wore, plus a toupee!'.
HEINRICH KLAFES

JOY AND SADNESS

'The Weight' took just one day to write and was refined a little the next day. 'The chord structure is very simple,' points out Robertson, 'but there was kind of a joy and sadness at the same time in those chords that appealed to me.'

Even so, when he played it to the other members of The Band, neither he nor anyone else recognised it as a potential rock classic. 'I thought it was OK, and nobody else really got it at the time either. Everybody was like, "Oh, that sounds pretty good. We should give that a shot." Nothing more.'

In the depths of an east coast winter, they set about recording their debut album at the rate of roughly two songs a day, speedily completing 'The Weight', 'We Can Talk', 'Chest Fever', 'Tears Of Rage' and 'Lonesome Suzie'.

Capitol were so pleased with what they heard from the A&R sessions that it flew The Band and Simon out to LA to finish the album in its own eight-track studio. The best-known track from the

Los Angeles sessions is a speedier version of 'This Wheel's On Fire', previously recorded at Big Pink with Dylan. 'These were lyrics that Bob had, which Rick put to music,' explained Helm in his autobiography, also titled *This Wheel's On Fire*.

'Garth got some distinctive sounds on that track by running a telegraph key through a Roxochord toy organ.'

The players were pleased with this rendition but, when they returned to New York to make ➞



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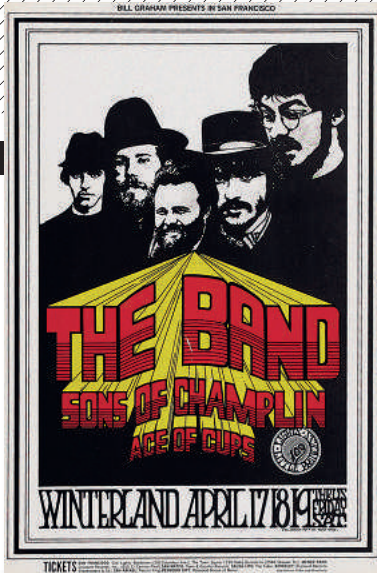
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15TH & 16TH FEBRUARY 2014

Early in the New Year, Guildford Audio in association with Absolute Sounds will again be running their very successful yearly Hi-Fi Show in Reading.

*Reading Best Western Moat House. Opening times will be 09:00 to 17:30 on the Saturday and 09:00 to 16:00 on the Sunday.

Alternate Format Discography



Poster advertises appearance at Winterland in April 1969

the final mixes for the album, its shortcomings became evident.

John Simon has recalled how, 'The snare drum wasn't loud enough on our four-track recording, so Levon had to go back into the studio and overdub the snare – an awful chore. When it was over, Levon growls at me, "Don't lemme ever have to do that again".'

TASTE MAKING

Released on July the 1st 1968, initial sales were disappointing, and the LP barely scraped into the bottom of the Billboard Top 30 albums chart. It was, however, immediately championed by some of the most taste-making musicians of the era.

One of the first was Eric Clapton, who revealed, 'I got hold of a bootleg tape of *Big Pink* at the end of the last Cream tour. I used to put it on as soon as I checked into my hotel room, do the gig and be utterly miserable, then rush back and put the tape on and go to sleep fairly contented until I woke up the next morning and remembered who I was and what I was doing. It was that potent!'

According to Roger Waters of Pink Floyd, 'After *Sgt Pepper*, the next record that changed everything was *Music From Big Pink*, because of the way it was recorded. Particularly Levon's drum sound. But also the way they harmonised... and the way it was put together. You heard that record and went, "Wow!"'

Gradually the album grew in stature so that by 2003 it was rated No 34 on *Rolling Stone* magazine's list of the 500 Greatest Albums Of All Time, and is now considered a timeless classic. ☺



ORIGINAL LP (1968)

Music From Big Pink has been re-jigged in just about every imaginable format but, be advised, the charms of the album lie in the music, not in its recorded quality.

The Band and producer John Simon went all-out to achieve a gritty, live sound which matched the earthy, minimalist songs they were composing. It's an approach anathema to audio engineers, of course, but philosophically it's certainly attuned to everything for which The Band stood. As a result, the sonically enhanced reissues could only, at best, get closer to the intrinsically non-audiophile values of the original tapes.

The first vinyl edition of *Music From Big Pink* on Capitol [SKAO-2955 – USA/ST2955 – UK] was a highly desirable artefact thanks to its sumptuous gatefold cover with a primitive Bob Dylan painting on the front. A mono edition also appeared in the UK [T 2955], presumably because we still lagged behind the Yanks in switching to stereo.

Pressed at Capitol's plant in Jacksonville, Illinois, the word most often used to describe the sound of this vinyl LP is 'muddy' but, face it, that's what the band were going for and the pressing's lack of hi-fi, if anything, enhanced the music's live, organic feel. A cassette also came out in America [4XT-2955], now hard to find and more interesting as a collectible than a decent audio version.



8-TRACK CARTRIDGE (1973)

Inevitably perhaps, an 8-track version [8XT 2955] turned up in 1973 from Capitol in the USA but, like the cassette version, this is more an intriguing collectible than a desirable audio item.



MOBILE FIDELITY VINYL RE-ISSUE (1980)

The Mobile Fidelity half-speed remastered vinyl reissue [MFSL-1-039] popped up out of Japan in 1980, but no amount of sonic re-adjustment can turn a pig's ear into a silk purse. Buy it because you want the music, not the enhanced audio quality.

FIRST CD VERSION (1986)

Capitol's first attempt at a CD version [46069-2] was, er, nothing to write home about.



MOBILE FIDELITY ULTRA DISC (1989)

Part of the company's justifiably acclaimed Gold Disc [UDCD-527] series, this was certainly an improvement on the Capitol CD, but the same silk purse-sow's ear limitations still apply.

EMI 180G VINYL REISSUE (1999)

This special 180g vinyl LP [724349946514] reissue was produced using analogue cutting from analogue tapes, as part of EMI's Centenary series. On its release it met with approval from fans and critics alike.

FIRST RE-MASTERED CD (2000)

Yes, this one [50837] was a marginal improvement on the previous CDs, enabling us to perceive more fully just how lo-fi those original masters actually were, but at least it came with a generous helping of nine bonus tracks, and an informative booklet.

Levon Helm hit the nail on the head when he said, 'I guess they figured out some way to re-box it up. I just hope they give me some royalties on it.'



DVD-AUDIO (2003)

Finally, the first attempt to do something radical with those original masters, by offering a multichannel version of the album [77939]. The Capitol/EMI Special Products 5.1 mix opens up the original tracks to provide an in-the-room experience which is a significant improvement on anything before, with the rear channels being intelligently used.

The package also offers complete lyrics on screen, a photo gallery and a discography, but no bonus tracks.

MOBILE FIDELITY SACD (2009)

This hybrid SACD [2044], acclaimed by some as the best-sounding *Big Pink* ever, was a numbered limited edition in a mini-LP gatefold package. Nice, but on balance, I'd stick with the 5.1 2003 DVD-Audio.



The Star-Club, *Hamburg*

Its name is now synonymous with The Beatles, but what really went on behind the scenes of this ex-cinema in a street off the notorious Reeperbahn? **Steve Sutherland** continues his tour of the world's iconic live music venues with a stop at The Star-Club

If he hadn't gone and killed that sailor, it might all have been a very different story. Horst Fascher was the 1959 West German Featherweight boxing champion and he coulda been a contender. But when he stumbled into that back-alley brawl, his life changed in an instant. He was had up on manslaughter, served his time, and back on the Hamburg streets, his boxing licence had been revoked for good.

So he did what a man had to do and found him a new line of work as a bouncer, keeping the customers in line along the strip joints and whorehouses of his native city's infamous Reeperbahn.

And as with most things Horst set his mind to, he became very good at it, recruiting other ex-cons and coulda beens to found Hoddel's Gang, the guvnors of their hood. Nothing – not a bean – went down on the 'Bahn without their say-so, and that included the Indra Club, a noisy bierkeller where drunks could pick up broads and sweat away their deutschmarks to the tune of the latest fad imported from the United States – a confounded racket called rock 'n' roll.

One of the bands providing the soundtrack to the sleaze was Derry & The Seniors, imported from Liverpool. And when their agent, a bloke called Allan Williams, figured



↑ Rory Storm and The Beatles at the Kaiserkeller

↗ Shot of the venue from the early '60s

↗ Horst Fascher in 2012 on a visit to the Beatlemania museum in Hamburg

↙ The Indra Club in 2007



out the financial advantages of a German stint as opposed to local Scouse hall hops, he shipped off his latest charges, a scruffy bunch of local teenagers, to follow suit.

I guess you know where all this is going, so we won't hang about. That band was The Beatles in their mid-1960 quintet incarnation, Stuart Sutcliffe still on bass and Pete Best having been hastily installed behind the drum kit especially for the engagement.

A BIT OF A BEATING

The group played 48 nights at Bruno Koschmider's Indra Club, over 200 hours in all, and Horst took a shine to 'his boys', making sure they were immune to the muggings and suchlike other visitors might expect when staggering around the 'Bahn at all hours.

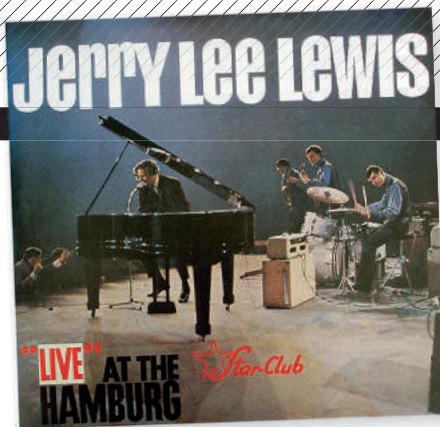
Still, the lads, being paid a princely two and a half quid a day each, were pretty rough musically-speaking and soon the constant complaints about the noise saw them moved to Koschmider's other

club, The Kaiserkeller just down the road. Still kipping next to the toilets in a concrete bunker behind the screen of the Bambi Kino, The Beatles cracked on with their 'Keller stint under Horst's watchful eye

He administered a bit of a beating to The Beatles' co-headliners, Rory Storm & The Hurricanes, when they deliberately broke through the wooden stage one night, but he was sweet on the nascent Fabs, making sure they got plenty of beer and Preludin, the speed tablets they took to keep them on their feet during their gruelling four sets a night.

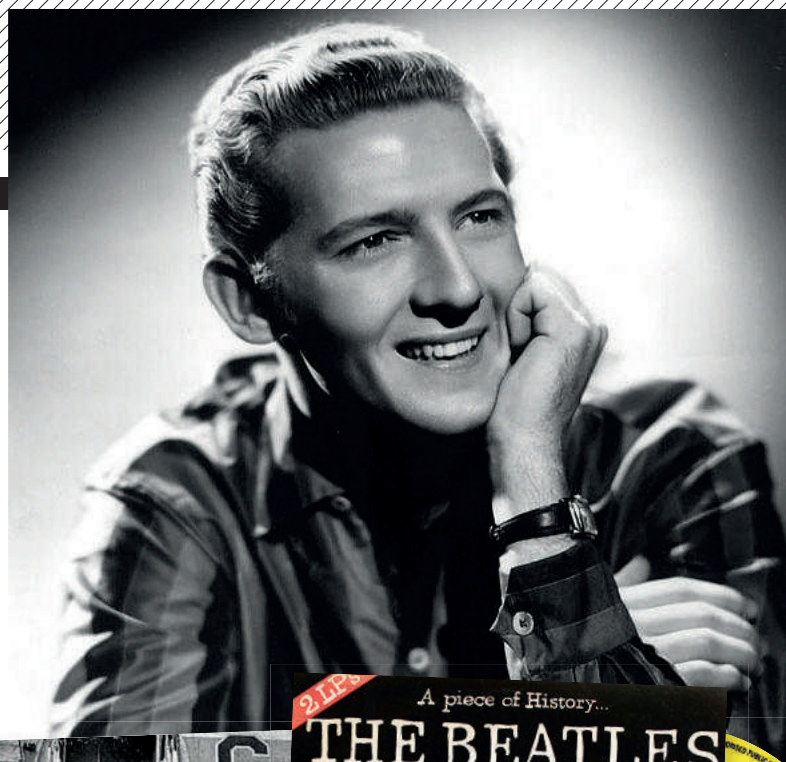
The date came to an end when Peter Eckhorn, owner of the rival Top Ten Club, offered them more dosh and better digs so The Beatles decided to break their contract,





← The best live album ever released? Jerry Lee Lewis's *Live At The Hamburg Star-Club*, recorded in April 1964

→ 'The Killer' – Lewis pictured in the 1950s



leading to the vengeful Koschmider reporting George Harrison to the authorities for being under working age. George was duly deported back to Blighty, as were Paul and Pete Best when they decided to set fire to a condom and leave it behind as their parting gesture to their rank Bambi Kino abode.

As soon as George turned 18, the band was back at the Top Ten, Eckhorn repaying the German authorities what it cost them to deport the boys in the first place. The Beatles' Top Ten stint lasted 92 nights until they were again poached, this time to open the new venue of venues, The Star-Club.

SPANGLED BACKDROP

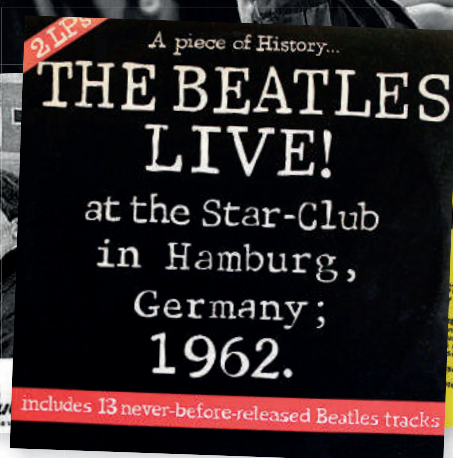
An old cinema acquired by a pig farmer turned strip club owner-cum-pimp called Manfred Weissleder, it kicked off on the 13th of April 1962 with The Beatles headlining The Rock 'n' Twist Parade, which also featured Tex Robere, Roy Young, The Bachelors and The Graduates. And the venue was awesome: resplendent with thick carpets, polished wood and a theatre devoted to live music which could



↑ The Beatles in a publicity photo for the Star-Club

→ Made at the club on a home taping machine in 1962, this 30-song Beatles recording was finally released in 1977 after the group was unable to stop its release through the courts

← The venue in the early '60s with acts named above the door



accommodate 1000 punters, who could also be tempted to enter by the exotic film nightclub upstairs. The stage was big too, with a spangled backdrop of the Manhattan skyline and in-house Fender amps, which the band had heard legend of but never actually seen let alone used before. The band played three engagements at the venue in 1962 – the 13th of April, 31st of May, 1st to the 14th of November – and, reluctantly once 'Love Me Do' had charted back home, the 18th to the 31st of December. Good old Uncle Horst, who was the Head Of Security, had to fly to Liverpool to bribe them to do the last stint.

HISTORIC SHOWS

The Star-Club shows were historic for several reasons. Firstly, Gerry And The Pacemakers, The Big Three, Cliff Bennett & The Rebel Rousers, The Swinging Blue Jeans and The Searchers all shared the bill – the cream of Britain's new Beat boom at

the time. Then there was the small matter of Stuart Sutcliffe quitting the band for a planned career in art, the former bassist handing over his instrument to Paul, signing up to Hamburg Art School and moving in

with his gorgeous German girlfriend Astrid Kirchherr.

Sadly he died of a brain aneurysm three days before the band were due to open their first

'Lennon was in his underpants with a toilet seat around his neck'

account at The Star, the lads only hearing the shocking news when they arrived at the airport.

And before the second stint, Pete Best had been replaced by the more robust Ringo Starr, whom Horst had previously pummelled as a member of Rory Storm's Hurricanes.

It may also have been here – but more likely it was at one of the earlier Hamburg engagements – that Horst discovered John was missing at show time. Tracking him down to the toilets and discovering him *in flagrante* with a young lady, Horst doused the ardent pair with

CLASSIC VENUES



a bucket of water. John started moaning he was too soaked to go on stage, at which point Horst let him know that he didn't give a Kaiser's fig if he went on naked, so long as he went on.

Minutes later Horst heard the crowd laughing and applauding and went out front to discover John on stage in his underpants with a toilet seat around his neck – the photos of which Beatles' manager, Brian Epstein, did his utmost to suppress.

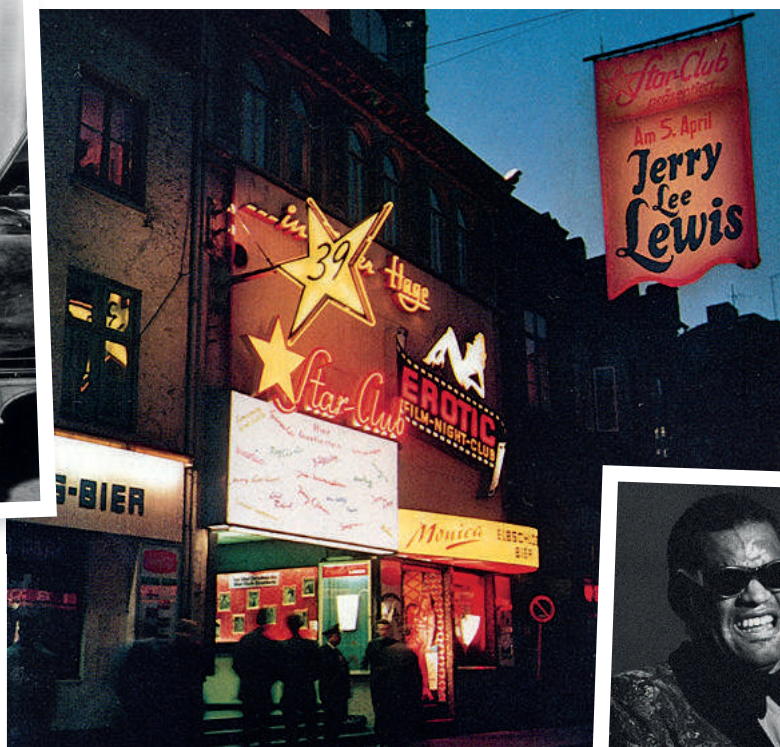
PARTICULAR THRILL

Whatever the actual venue, the anecdote's an accurate image of how raucous the band had become, John often Sieg Heiling the audience and such like.

A particular thrill was when they shared two weeks with one of their American heroes, the ace rockabilly rebel Gene Vincent, who happily mugged with the boys for snapshots that you can still see today if you search online.

And while we're on the subject of visiting US rock royalty, other heroes who strutted their stuff on the Star-Club's grand stage included Little Richard, Fats Domino, Bo Diddley, Ray Charles, Bill Haley, The Everly Brothers and The Killer himself, Mr Jerry Lee Lewis who just happened to record what many rock historians still consider to be the best live album ever made after he took to the stage at the venue on the 5th of April 1964.

'It was here that Jerry Lee Lewis made the best live LP ever released'



Backed by The Nashville Teens – a band from Weybridge, Surrey, of all places – Jerry absolutely slays on the album, Siggie Loch of Philips Records capturing on tape never bettered versions of rock 'n' roll gems such as 'Great Balls Of Fire', 'Good Golly Miss Molly', 'Hound Dog', and 'Whole Lotta Shakin' Goin' On'.

LOONY VOCALS

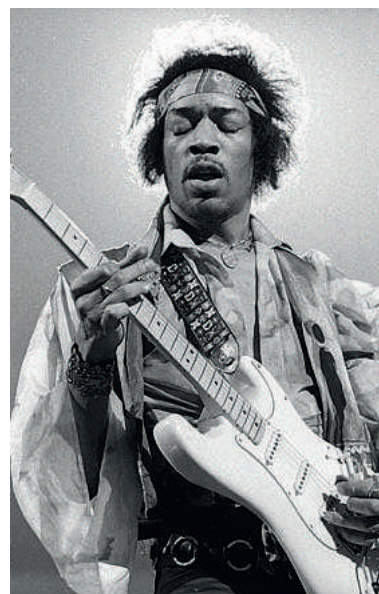
The Fabs, on the other hand, were subjects of perhaps one of the worst live albums ever released – at least in terms of sound quality – when their last show at the club was taped by another performer called Ted Kingsize Taylor on a

Grundig reel-to-reel. The tapes, which are of extremely poor quality, finally emerged in album form in 1977 as *Live! At The Star-Club In Hamburg*, The Beatles unable to stop its release through the courts.

And who should we hear vocalising like a loony on Ray Charles' 'Hallelujah I Love Her So?' None other than good old Horst, revelling in a spell in the spotlight. His brother, Fred, a waiter, does 'Be-Bop-A-Lula' too!

Other bands

who did their thing at The Star-Club before it finally closed on new year's eve 1969 (the building burned down 18 years later) were Cream, Jimi Hendrix, Chicken Shack, the pre-Black Sabbath Earth and the pre-Ten Years After Jaybirds, but it's for Jerry Lee's mad album and those last wild Beatles gigs that the venue will go down in history. ☺



From time to time Little Richard shared the bill with The Beatles

Banner outside the club advertises Jerry Lee Lewis's April 1964 show

Ray Charles pictured in Hamburg in September 1971

Six tracks from Jimi Hendrix's appearance at the venue in March 1967 were released as a bootleg CD in 1989. They include 'Hey Joe', 'Purple Haze' and 'Foxy Lady'. Here the guitarist is pictured in 1969

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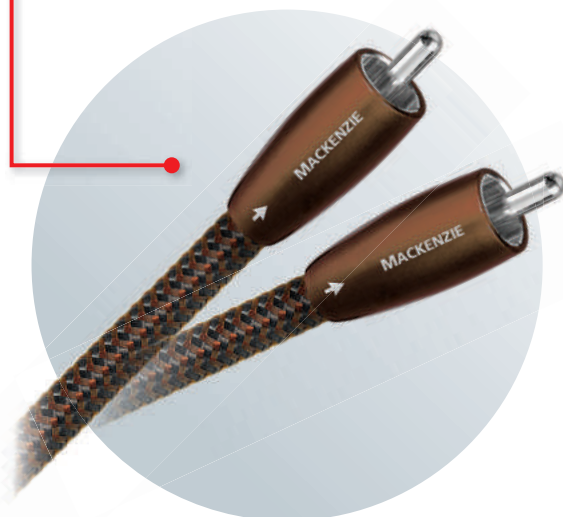
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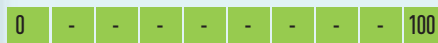
BOB DYLAN

Blonde On Blonde

Mobile Fidelity MFSL 3-45009 (three 45rpm LPs)

When dealing with a reissue from tapes that are 48-years-old, one wonders how they defied ageing. I have no idea how CBS stored them, but I can tell you that I have *never* heard this masterpiece sound so visceral, natural or – simply – real. This is one of my most-played Dylan albums because of the presence of treasures like ‘Visions Of Johanna’ and a personal favourite, ‘Just Like A Woman’. With session players that included Al Kooper, Kenny Buttrey, two members of The Band and Joe South, and with Dylan on a career high, the results were truly spectacular. MoFi has packaged this in a gorgeous box with three heavyweight LPs playing at 45rpm. Buy it now, or expect to pay a grand for it on eBay. **KK**

Sound Quality: 92%



CARAVAN

If I Could Do It All Over Again, I'd Do It All Over You

Decca/Deram 375 069-3 (180g vinyl)

With the doyens of ‘Canterbury Rock’ enjoying a newly-revived career, touring hither and yon, the reissuing of the second LP, from 1970, is perfectly timed to hear the band in pure analogue form as nature intended. This is the original line-up, with two Sinclairs on board, and a wordy title to challenge Tyrannosaurus Rex’s penchant for verbosity. Although a prime example of prog rock, with one track exceeding 14 minutes – the signature jam ‘For Richard’ – Caravan also featured tightly-conceived songs, so there’s a distinct absence of po-faced self-indulgence. This album arrived just as drummer Richard Coughlan passed away, making it a most fitting tribute. **KK**

Sound Quality: 83%



OTIS RUSH

Right Place, Wrong Time

Pure Pleasure/Bullfrog 301 (180g vinyl)

Rush was one of the beneficiaries of the ‘60s blues revival, and was young enough to enjoy the rediscovery. Curiously, this terrific LP was recorded in 1971 for Capitol at Wally Heider’s studio in San Francisco, but it chose not to release it. This package is a reissue of Bullfrog’s 1976 edition, and it begs the question: what did Capitol find wrong with it? Rush’s guitar playing is spectacular, the vocals raw and earnest, the backing – including Mark Naftalin, late of Paul Butterfield’s band – utterly in the groove. Even Rush’s co-producer was a San Francisco legend: Nick Gravenites. Worth having just for the scorching cover of ‘Rainy Night In Georgia’. **KK**

Sound Quality: 89%



STRAWBERRY ALARM CLOCK

Wake Up... It's Tomorrow

Sundazed LP5439 (180g vinyl)

Like so many one-hit wonders of the psychedelic era – The Lemon Pipers, The Amboy Dukes and a few others spring to mind – there was more to this band than an AM-radio-friendly single. ‘Incense And Peppermints’ was never bettered sales-wise, and although this follow-up to the debut LP falls firmly into the category of no-cliché-untouched, it’s perfectly redolent of the era. Cheesy organ, opening an LP with a drum solo, sitar, daft lyrics – but that’s what passed for ‘interesting’ in 1968, and you’ll simply wallow in the grooviness if you’re the sort who bought DVDs of *The Strawberry Statement* or *Zabriskie Point*. Good fun, though as dated as a typewriter. **KK**

Sound Quality: 81%





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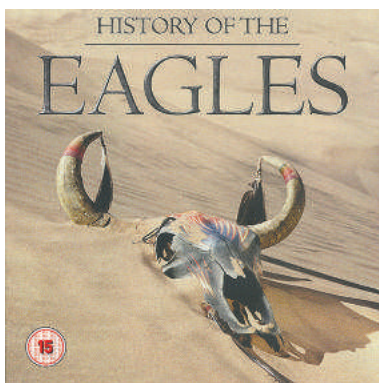
THE BAND

The Band

Mobile Fidelity UDSACD 2129 (stereo SACD)

Their finest, now on gold SACD – what more could you want? The difficult follow-up in 1969 to the wildly adored *Music From Big Pink* [see p72] proved to be even more arresting, every track self-penned and with any thoughts of the group as Bob Dylan's backing outfit forever banished. Here they married all that would become alt-country, roots music and every other rural American folk-based genre into a cohesive whole that owed everything to the past, while being utterly original. The funk of 'Up On Cripple Creek', Levon Helm's nasal vocals, the swirling organ – if ever a group merited being called, simply, 'The Band' this is it without any hubris. Utter perfection. **KK**

Sound Quality: 90%



THE EAGLES

History Of The Eagles

Universal 02537 35092 (Blu-ray)

Thanks to their inability to stay retired, this most fractious of bands has been documented several times, repackaged, reissued and revived with as much regularity as Sinatra. But there's a reason: however unfashionable The Eagles may have been periodically during the last 41 years, they produced some of the most glorious music of their era. Moreover, they're a microcosm of the '70s West Coast scene, as rich a vein of seductive music as any in the rock genre, and this documentary captures it in style, with all manner of footage. This ought to be a staple part of musicology courses, alongside *Woodstock* and *All You Need Is Love*. **KK**

Sound Quality: 87%



THE ROLLING STONES

Sweet Summer Sun

Eagle 051300 202729 (two CDs + DVD)

As with other multi-version albums, this is one of a variety of combinations that test the level of your passion. This set contains two CDs' worth of music from last year's Hyde Park concert, plus a DVD of the event, while you could just buy the CDs or a download. Do so, and you will miss indisputable evidence that – in their pensionable years – The Stones remain the greatest rock 'n' roll band on the planet. By now, everyone knows the tour was a smash success. For those who couldn't get tickets, this hit-filled set is the best substitute. Skip to 'Honky Tonk Women' and you'll hear – and see – why. And it's official: Charlie Watts remains the coolest man alive. **KK**

Sound Quality: 89%



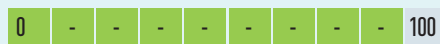
YES

The Studio Albums 1969-1987

Atlantic 8122796496 (13 discs)

After the Nilsson, Dylan, Tony Bennett, et al, box sets, the single-purchase collection has reached one of the more accessible of the prog rock acts, with 12 consecutive studio LPs (one on two CDs), presented in an ideal fashion. Each LP comes in a mini card sleeve like the original, housed in a box with fresh artwork from Roger Dean; and every CD contains bonus material, including tracks previously only issued in Japan. In sequence, one can chart Yes's evolution from a sharp rock outfit with fabulous taste in cover material, eg, The Beatles and Buffalo Springfield, to a grandiose but rarely precious outfit capable of issuing stuff so scintillating that it qualifies as audiophile demo must-have (think: *Fragile*). **KK**

Sound Quality: 90%





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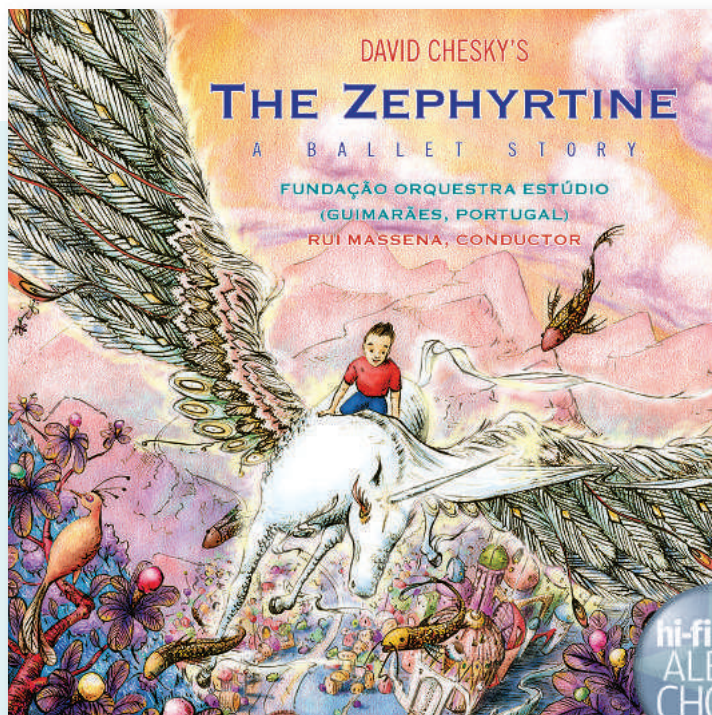
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DAVID CHESKY

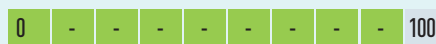
The Zephyrtine – A Ballet Story;
Fundação Orquestra Estúdio/Rui Massena
(96kHz/192kHz/24-bit; AIFF/ALAC/FLAC/WAV)

www.hdtracks.com; Chesky Records

David Chesky is committed to fostering music education in young children and composed *The Zephyrtine* as a fantasy ballet. The booklet PDF includes the narrative – in which a young boy meets a magical creature and travels to a utopian world where people are of all colours and ice cream grows on trees – along with vibrant illustrations by artist Ângela Vieira. Chesky's musical language is colourful and engaging,

combining Prokofiev-like sections with Latin influences to create varying moods. The liner notes tell us the orchestra was recorded using a solitary Neumann KU-100 binaural head and a Mytek ADC at 24-bit/192kHz. You don't even have to close your eyes to be transported to the concert hall. It's not particularly intimate, but the sound is gloriously true to life and the dynamics spectacular. *JB*

Sound Quality: 90%



BILLIE JOE & NORAH

Foreverly (96kHz/24-bit; FLAC)

www.hiresaudio.com; Reprise/Warner Records

It's an unlikely pairing in anyone's book: Billie Joe Armstrong, best known as the lead singer and guitarist of Californian punk band Green Day, teamed up with indie jazz/pop princess Norah Jones. Their *Foreverly* collaboration is a reinterpretation of *Songs Our Daddy Taught Us*, a 1958 Everly Brothers' album of traditional country songs. *Foreverly* was released four weeks before Christmas: I doubt they ever imagined it might serve as something of a valedictory to Phil Everly, who sadly passed away on January 3rd at the age of 74. It's a charmingly playful recreation of the Everly's rootsy ballads famously characterised by closely entwined vocal harmonies, Jones' honeyed and breathy vocal quality marrying surprisingly well with Armstrong's more aggressive, nasal style. Recording quality isn't spectacular, but it's a cut above many run-of-the-mill commercial offerings. *JB*

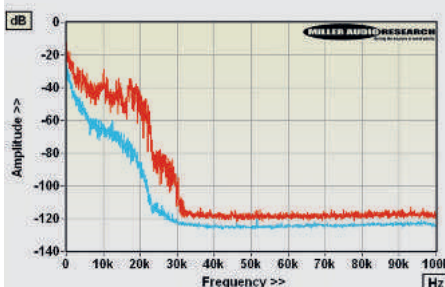
Sound Quality: 78%



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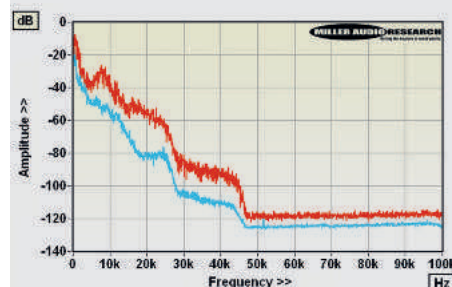
Following our Investigation feature [*HFN*, Jun '11] where we examined the claimed quality of high-resolution downloads, *Hi-Fi News & Record Review* is now measuring the true sample rate and bit-depth of the HD music downloads reviewed on these pages. These unique reviews will be a regular source of 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



Recorded with bags of headroom to spare (a full orchestral flourish from track 11 is illustrated above) the practical musical bandwidth does not significantly exceed that possible from a 48kHz render. (96kHz version tested here.) PM

LAB REPORT



While this media is certainly rendered at 96kHz, its content is also evidently filtered at ~26kHz (slightly higher than if this were a 48kHz upsample). Bursts of 'signal' do occur >30kHz but are these compression/downstream artefacts? PM



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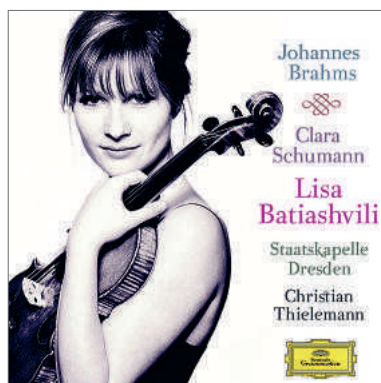
ELGAR/DVORAK/TCHAIKOVSKY

Cello Concerto/Rondo; Silent Woods/Rococo Variations; Jean-Guihen Queyras, BBC SO/Jiri Belohlavek (44.1kHz/24-bit; FLAC)

www.highresaudio.com; Harmonia Mundi HMC 902148

HRA has recently started offering Harmonia Mundi recordings as downloads (at low prices too). This particular programme – a recent classical Album Choice [*HFN* Jan '14] – was made in May '12 at the BBC's Maida Vale Studios only at 44.1kHz resolution. Does this (24-bit) download offer a sonic gain? I thought there was a discernible difference: switching from an iMac/Audirvana/MF V-Link₁₉₂/DAC to preamp chain to CD player/preamp brought a thicker, flatter sound. The download version opened things out, adding depth to the soundstage and more space around the cello solos. So a preferable alternative – although the gap did narrow with the player fed by the same Chord cable to DAC/preamp. (If you missed the earlier review: the cellist is superb and the BBC SO accompaniments excellent.) *CB*

Sound Quality: 80%



BRAHMS/C SCHUMANN

Violin Concerto/Three Romances; Lisa Batiashvili, Alce Sara Ott, Staatskapelle Dresden/Christian Thielemann (96kHz/24-bit; FLAC)

www.highresaudio.com; DG 479 0086

In this mid-2012 Brahms recording from the reverberant Lukaskirche, Dresden, Batiashvili is playing the Stradivarius owned by Joachim. She doesn't play his familiar first-movt cadenza, however, but – like Isabelle Faust on Harmonia Mundi last year – the one by Busoni which has timpanist and orchestral strings joining in. The three *Romances* Op.22 are by Schumann's sister Clara (Joachim was again the dedicatee); these are airy and gracious pieces, and the violinist is nicely partnered by Ott. The sound has more vibrancy than you hear from the CD. In the Concerto's *Adagio* Thielemann allows the music its natural eloquence (whereas his speed changes in the work's introduction are obtrusive) and the solo part – set slightly forwards – registers as given with real feeling. *CB*

Sound Quality: 82%



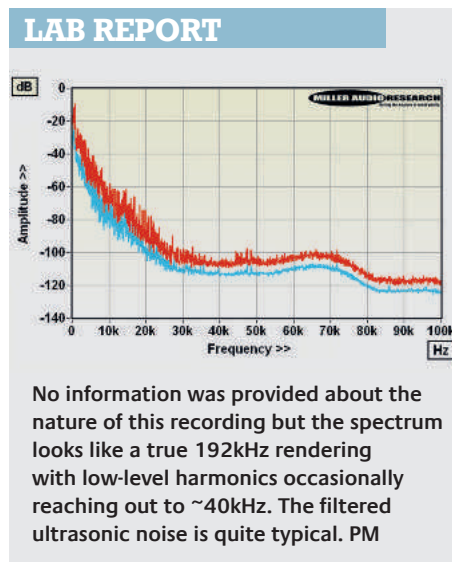
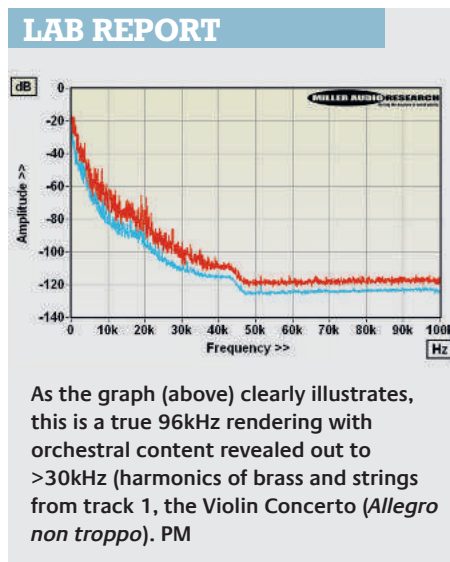
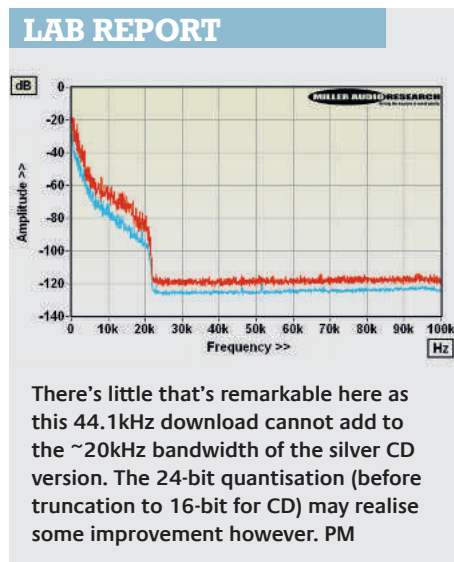
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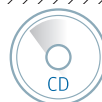
Piano Concertos 12-14, K414, 415, 459; Gottlieb Wallisch/Piatti Quartet (192kHz/24-bit; FLAC)

www.linnrecords.com; CKD 424

Why would you wish to forgo orchestral strings and the pairs of oboes and horns of the original scores for these three concertos from 1783/4? Mozart himself sanctioned just strings 'a quattro' as in this new recording, produced at Potton Hall, Suffolk, in May 2012. The Viennese pianist plays a Steinway D in this, his third programme for Linn Records, and provides the booklet notes; his supporting string players are all equally young. As you would expect from a Philip Hobbs production in this lively hall, the piano and string quartet are well balanced – the soloist central and quite forward. The tonal accuracy is impressive. What these players bring to the music is an exuberance and sense of fun – not precluding tenderness in the *Andante* from K415 – cadenzas issuing organically from context. A hugely enjoyable alternative. *CB*

Sound Quality: 85%





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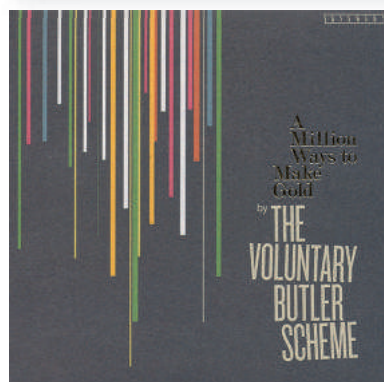
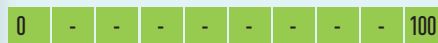
DAVIDGE

Slo Light

7Hz Productions THZCDR130006

If you've been paying any attention to British dance music for the past couple of decades, you'll know that Davidge is Neil Davidge, sonic wizard and co-writer of Massive Attack, whose collaborative credits also include David Bowie, Snoop Dogg and Primal Scream. This 11-track album (the 2LP set has five bonus tracks) offers some stand-out music, especially the swirly 'Gallant Foxes' featuring Cate Le Bon, the incandescently luminous 'That Fever' featuring Claire Tchaikowski, and the spooky trance-dance groove of 'Riot Pictures' featuring – I kid you not – Sandie Shaw. In an era when audio quality is generally high, this is an outstanding sonic experience, with lush depths and pin-sharp clarity. So check it out. *JBk*

Sound Quality: 94%



THE VOLUNTARY BUTLER SCHEME

A Million Ways To Make Gold

Split Records CDLPSP11012

This is pretty astounding and, as the promo-flak suggests, it's also 'charming'. Actually, 'charming' was my first clue that this might be worth listening to. The band is just Rob Jones, a chappie who puts his songs together in his north London home studio and has been called a 'bed-sit Brian Wilson'. In fact, he's more of a basement Burt Bacharach writing tunes for Vampire Weekend to sing, sometimes so deceptively catchy that they sound lightweight, but listen again and their inner strength reveals itself. His songs could occasionally benefit from judicious chopping of some of the complex instrumental layers, but mostly they're charming – utterly. *JBk*

Sound Quality: 85%



MATT SCHOFIELD

Far As I Can See

Provogue PRD 416

For those who like their music uncomplicated and with a spoonful of grit, Matt Schofield dishes up an eighth album which confirms what the cognoscenti have known for several years: that he is probably the most convincing blues axemeister of the era. Not only can he write songs that step a little further outside the genre than most, he has a good singing (not just shouting) voice, and his playing has a finesse and tonal definition that few of his competitors come close to. The occasional lapse into clichés onto cuts like 'Clean Break' are more than balanced out with the imaginative title track and a gorgeous cover of The Neville Brothers' 'Yellow Moon'. *JBk*

Sound Quality: 90%



FANFARLO

Let's Go Extinct

New World Records NEW002

Perhaps the most delightfully eclectic offering of the month is the third album from London-based Fanfarlo, a quirky quartet led by Swedish multi-instrumentalist Simon Balthazar. There's a suggestion that it is a concept album about human evolution but it works just fine as a bunch of eminently hooky tunes which zip through a divertingly wide range of moods and emotions, with hints of Prefab Sprout here, Talking Heads there and even a suspicion of China Crisis at their best in 'A Distance'. Their previous albums have generated a well-deserved stack of movie and TV placements, and I'll be surprised if this, their finest work yet, doesn't do the same. *JBk*

Sound Quality: 90%



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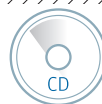
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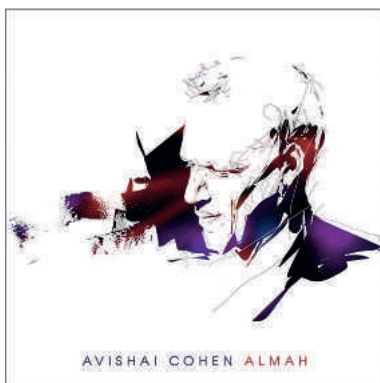
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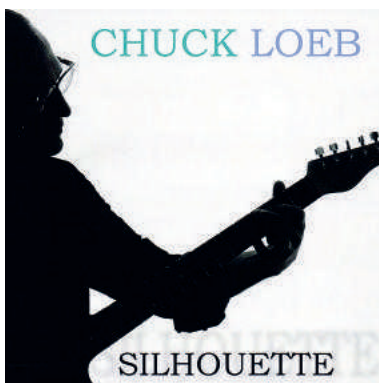
AVISHAI COHEN

Almah

Parlophone Music France 0825646396818

Here the fine Israeli bassist returns to his roots in classical composition. Core musicians are his regular trio partners, pianist Nitai Hershkovitz and drummer Ofri Nehemya, but there's also 'a string quartet with a difference'. Instead of two violins there are two violas, while the addition of an oboe or cor anglais makes the textures darker and richer still. Cohen takes us straight to the Middle East in a virtuosic 'Arab Medley', but elsewhere the synthesis of influences is more subtle, with gorgeous writing for the chamber group and muscular, expressive bass solos. Much more than just another crossover album, this is music of sincerity, depth and beauty. *SH*

Sound Quality: 85%



CHUCK LOEB

Silhouette

Moosicus M 1216-2

In the footsteps of Lee Ritenour and Larry Carlton, Loeb became the guitar voice of Bob James's smooth jazz institution Fourplay with *Let's Touch The Sky* in 2010. But before that he'd made a string of albums as co-leader of Metro with keyboardist Mitchel Forman. They team up again here, Forman contributing string and horn arrangements. Like previous albums, this also becomes a family affair, with vocal spots for wife Carmen Cuesta Loeb and daughter Lizzy, while daughter Christina is heard on ukelele. But one of the standouts is a glistening, Wes-like 'Stompin'' with Pat Bianchi on organ and Andy Schnitzer on tenor sax. Smooth, and polished. *SH*

Sound Quality: 80%



GET THE BLESSING

Lope And Antelope

Naim naimcd199 (also 180g vinyl)

This time, they're not just hiding their faces, as on the cover of *OC/DC*. But under that cellophane the line-up is unchanged, as ex-Portishead rhythm team Jim Barr and Clive Deamer mesh with trumpeter Pet Judge and saxophonist Jake McMurchie. However, there's a return guest appearance from an old collaborator, Portishead guitarist Adrian Utley. The music is nearly all improvised, using sound effects gathered on the road as starting-points – for example the eerie siren effect that launches 'Rise Up' into its slow-rock groove. But along with the band's ever more ingenious electronic sounds and rhythmic surprises, there's boundless energy and great playing too. *SH*

Sound Quality: 80%



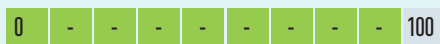
PAT METHENY UNITY GROUP

Kin (←→)

Nonesuch 536354 (CD and 2LP set on 140g vinyl)

It was more than 30 years on from *80/81* before Metheny again recorded with a featured sax player, winning his 20th Grammy for the 2012 *Unity Band* quartet album. The outstanding saxophonist was Chris Potter, joined by powerhouse drummer Antonio Sanchez and superb young bassist Ben Williams. Now Metheny, no mean one-man-band himself, has added amazing multi-instrumentalist Giulio Carmassi, on keyboards and horns. He likens this to going from black and white to Technicolor, and it's true. A track like 'Sign Of The Season' becomes majestic, its marching beat as inexorable as the waves of the sea, while the long-lined title track that follows builds and builds. Another winner. *SH*

Sound Quality: 90%



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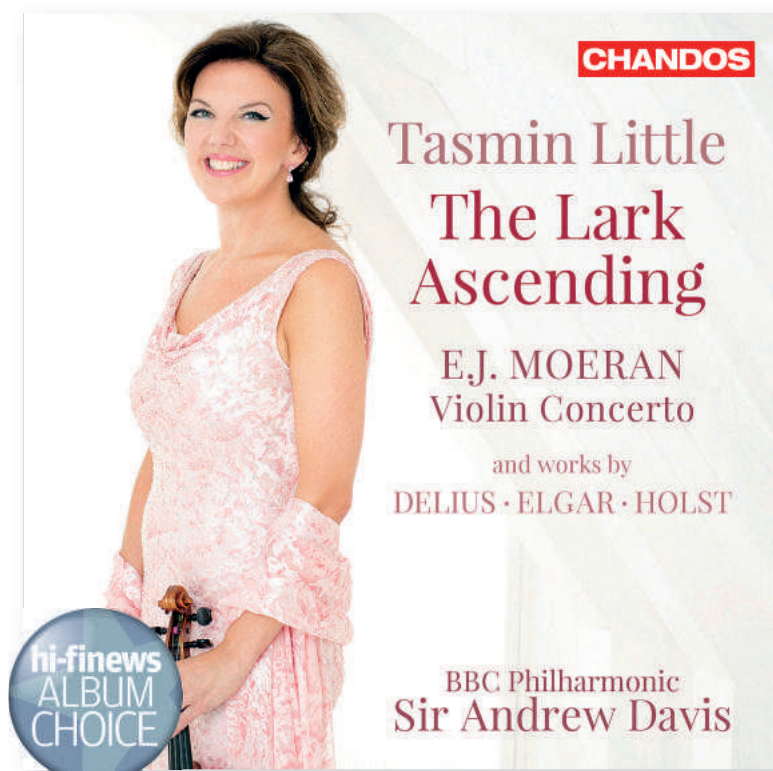
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DOWNLOAD



CHANDOS

Tasmin Little The Lark Ascending

E.J. MOERAN
Violin Concerto

and works by
DELIUS · ELGAR · HOLST

BBC Philharmonic
Sir Andrew Davis

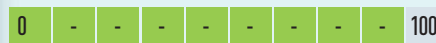
THE LARK ASCENDING

Tasmin Little, BBC PO/Sir Andrew Davis

Chandos CHAN 10796; download up to 24-bit/96kHz

Tasmin Little returns to even greater effect to Vaughan Williams's *The Lark Ascending* than in her Warner Apex version (also with Sir Andrew Davis, 1990) and in this varied programme – with the EJ Moeran Violin Concerto (1942), three rather needless Elgar transcriptions (*Chanson de Matin*, *Chanson de Nuit*, *Salut d'Amour*), and pieces by Delius (*Légende*) and Holst (*A Song of the Night*) – she seems to change chameleon-like to the needs of each piece. The Moeran, a rhapsodic evocation of Irish life and landscapes is the major work here and receives an ideal performance. It's well worth getting to know. All the accompaniments are sensitively balanced under Sir Andrew, with good sound from MediaCity Salford. **CB**

Sound Quality: 90%



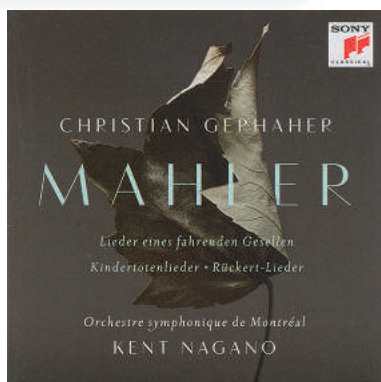
BRAHMS/BARTÓK

Violin Concerto; Hungarian Dances/Rhapsodies 1, 2
Leonidas Kavakos, Péter Nagy, Leipzig Gewandhaus Orch/
Riccardo Chailly

Decca 478 5432 (also highresaudio.com at 24-bit/96kHz)

After Batiashvili and Faust, who both opted for Busoni's cadenza in (i) it's good to have the Joachim rightfully reinstated here in this rich and powerful account of Brahms's concerto. Kavakos has the technical and musical grasp of this great work and (as part of his Leipzig Brahms exploration) Chailly unearths effective detail. But there are no tricks, no attempts to be 'different'. The two Bartók *Rhapsodies* follow (to reflect a genuine Hungarian ethos) then four of Brahms's *Dances* are given in violin/piano transcription. A top recommendation, with splendid Decca sound. **CB**

Sound Quality: 90%



MAHLER

Lieder eines fahrenden Gesellen;
Kindertotenlieder; 5 Rückert Lieder
Christian Gerhaher, Montréal SO/Kent Nagano

Sony 88837 01332

Christian Gerhaher is such an expressive singer – always putting word meaning ahead of just vocal sound quality – that his parts in the two orchestral song-cycles and five settings of poems by Rückert can almost be taken for granted. What makes this Sony issue so satisfying lies in the orchestral accompaniments provided by the Montreal orchestra; thus on one disc we have interpretations to complement those of Fischer-Dieskau (variously with Kempe/EMI, Kubelík/DG and Böhm/DG). One or two audience noises confirm that these Jan '12 Sony recordings were indeed live. **CB**

Sound Quality: 90%



NIGHTS IN VIENNA

VPO/Rudolf Kempe

Hi-Q Records HIQLP032

Rudlf Kempe deserves to be remembered for far more than his Richard Strauss – he had a wide discography. But asked which was his favourite recording he replied 'Lehar's *Gold and Silver*'. It's here along with Suppé (*Poet and Peasant* – a lovely cello solo by Emanuel Brabec), Reznicek (*Donna Diana* – taken quite quickly), Heuberger (*Der Opernball*) and three pieces by the 'other' Strausses: *Die Fledermaus Ovt*; *Sphärenklänge*; *Radetsky March*. The last two are utter perfection! The programme was recorded in the Musikverein in 1958 but wears its years lightly: there's a wide, well separated stereo staging. Silent pressings and proper dividing scrolls. **CB**

Sound Quality: 80%





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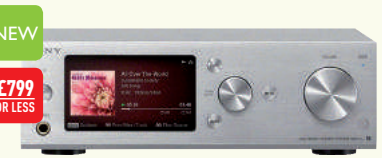
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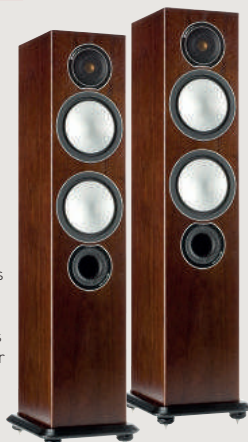
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Paul Miller Editor

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

1-bit bites back

Enthused by the prospect of a dedicated venue for the 'Hi-Res Audio Experience' at CES 2014, **Paul Miller** discovers that DSD is the format of choice for many specialist record labels

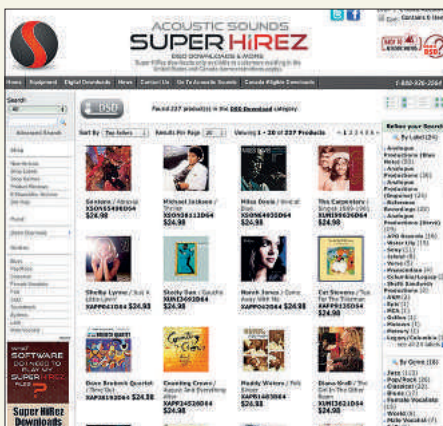
This month's exclusive lead review marks the return of Sony to our traditional two-channel fold. The reason for this new and ultra-minimalist network media player and integrated amplifier? You can be sure it's not a sudden hankering to reinvent past stereo glories – this vast Japanese corporate giant does not wear rose-tinted spectacles. No, it's testament to the critical mass achieved by 'higher than average resolution' music downloads. The MP3 generation is finally discovering the benefits of hi-res audio files and Sony is hitching its DSD cart to the bandwagon just as it picks up speed.

The great news for computer audio enthusiasts, and anyone interested in the advancement of hi-fi's prestige, is that simply by associating itself with the Hi-Res Audio movement, this iconic marque will prove an engine of advancement in its own right. Everyone has heard of Sony but few, in the general population, have grasped the concept of high resolution music downloads.

HI-RES AUDIO EXPERIENCE

If I were HDtracks, Highresaudio, iTrax, 2L or any other of the software powerhouses I'd be penning a 'thank you' note to Sony right now... Two of these music download specialists, the Goliath HDtracks and David-esque iTrax, took part in the 'Hi-Res Audio Experience' at CES 2014 (see Show Blog, p8).

Of the six exhibitors only one had hardware on show – all other USB DACs were to be found and heard on the upper floors of the Venetian Tower as part of the larger High-End Audio exhibit. Mytek Digital (www.mytekdigital.com/hifi) launched a new 'stereo 192/DSD' USB DAC based on technology from its



ABOVE: DSD has its day at CES 2014 with new DoP-compatible USB DACs, including the little Hugo from Chord (right), together with DSD downloads from <http://store.acousticsounds.com>



professional products, but the emphasis on Direct Stream Digital (DSD) was echoed throughout the show. Every new high-end DAC that I saw unveiled was compatible with the recent DSD-over-USB (DoP) protocol at both DSD64 (2.8MHz) and DSD128 (5.6MHz) resolutions. At CES 2013 there were very few DoP-ready USB DACs, all were at standard rate DSD64 only.

Of the remaining download services exhibiting at the CES Hi-Res Audio

Experience, a full 50% were proselytising in favour of DSD recording and replay. Blue Coast Music (<http://bluecoastmusic.com>) specialises in Direct Stream Digital (DSD) recording, distribution and downloads, and

counts Blue Coast Records, IsoMike, San Francisco Symphony, ACT Music and ResoRevolution among its label partners.

Acoustic Sounds' Super Hirez (<http://store.acousticsounds.com/supershirez>) also places DSD downloads ahead of its 24-bit FLAC catalogue with many rock/pop standards available in the 1-bit format (almost all are DSD64 files). Native DSD

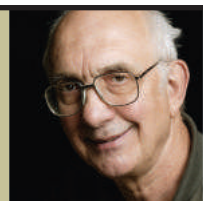
Music (www.nativedsd.com) is so new that at the time of CES 2014 its website was still in beta form. The company specialises in classical recordings, 'providing web music customers a focused resource for native DSD recorded stereo and multichannel studio masters, directly from those labels recording in DSD'. These include Channel Classics, Channel of China, Cobra Records and Sketti Sandwich Productions.

COUNTRY CODE LOTTERY

Naturally, many of these DSD downloads are subject to the same regional restrictions encountered when trying to buy hi-res LPCM music files. Norman and David Chesky of HDtracks.com were specifically asked about problems accessing its huge catalogue outside of the USA. We were told that negotiations with the record companies were nearly concluded and HDtracks.co.uk would open for business this side of the pond in late spring.

I sincerely hope this is the case for, thanks to Sony and its Hi-Res Audio separates, there'll be more budding audiophiles aware of DSD and hungry for a taste of the musical Hi-Life. ☺

'The emphasis on DSD was echoed throughout this year's CES'



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

I've got a little list...

Do you have recordings that are particularly revealing of the effects of compression? **Barry Fox** sets off in search of particular albums whose musical subtleties are lost when they're 'squashed'

Nurture has finally triumphed over nature and bred a generation with ears attuned to MP3, op-amp distortion and over-miked live events. Even the recent Jazz Voice concert at the Barbican broke from several years of happy and tasteful jazz vocal tradition with over-loud edge-of-distortion amping 'climaxing' in a James Brown medley.

In the London area only a few jazz concerts, organised at the Cadogan Hall by the enterprising drummer-promoter Richard Pite, promise 'no amplification except for vocals' as a selling point. The paying customers are generally oldsters with pre-MP3 ears.

A FEW SHORT CUTS

Sony's Eric Kingdon and Mike Somerset recently took over the Audio Lounge listening room in Wigmore Street to demonstrate Sony's new TA-A1ES stereo amp and HAP-Z1ES HDD music server to the hi-fi press [see review p22].

How do you sell this gear to a wider, post-MP3 world, they were asked. 'Dealer demonstration is the key,' said Eric Kingdon. 'And time is often short so the demonstrator has to help the listener hear how hi-res equipment and recordings sound different from what they usually hear.'

I thought it might be fun, and useful, to try and find a few short cuts that help expose how subtleties of music are lost either by compression or a budget reproduction chain, often involving a computer.

When Karlheinz Brandenburg developed the compression system that later became MP3, he used one music track in particular for A/B comparisons – Suzanne Vega's 'Tom's Diner' – because it exposed audible artefacts. The song



ABOVE: The Barbican Jazz Voice concert, which saw singers and instruments amplified via a PA

is now known as the Mother of MP3. So I decided to look for other mothers.

Background noise such as tape hiss plays havoc with compression because the encoder does not have the intelligence to distinguish between random high frequency sound and quiet high pitch music. The overall effect can be an 'underwater' sound.

Audience applause confuses a lossy compressor, too. So can a drum solo, with the very rapid transients of a crisp rudiments-roll too fast for the coder to process. Cymbal splash becomes a high frequency mess.

One of the demo tracks played at Sony's Audio Lounge event came from an SACD of the Count

Basie orchestra playing in the famous Copa Room of the old Sands hotel 'Before Frank' in Las Vegas in 1966. Frank Sinatra was appearing as the 'Main event', backed by the Basie band under Quincy Jones.

Sonny Burke and engineer Lowell Frank were there with four-track analogue tape to record the now legendary album *Sinatra At The Sands*. They also recorded Basie's warm-up numbers and Warners later crudely edited the tracks into an album.

Mobile Fidelity licensed the original tapes to make a much better-edited Limited Edition dual layer hybrid SACD/CD. It's one of the best genuinely live recordings ever, capturing the vast dynamic range of the Basie band in full flight.

After the Sony demos I paid dearly for the SACD, spent £7 for an iTunes Advanced Audio Coding (AAC) 256kb/s download and stored the highest quality (320kb/s) MP3 version on offer for offline play from Deezer. I then sat back and listened for the differences.

Some will be immediately obvious to even the most casual MP3-eared listener. On the Deezer MP3 version the Copa audience applause sounds underwater. Sonny Payne's drum breaks are a painful mush. The off-mic announcement at the beginning is unclear.

The iTunes AAC download is far better, but still turns the band into a Phil Spector wall of sound.

MUSED INTO THE MIX

The most subtle but revealing example is what happens with the sound of Freddie Green's guitar. Green provided a persistently thrusting rhythmic chug with a cutting edge of string overtones. This could cut through the band because Green used a guitar with strings strung so high over the frets that they had wide open space to vibrate freely and generate a loud clean sound.

Listen to the 'Before Frank' recording from SACD, or CD, and you will hear the faint but glorious sound of Freddie Green; listen to a compressed version and he is mused into the mix.

I shall now carry the 'Before Frank' hybrid around with me, and a WAV rip, as a quick and easy way to hear how a system performs.

Other readers with different musical tastes can look for their own examples of revealing recordings – and maybe share them with other *HFN* readers. This could be fun and useful. ☺

'Audience applause confuses a lossy compressor and so too can a drum solo'



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

Another blast from the past

Some say madness is to repeat an action yet expect a different result. Not so **Barry Willis**, who after losing money on a reel-to-reel bought at an estate sale last year, can't resist another find...

A co-development to the vinyl revival has been a smaller, but no less passionate, interest in open-reel tape.

Historically, open-reel's market penetration was hampered by the high cost of the machines, their bulkiness, their need for continual maintenance, and the delicacy of the tape medium – all factors that figure into the format's nostalgic attraction.

Connoisseurs swear that for sheer sonic transparency, open-reel playback is one small step removed from any original recording. Audio shows large and small feature exhibits devoted to restored and rebuilt 'prosumer' machines, and there are semi-underground groups sharing copies of original master tapes (see www.tapeproject.com).

PASSED OVER

High-quality machines from the 1960s through the 1980s are much sought-after – especially models from Pioneer like the RT-909 that unfortunately cost me dearly [see *HFN* Sept '13], Otari, Sony, TEAC, Tandberg, and of course, Nagra.

Pictured here is an '80s-era Revox B77, found at an estate sale late on a Saturday afternoon.

Decades of dust may have accounted for its being passed over by other trophy hunters, and for its outrageous bargain price of only \$10, but under its accumulated

grime was a gem in 95% perfect working condition. Non-working B77s, sold 'for parts only', routinely fetch mid-four figures on eBay.

Built in Switzerland like the proverbial brick house, the B77 features three-motor tape handling, two-speed operation (3.75 and 7.5ips, or 7.5 and 15ips), variable pitch, and several



ABOVE: Albums on reel-to-reel from The Tape Project (left) and the author's restored B77 deck

recording possibilities. My specimen included two large metal reels, 10.5in hub adapters, a roll of Ampex 456 professional tape on which was recorded the previous owner's rock band playing competent covers of Rolling Stones songs, and a rare acrylic dust cover.

One drawback to the B77's otherwise exemplary construction is that in the Swiss obsession for neatness, the leads to the meters and meter lamps weren't made long enough for easy servicing. The meter lamps are tiny 24V incandescent bulbs that require no soldering but do require forceful

skill in replacing them, and if one isn't careful enough it's all too easy to damage the delicate meters.

Fortunately – even though original manufacturer Studer Revox was long ago separated and sold

off to new 'parent' organisations – almost every imaginable part is still available.

Should you be lucky enough to find such a machine, you may be pleased to discover that it needs only a bit of care to get it back in working order. The case comes off with the removal of a few screws. So does the front panel. Use window cleaner on the metal and plastic parts– sprayed

first on a soft rag, not directly on to any mechanism – and isopropyl alcohol on the heads, tape guides, and capstan.

A few drops of lightweight oil (sewing machine oil is ideal) will work fine to lubricate the moving parts, and you'll need a spray can of electronic contact cleaner with a long flexible nozzle to reach the controls and switches. That should be all it needs – other than replacing the pesky meter lamps.

DON'T TOUCH...

Potentiometers for playback level, equalisation, bias, etc, are on the motherboard at the base and are accessible only when the cover is off. Don't touch them unless you are a highly skilled technician with enormous expertise in servicing audio electronics. If you do, you'll live to regret it.

Similarly, don't attempt to adjust head height and azimuth. They're set at the factory and need to be adjusted only when replacing the heads. In that case, you'll need a professional alignment tape and a small laboratory of test equipment beyond the reach of most hobbyists.

Stick with tweaking the mechanical stuff and you'll be amazed at how well this machine will perform – even after all these years. For more about Studer Revox, visit www.reeltoreel.de/worldwide. ☺

'Decades of dust may have accounted for its outrageous bargain price of \$10'



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

Radio daze

BBC plans to restore Freeview channels to Scotland haven't escaped the notice of **Jim Lesurf**. Neither has the fact that the corporation plans to reduce the bitrate of broadcasts to achieve it...

I've lost count of how many times the arrangements for Freeview digital terrestrial TV have been changed. Usually with little or no warning or consultation. It has become routine to undertake a 'rescan' as stations come and go like mayflies.

We started with Standard Definition (SDTV) using one set of encoding parameters. These were then changed, rendering many older models of receiver or TV set 'obsolete'. This suits the equipment manufacturers and stores very nicely, but is a real annoyance for viewers and listeners. With ye olde analogue TV, people often happily used the same set for many years, and changed when they wanted. Nowadays it seems you risk seeing a blank screen if you don't keep buying new kit regularly.

CHURNING CONTINUES

We've had the introduction of HDTV using the newer T2 standards, which old SD equipment can't receive. Then the growth of 4G mobile stealing bandwidth and threatening to jam reception. And still the churning continues. The most recent developments come in the form of new HD multiplexes and, for those of us in Scotland, another change to radio.

The broadcasters and set makers take for granted that we'll all be willing to change to HDTV at a rate chosen by them. The snag is that the new multiplexes will only be broadcast from some transmitter sites, and at lower powers than other broadcasts. Hence, many people won't be able to receive them, even if they have the latest generation of TV set. BBC 4 in HD for some, but not for others. At first glance, the changes to radio look like good news for people

RIGHT: 'I know, wee laddie... losing Hilversum was bad enough, but Mrs Dales Diary...' New standards and a constant need to upgrade equipment in order to access programming can be a real frustration. Soon Scotland will have BBC radio back on Freeview, but at a price...



in Scotland. The headline is that the BBC is restoring some of the radio stations dumped to make way for Alba TV. Wonderful... until you look at the small print and see that BBC Radios 1, 2 and 3 aren't included. And the 'restored to Freeview' radio stations in Scotland are all low-bitrate mono. No stereo.

Before they were removed, the Freeview BBC radio broadcasts were better quality than those on DAB. So the quality of the 'restored' service is still very much second-class compared to that enjoyed by the rest of the UK.

Then you also notice another minor

detail. The BBC is also going to downgrade the audio quality of the broadcasts from its TV stations in Scotland. Down from 256kb/s to 192kb/s. So not only will Scotland be served poorer audio quality for radio, this is now to be extended to TV sound as well. Second-class indeed!

Perhaps this is intended as political 'balance' to offset the anxiety some Scots have that choosing independence may mean losing access to the BBC. Well it

appears the country is losing access by stealth anyway! Or is all this simply a way of pushing everyone toward satellite, internet, and HDTV? Maybe so, but I can't recall the public being consulted.

Whatever the weird thinking at the BBC, the outcome is that Scotland will receive poorer BBC audio than elsewhere in the UK. Maybe the corporation thinks we're all a wee bit deaf from playing the bagpipes too loudly and won't notice.

TREATED AS EQUALS

I suspect if the BBC had bothered to actually ask the people in Scotland it would have been told that the Scots would prefer Alba TV be removed and full radio coverage restored so that they could enjoy the same access as people elsewhere in the UK.

Or, given the new HD multiplex, they might have suggested shifting the largely unwanted Alba TV channel to that, so freeing up the space again for radio.

Whatever the details, I think the basic wish of the Scottish people would be to be treated as equals. And that means in terms of technical quality as well as access to content. After all, isn't this supposed to be one of the basic purposes of the BBC? ☺

'The changes to radio look like good news for Scotland... until you read the small print'

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The latest speaker from Raidho Acoustics, the X-1, is an elegant and compact stand-mount mini monitor. It is built with the Raidho ribbon tweeter and a newly designed ceramic mid bass driver with neodymium based magnet system. Designed for the average listening room and particularly great for studio work or near field monitoring. Available with or without the stands



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

A deck to impress

A Rega turntable recently raised tens of thousands of pounds at a recent celebrity charity auction held in New York. It's a testament to the design values of the best of British hi-fi, says **Steve Harris**

Last November, the world's most expensive stereo earphones changed hands for \$461,000. But the money went to charity, as this particular pair of Apple EarPods had been specially made in solid 18k rose gold for 'Jony and Marc's (RED) auction', held at a celebrity-packed Sotheby's in New York.

Working with Bono's fundraising brand, RED, Apple senior vice president Sir Jonathan Ive, and Marc Newson, OBE, had collaborated to offer the 'Very best in design and innovation'. Their 40-odd auction lots brought in \$12,883,000, with all proceeds directed to the fight against HIV and AIDS in Africa.

SIGNATURE DECK

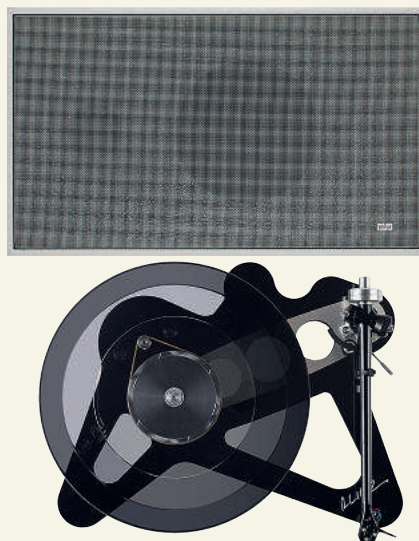
Many customised items went for quite staggering sums, even considering that it was all in a good cause. A red-anodised Apple Mac Pro computer made \$977,000, while the highest hammer price of all, \$1,925,000, was for a red-lidded Steinway Model A piano.

The next biggest sale was Ive's and Newson's specially-built lightweight Leica digital rangefinder camera, which went for \$1,805,000. With the body in aluminium rather than brass, this had been prototyped as if for production, but only one was made.

Those gold EarPods weren't the only audio item. One of three lots representing the work of German design guru Dieter Rams was a mid-1960s Braun hi-fi system, consisting of TG60 open-reel deck, TS45 receiver and pair of L450 speakers. This raised \$100,000.

Yet Ive and Newson chose only one standard current hi-fi component. Lot 11 was a Rega RP8 turntable, a completely stock item except for the signature

'Lot 11 was a Rega RP8 turntable. It sold for 20 times the normal retail price'



ABOVE: (clockwise l-r) Plan view of the Rega RP8 showing the skeletal chassis; the Braun L450 speaker and TG60 open-reel deck, part of the auctioned Braun system; and the RP8 with its lid

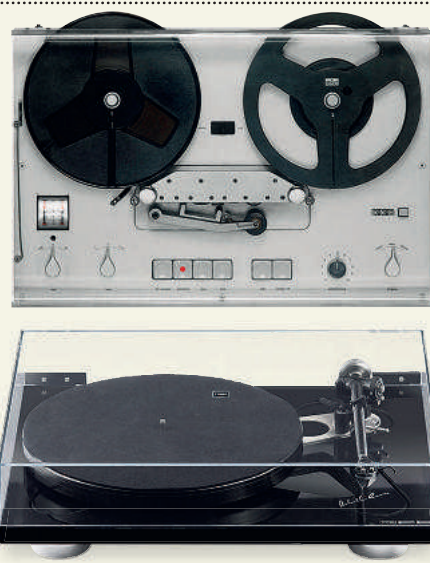
initials added by Rega's founder and chief designer Roy Gandy and general manager Phil Freeman. It sold for \$40,000, getting on for 20 times the normal retail price, and a lot more than the Sotheby's estimate of \$10,000 to \$15,000.

I think everyone at Rega was pretty chuffed about this, and rightly so. There's no doubt that the RP8 is a very special product, taking Rega's design philosophy

further than ever before. Significantly, it does so in a way that's visible from the outside, which hasn't been the case before.

Roy Gandy has used phenolic resin as a skin material for turntable plinths almost from

the beginning, but they've tended to look just like an ordinary piece of board. In pursuit of a lighter structure, later flagship models had most of the material between the top and bottom skins removed. So now the core was now skeletal, and very much lighter, but the plinths still looked



conventional from the outside. Then came Rega's double-brace idea, giving maximum stiffness where it is needed, between arm mount and main bearing.

With the RP3, this meant the plinth could be made of a low-cost furniture board and yet the turntable could still outperform its predecessors.

DESCRIBING VALUES

But finally, for the RP8 generation, Rega introduced a radically new chassis or plinth construction. Between the top and bottom skins of phenolic resin is a core of polyolefin foam, which weighs next to nothing. A skeletal chassis carries the motor, main bearing, and arm bearing, but the outer part is physically separate from this and serves mainly to support the hinged acrylic cover.

Introducing the RED auction works, Jony Ive said, 'Manufactured objects testify to who made them. They describe values'. That's certainly true of the Rega RP8 turntable, which incidentally sells for a mere £1600. Rega's only problem now, is how to make enough of them. ☺

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THE DAY THE MUSIC DIED IS MODERN HIGH-END HI-FI THROWAWAY?

The comment made by Ingemar Rasmusson, the boss of Sweden's used hi-fi superstore ReHifi [see *HFN* Feb '14] that hi-fi made in the last five years was more difficult to repair than that made 40 years ago certainly struck a chord. In my case a ten-year-old high-end American CD player has been rendered scrap for the sake of a replacement drive. Not only is this a personal financial catastrophe, it also brings into question the wisdom of investing in expensive high-end gear.

Manufacturer warranties are of little relevance as none could sensibly extend a warranty for the working life (unspecifiable) of such equipment. Yet we all know that laser drives will not last forever. So when considering the purchase of such equipment we are obliged to consider and rely upon the reputation of the manufacturer and distributor.

The number of spare parts held by a company will be the result of a commercial decision based upon a combination of its legal obligation and service commitment. Yet stocks of spare parts, the time

limit of a company's legal obligation to hold said parts and its policy regarding the support of products into the future, is information not shared with potential purchasers. How then are we supposed to make an informed purchase decision before parting with thousands of pounds?

With the decline in CDs and, presumably, transport manufacture, will it eventually be impossible to enjoy the software we have invested so much in over the last 40 years? Should we all be buying spare drives while stocks last? Or will we all be obliged, eventually, to rip our CD collections to computer files and buy music servers?

Now, there's a subject you might want to investigate.

J Ramajon, via email

Steve Harris replies: Many makers of high-end equipment try to future-proof their products by keeping good stocks of parts. But when it comes to CD players, small hi-fi companies are at the mercy of large suppliers, their model changes dictated by changes in the key components from those suppliers as the technology moves on.

There is no way round this, it seems. Even Bryston, the Canadian pro audio company that famously offers a 20-year warranty on its amplifiers, only gives a five-year warranty on its digital products.

Paul Miller replies: Of all the building blocks likely to be unceremoniously obsoleted by technology suppliers, CD transport mechs are typically top of the list. I tend to agree that low(ish) volume, high-end manufacturers should keep adequate stocks of such items. Some, including Germany's T+A, store enough to service repairs decades into the future.



ABOVE: Service engineer Rolf Norén in the workshop at the Rehifi store

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Time for a RISC assessment...

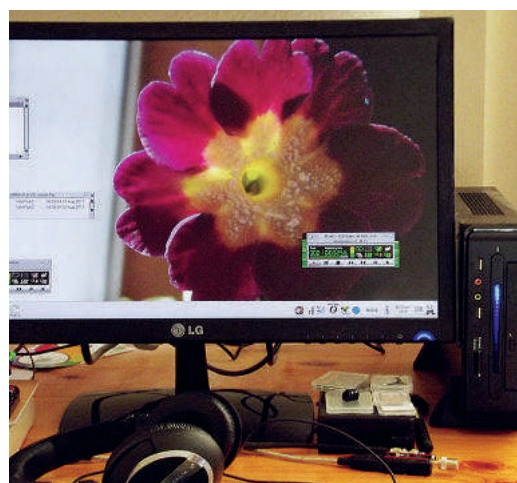
WILL YOUR NEXT MEDIA MACHINE BE AN ARMINIX?

Well done Jim Lesurf for braving the opinion that the RISC OS operating system might have some advantage over Windows [*HFN Yearbook*, '13].

The RISC OS is gentle, polite, efficient, simple and reliable. I ran a business network with machines using this operating system and it was rock solid. RISC OS gives a gentle cough when you do something wrong and leaves you to carry on with your task. Windows, on the other hand, produces error reports, accuses you of violations, places a window you have to tick in a place that is hidden from view, and won't let you continue until you have admitted it was all your fault.

Thank you Jim. I'll be seriously looking at the ARMiniX machines you mentioned in your piece for my next media machine.

Paul Williamson, via email



ABOVE: Jim Lesurf's ARMiniX computer in use (far right)

Jim Lesurf replies: I'm pleased to say that during the last few days I've been happily testing my ARMiniX with a Cambridge Audio DACMagic Plus along with USB DACs from a number of other manufacturers. The ARMiniX works well, even when it comes to 192kHz/24-bit Class 2 audio. The programs you need to do this are still experimental, but they already provide a direct way to play audio with minimal fuss.

Once the experiments are complete the intent is that the ability will become a standard part of the operating system. And RISC OS has also been updated to allow the machines to run with no fans or moving parts at all. Low power, no noise, no fuss. As the developments continue I'd expect the same for other new ARM-based hardware, like the PandaRO and the Raspberry Pi.

I'd recommend that readers who are curious about RISC OS or who fondly recall using the operating system in the past, should keep an eye on this area.

Fine sound on a shoestring

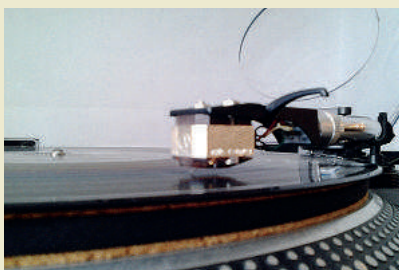
PROOF THAT WITH SOME WORK A GREAT SOUNDING SYSTEM CAN BE PUT TOGETHER FOR PENNIES

Articles on the subject of great systems usually tell a tale of constant upgrades from humble beginnings until the owner has a high-end system that many of us can only dream of. Yet musical satisfaction can still be achieved using modest equipment – plus a little ingenuity.

I worked long and hard to build a system that gave me huge amounts of pleasure. It comprised a Linn LP12 with Ittok tonearm, Quad 77 pre and power amps and a pair of Mission 750LE loudspeakers. Digital delights came via another Quad piece, a 77 CD player. This system was my pride and joy and gave my wife and me many years of musical enjoyment. And then redundancy hit. With a heavy heart, off my system went to Gumtree and Preloved for sale.

Luckily, employment was eventually found and thoughts turned to rebuilding a separates system. My salary was not what it used to be, so this time around the secondhand path was followed. After several months scouring Freecycle, various classified sites, and a number of local secondhand shops I finally assembled a system that made listening to music a pleasure again.

The heart of the set-up is a Cambridge Audio 640A integrated amplifier, picked up for less than £40. With it's detailed sound and extensive inputs, it's a fine budget amplifier for a small-room system. The 640A is fed by a Marantz CD63II KI-Signature



ABOVE: The Technics SL-1210 MkII deck with rubber mat sandwiched by cork mats

courtesy of a local car boot sale. I knew from experience that this machine could still hold its head high against many current £500 CD spinners, so at £25 it was a no-brainer.

As for vinyl, records are played on a Technics SL-1210 MkII. Thanks to Freecycle it cost nothing. Though dismissed as a mere DJ deck, the 1210 is a beautifully built turntable that's a delight to use. Home-made cork rubber mats placed either side of the stock rubber mat have sweetened the sound. The Cambridge amplifier lacks a phono stage, so a matching 640P MM/MC head amp was pressed into service.

Loudspeakers had to be purchased new and a pair of Dali Zensor 1s were chosen, based upon their refined sound. I had kept hold of my Mission speaker stands and equipment rack, while in my cable box I found some Nordost interconnects and QED speaker wire.

So how does this collection of gear sound? In a word, fabulous! Do I still aspire to a high-end system? Of course, but my wife and I love to listen to music through this modest collection of components, and in doing so our lives are enriched. If that makes a hi-fi system great, then this is one great hi-fi system.

Michael Foley, via email



ABOVE: Michael's Dali Zensor 1 speakers atop Mission stands from his original set-up

Paul Miller replies: Sounds like your system is truly greater than the sum of its parts. And what parts! The Azur 640A amplifier was a giant-killer at its introduction in 2006 just as the CD63II KI-Sig set the standard for mid-priced CD players when I tested it back in 1997. Vintage speakers are a little more risky, so the Zensor 1s are a fabulous choice.

8

Lanes On Your Entertainment Superhighway



RJ/E Forest



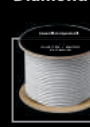
RJ/E Cinnamon



RJ/E Vodka



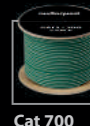
RJ/E Diamond



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.

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Digital connection choices

NO SHORTAGE OF OPTIONS, BUT WHICH IS BEST TO USE WITH DEVIALET 170 AMP?

I recently acquired a Devialet 170 amplifier with the Air module. Your review of this exceptional amplifier [see *HFN* Sept '13] is absolutely right.

No doubt, like other elderly audiophiles, I have numerous options when it comes to playing my hi-res downloads and can't work out which to use. I can either:

a) Stream them to the 170 wirelessly from my computer, but selecting tracks is not easy since my PC has to reside in a different room.

b) Send them to the Devialet using powerline Ethernet, with the same remote selection problem.

c) Copy them onto high capacity USB sticks and then plug these into my Oppo BDP-105 Blu-ray player, which has the advantage of a display attached for track selection.

My other question is what is the best connection from the BDP-105 to the Devialet. Like most universal players, the 105 has a 75ohm S/PDIF digital coax output which you would expect to connect using 75ohm digital cable to the coax input.

But the manufacturer suggests connection to the AES/EBU input, even from a coax source. The difficulty is that phono-to-AES cables are rare and you will have a 75ohm source with a 110ohm load, which I assume will lead to some signal reflection. What are your views?

Martin Phillips, via email

I would like to express my excitement at the review of the Devialet 170. This is a long overdue all-in-one high-end product with all my boxes ticked.

It is something of a stretch for my budget, but given that it also packs an on-board MC phono stage it could eliminate the need for a separate unit with the associated costs.

There was no mention in the review of how the phono stage performed and I was wondering whether Paul Miller managed to use the amp with a turntable. If so, how did it sound?

Richard Dibden, via email

Paul Miller replies: For the very best sound quality I would always recommended a short USB link to the 170, with hard-wired Ethernet as a close second. The latter option facilitates the use of longer leads and the possibility of rendering files from PC/Mac or NAS drive from another room, much as you might if you were streaming wirelessly.

In all these cases it's possible to access your 170 through your home wi-fi network using the Devialet Remote app for iOS & Android devices. This offers control over volume, source selection and music file streaming. Pushing files across via a USB stick, your Oppo BD player and the 170's S/PDIF input is less ideal although the performance gap between S/PDIF and AES/EBU inputs on the 170 is far narrower than with the original D-Premier amplifier. Moreover, I wouldn't be surprised if the option for replaying files from the 170's SD card reader was offered soon, deftly side-stepping any need for USB sticks.

Vinyl audiophiles may also be pleased to learn that the 170 can be used to rip LPs at 192kHz, the digital output saved to file via a suitable PC/Mac utility. The Devialet phono stage was developed to comply with 1953 and 1976 RIAA standards and offers the possibility to tune its input loading via a configurable RC network. In practice it's more versatile than many standalone phono stages and, if my SME/Koetsu front-end is any guide, offers a quiet, detailed and supremely 'analogue' sounding performance. We'll be reviewing the Devialet 500 very soon.



ABOVE: The Devialet 170's digital ins include USB, Ethernet, AES/EBU and optical

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.

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Turntable tests: a closer look

HOW DO I COMPARE MEASUREMENTS MADE AT HOME WITH THOSE TAKEN BY *HI-FI NEWS*, ASKS READER

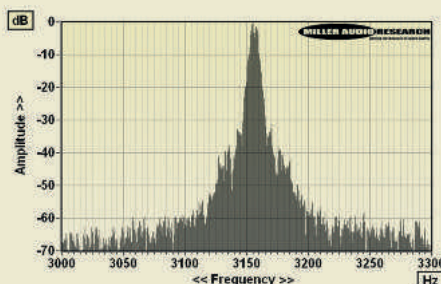
I have recently become a subscriber to *Hi-Fi News* and now want to check out the extended turntable tests, which you post on the Miller Audio Research site. As my knowledge is limited, can you please tell me if the figures for the peak wow and flutter measurements in terms of percentage are filtered at 0.55Hz to smooth the effect of non-centric test records or are they unfiltered? Also, do you follow the DIN IEC 386 2-Sigma or 386 Dynamic methods?

I use Adjust+ software [see www.adjustplus.de] and tried to measure the wow and flutter of my turntable, an Acoustic Solid Royal. The software gives 0.07% for unfiltered for both 2-Sigma and Dynamic methods then 0.06% and 0.05% for filtered at 0.55Hz for 2-Sigma and Dynamic respectively.

I presume Adjust+ gives the combination of wow and flutter, so if I need to compare my turntable's figures to the figures I see in your tests, should I look for filtered or unfiltered as well as 2-Sigma or dynamic figures?

Hakan Kalkan, via email

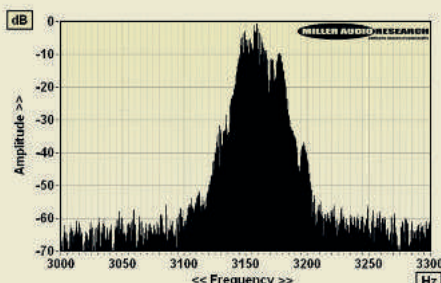
Paul Miller replies: I cannot comment on the operation of your choice of test software or its adherence to any particular standard, although I can say that any results obtained according to IEC (60)386 should be identical to those made against older standards including IEEE Std-193, IEC 60386 Ed.1 (1972), CCIR 409-2, and DIN 45 507, the latter forming the basis of *HFN*'s turntable testing regime. The standard W&F weighting



ABOVE: W&F spectrum for the Acoustic Solid Wood MPX turntable [*HFN* Jan '13]

curve peaks at 4Hz and rolls off to (approx.) -4dB/1Hz and -13dB/0.55Hz although I also run the test unfiltered to determine the extent of sub-1Hz effects, including speed drift.

A fine deck, such as the Acoustic Solid Wood MPX [above] may show discrete sub-10Hz wow components but it's only by integrating sub-1Hz data, accumulated over a minimum of five seconds, that drift is revealed in a poor design [see below].



ABOVE: W&F spectrum for a turntable showing excessive sub-1Hz drift



ABOVE: The Acoustic Solid Royal turntable with its 70mm-thick aluminium platter

Downloading and HDtracks

ACCESSING HI-RES FILES WHEN YOU LIVE IN THE UK

I'd like to respond to the editor's reply to Angus Lang in last month's issue about the latter's discovery of Blu-ray audio discs and how he should investigate hi-res downloads. I would wager my next month's pension that the recordings Angus bought would not be available as hi-res downloads, at least not to us readers living exclusively in the UK.

As a case in point, Eric Clapton's *Slowhand* from HDtracks, which is reviewed in the Hi-Res Downloads section of the same issue, cannot be bought from the company if you are in the UK. An email from HDtracks informs me that *Slowhand* is not available to me because of 'record label restrictions'.

I am now heavily into computer audio and am increasingly frustrated and annoyed that I cannot buy the music I want. Don't the record companies want to sell their music? It doesn't make an awful lot of sense.

Terry Catlin, *Third-World Blighty*



ABOVE: *Slowhand* and other hi-res offerings can be downloaded at www.hdtracks.com

Paul Miller replies: Most of the major record companies insist on retaining regional control of their content despite the 'world wide' reach of these hi-res websites. So we have the odd situation where some titles are available via the HDtracks (USA), Linn (UK) and Highresaudio (Germany/Europe) sites while others are restricted to one region. But computer audiophiles may not have much longer to wait before the entire HDtracks catalogue is available, legitimately, in the UK. At CES 2014, Chesky announced that www.hdtracks.co.uk would be live this spring.

More classic B&O please

READER SUGGESTS FEATURE ON COMPANY'S FIRST JACOB JENSEN-STYLED TUNER

Congratulations to Tim Jarman for another excellent Vintage Review, this time on the Beolab 5000 amplifier [see *HFN* Dec '13]. As a suggestion, I am sure a future article on the Beomaster 1000 receiver would also be of interest to many readers.

The Beomaster 1000, especially in its later silicon transistor form, was a high quality receiver with an excellent FM section and in my opinion was seriously underrated. Since B&O sold a great many, they are relatively easy to find at audio jumbles and on the web and make a great introduction to the brand for any enthusiast looking to get into vintage B&O.

Mark Mason, via email

Tim Jarman replies: During the late 1960s and most of the 1970s, B&O offered two distinct classes of equipment: the Audio range for those who wanted to enjoy good quality listening at home with the minimum of fuss and the High Fidelity range for those who would accept nothing but the very best.

The Beomaster 1000 fits into the former category. It's a lovely little thing (with an excellent radio section, as you point out) but is hampered by a permanent 'loudness' compensation, which cannot be turned off.

For audiophile use, a flat response – as delivered by the Beolab 5000 and, indeed, all the models in the company's High Fidelity series – is preferred.



ABOVE: The Beomaster 1000 – an excellent tuner, but good enough for audiophiles?

Remastered Blu-ray audio

WHY COMPRESSION MEANS ANOTHER MISSED OPPORTUNITY BY THE RECORD COMPANIES

I was interested to read Barry Fox's comments on the lack of support for HDMI interfaces on audiophile equipment and how this would deprive us of the high-resolution audio offered by Blu-ray audio discs.

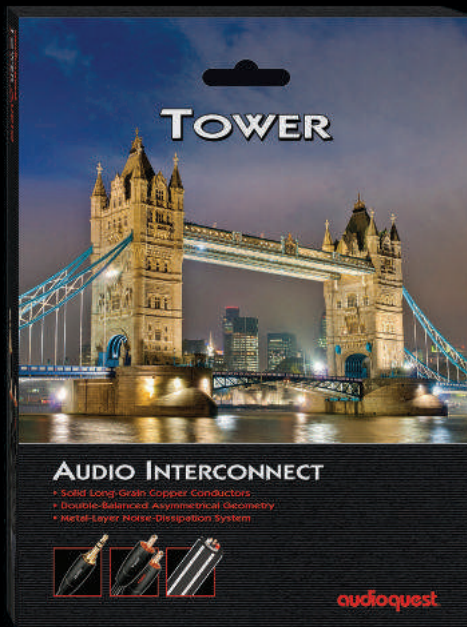
I would suggest that Barry is being optimistic. I don't have the equipment to dabble myself, but the suggestion on several internet forums appears to be that much of the content offered so far has been 'remastered' and has an even smaller dynamic range than it did on the preceding CD releases. If this is the case then it will be yet another missed opportunity by the record companies to deliver on a promise of high-quality audio.

Hi-Fi News could perhaps investigate this. Though the raw data isn't available in digital form from the

players – as Barry was right to point out – the DAC stage employed by a decent modern Blu-ray player should be more than good enough for your test equipment to be able to measure levels of compression and compare them with releases on other formats.

Peter Wood, via email

Barry Fox replies: It's not often I am accused of being too optimistic! My take is that the current situation parallels that of CD, especially in the early days. There were some awful-sounding discs but it wasn't the fault of the CD system. Rather, it was due to poor recording or clumsy mastering. There will now be some nasty-sounding BD audio discs, but there will also be some releases that improve on the CDs previously available and certainly greatly improve on the MP3 versions.



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Vintage CD players

The silver disc spinners of yesteryear can be classics too, early adopters maintaining their prized players in tip-top condition. **Tim Jarman** offers his pick of the used market

Now that the first machines are some 30 years old, early CD players deserve to be described as 'vintage'. Yet unlike most other hi-fi components, their appearance and performance has changed little over the years. This means that it can be difficult for those with only a passing interest to tell the difference between early models and some of the very latest ones.

Because CD players are complicated devices that make use of specialised components they can be difficult to repair. It is therefore more important than ever to be able to identify models that are decades old and seek out cared-for samples that are in full working order. Luckily these original players were often the prized possessions of early adopters and so good quality stock is still surprisingly abundant.

FIRST PLAYERS

The early days of CD were dominated by the big electronics companies in Japan and by Philips in Europe as the technology involved was out of the reach of anyone lacking their level of resources. It was Sony that won the race to bring CD players to the consumer market,



ABOVE: Just another CD player? No, this is the origin of the species, the Sony CDP-101. Sony got the styling and ergonomics so 'right' that every manufacturer would soon be making something very similar in appearance

launching the CDP-101 [see *HFN* Jan '12] into the shops first in Japan and the USA. The player was a solid piece of work whose aesthetic and ergonomic DNA is still recognisable in machines of today: a trim black box with simple controls and a motorised drawer to load the disc.

Inside, the machine was largely an in-house effort, Sony making many of the vital control and decoding chips. In common with most early Japanese players, the CDP-101 had no digital filter and used a single DAC, which was shared between the two stereo channels.

The absence of a digital filter means no oversampling takes place, so a very sharp filter was employed to remove the 44.1kHz sampling artefacts from the output signal.

BIG SELLER

The CDP-101 was well specified otherwise, having full infra-red remote control, A-B repeat and a headphone socket with its own level control. The earliest examples even came with a connection for synchronising a cassette recorder though this was quickly removed when it was realised that it was not in the industry's interest to make music piracy any easier than it already was.

The CDP-101 was a big seller and samples are relatively easy to find



to this day. Nonetheless, the design does suffer from a fair number of faults and foibles. Most serious is the failure of the two power amplifier modules, which operate the tray and sled motors along with the magnetic actuators within the optical block. This manifests itself in all kinds of symptoms, which may get worse as the machine warms up. Replacement modules ceased to be available many years ago, but a skilled electronics engineer should be able to replicate their function using modern alternatives. This is not a trivial task however.

Sections of the mechanism in the drawer can also seize up, making it impossible to open. This problem is fairly easily dealt with, but it is not a job for beginners. The laser



LEFT: Original advertisement for the CDP-101, trumpeting its 'World's First' credentials. Such things were important to Sony, even if in Europe Philips beat the company to it



is reasonably durable, however, so it should still be possible to find examples in good working order even after all these years.

All CDP-101s came with a remote control but this is often now absent. Later Sony handsets will operate the key features though.

TOP PORTABLE

Sony's second player, the D-50 portable [see *HFN* Jan '13], was a remarkable step forward from the CDP-101. Tiny in comparison yet lacking little in facilities, the D-50 perfectly demonstrated Sony's

ABOVE: The D-50 was the second CD player from Sony and was in essence a portable CDP-101. Review is from the March 1985 issue of *HFN*

BELOW: Europe's entry into CD was Philips' CD100. In terms of sheer tech it was ahead of any player coming from Japan at the time

flair for miniaturising electronic products. Audio performance improved too, the D-50 sounding more refined than its predecessor.

This is another reasonably easy to find player and prices are low since to the uninitiated it looks just like any other CD portable. Reliability has proved good, the main issue being that the lid can fall apart due to failing adhesive. This can be a problem because a split lid can allow a small metal pin to fall from the front left corner. As this pin is part of the safety interlock system, the D-50 will no longer operate if it is missing.

Repairs to the D-50 must be undertaken with care to avoid accidental exposure to the player's laser beam. The laser itself can also become a problem; if the disc spins briefly and then stops this is often the symptom.

Various power units and battery holders were offered for the D-50. Try to find one where a proper power unit is included as the current requirements (9V, 800mA) are beyond that offered by most modern 'wall wart' adaptors.

Philips was the first to market a CD player in Europe, with its CD100 model [see *HFN* Oct '11]. Smaller and neater than the

BEFORE YOU BUY...

Check any potential purchase using a disc you know to be in good order. Also, use a disc that adheres to the Red Book standard, as some early players do not work well with CD-Rs and CD-RWs. Make sure the disc is read briskly and that playback starts quickly. If the machine takes an age to get going, it could mean worn optics and/or transport problems. Check that the drawer operates smoothly and that both channels are present and at an equal level. If the machine had a remote don't pay top money if it's missing. They can be hard to find.

Sony, the CD100 was also more sophisticated since it offered twin 14-bit DACs and a digital filter with four times oversampling. Regarded at the time as the best performing of the original players, it was also keenly priced and sold strongly.

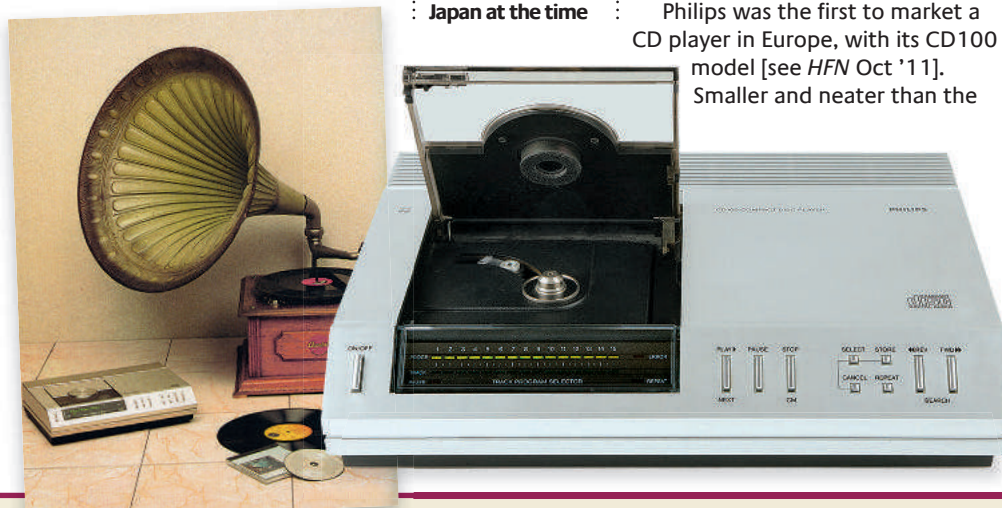
LAZY MOTOR

The Philips CDM0 laser unit used in the CD100 is very durable, making it an easy model to find today in working condition. If the machine refuses to play a disc this is usually a result of the interlock switch in the lid being out of adjustment, a problem that a competent engineer will be able to sort out fairly easily.

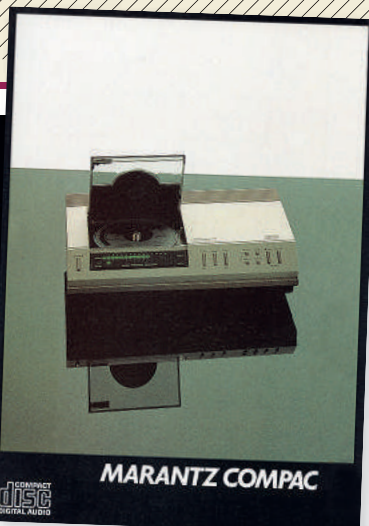
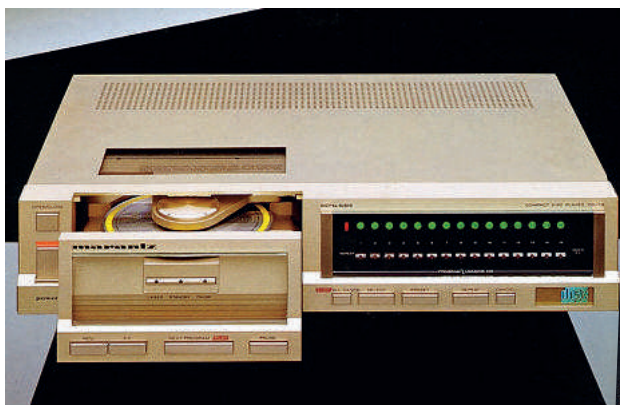
If the disc turns slowly while odd noises emanate from the focusing coils, the chances are that the machine has been out of use for some time and the spindle motor has become lazy. Replacements are not available, but persistence usually pays off. Just keep pressing the play key until the disc eventually turns quickly enough for the table of contents to be read.

The CD100 was also offered as the Marantz CD-63. Aside from the colour, the two players are identical. As for the drawer-loading CD300 and CD303 models [*HFN* Nov '13], most of the circuitry is identical to that of the CD100 and

'Philips' CD100 was regarded as the best of the original players'



BUYING VINTAGE



similar comments apply. The only things to look out for are the extra sections involved with the drawer mechanism and damage to the tethered signal cables where they exit the rear panel. The CD300 was not a particularly popular model but its Marantz equivalent, the CD-73, certainly was.

CHOICE OF CHIPS

All of these players were at times offered with an alternative decoder chipset. This used the error-correcting system from the Sony CDP-101 rather than the one found in the standard Philips line-up and was possibly as a result of production shortages. This arrangement is most commonly seen in the Marantz CD-73. While it makes little difference to sound quality, the extra complexity can make fault diagnosis more difficult if problems occur in this area.

The CD303 turned out to be a bigger seller for Philips, the only extra trouble-spot being missing segments from the time readout (a 'first' in the Philips range), which cannot be easily resolved as the display is a sealed unit.

Philips finally adopted a standard layout for CD players with its CD104. This was a very well built unit and was highly acclaimed at launch, resulting in strong sales and good availability today. Carrying on the twin 14-bit DACs and oversampling digital filter approach, the CD104 was a sophisticated machine when compared with Japanese-made rivals of the period.

The model's bugbear is the use of double-sided printed circuits which

sees the two sides joined by tiny metal rivets. These eventually fail, resulting in all kinds of faults which can make no sense at all. Replacing the rivets with short lengths of wire, soldered at each side, solves many of these problems and should be your first port of call when a troublesome machine is encountered.

The CDM1 deck used in these players does not suffer from the 'lazy' spindle motor problem that can afflict the the CDM0 and the laser seems just as durable.

The Marantz equivalent of the CD104 is the CD34. Japanese-built examples of this machine are sometimes seen with printed circuits assembled without the troublesome rivets and these are thus immune to the most common CD104 problem. Not all early Marantz players were direct Philips clones; the CD-54 of 1984 was a design all of its own which mixed the basic Philips chip set and CDM1 transport with Japanese components and construction techniques. Still 14-bit with 4x oversampling, this model combined the best of both worlds – Japanese build integrity and Philips digital expertise. It is a reliable machine with a highly appealing sound.

ABOVE: Two early Marantz players, the CD-73 (main) and CD-63 (inset). Both machines were heavily Philips-based, but the drawer mechanism of the CD-73 was first seen in Marantz prototypes while Philips developed its top loader

BELOW RIGHT: A Philips CD303 as part of a matched set of components. The CD303 is fairly easy to find used but the rest of the system is rare indeed

BELOW: The Philips CD303 was effectively a Marantz CD-73 restyled to suit European tastes. The 'track time display' was a 'first' for the Philips line-up

Of all Philips' 14-bit machines, perhaps the most outlandish was the California Audio Labs Tempest. This added a valve output stage to an otherwise fairly standard Philips circuit, an odd practice back then but one which has become very popular today. Comparatively few were sold but should you stumble across one there are few maintenance concerns, though the CDM2 transport used has not proved as durable as the CDM0 and CDM1 alternatives.

EASY TASK

In Europe it was common for small manufacturers to turn to Philips for CD technology, so you will find Philips players inside boxes bearing names as diverse as Amstrad, Mission and B&O. In Japan the OEM market was dominated by Hitachi, whose vertical-loading DA-1000 was also marketed by Denon as the DCD-2000 and by JVC as the XL-V1 (among others).

Developing all the necessary components for a CD player was a relatively easy task for an industrial giant like Hitachi so these models share few (if any) parts with other maker's machines. Luckily Hitachi's reputation for reliability was at its peak during this period and so problems are few, although if things do go wrong it pays to check





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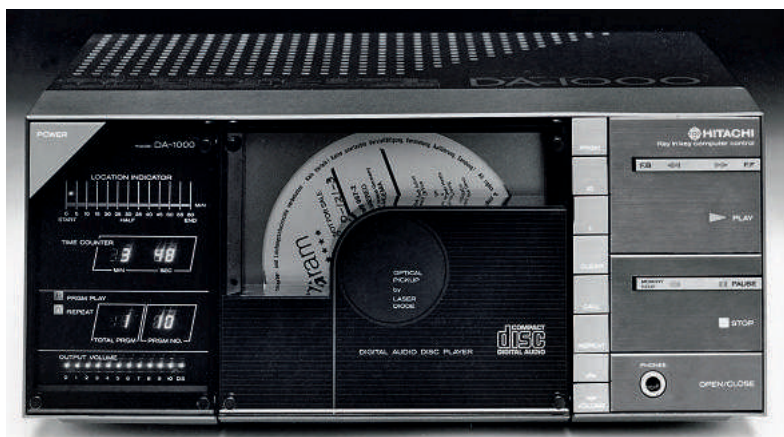
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LEFT: Thanks to its huge resources, Hitachi dominated the OEM market in Japan. Its vertical-loading DA-1000 was also marketed by Denon as the DCD-2000 and by JVC as the XL-V100, as well as appearing badged with a host of other manufacturers' names

the integrity of the connections between the main PCB at the bottom and the various plug-in daughter boards.

FRONT-LOADERS

The Japanese home market seemed to prefer vertical front-loaders and many of the household names in that country took this route.

Technics got into CD with the very substantial SL-P10 [*HFN* Oct '12], an enormous machine which was feature rich. The circuitry is highly complex and requires that a large number of internal adjustments are made absolutely correctly for the player to function at all. Resurrecting one of these giants is difficult, even for those familiar with early CD techniques.

On a smaller scale, Sanyo produced a vertical front-loader which was marketed in Europe

mainly as the Fisher AD 800 [see *HFN* Apr '13]. This used many of the devices originally employed in the Sony CDP-101 although the optical deck was made by Sanyo itself.

Despite the modest styling this little machine can give good results though one common problem is that the touch-sensitive membrane that forms much of the front panel tends

to discolour and crack with age.

Commonality with the popular Sony means that faults in the decoder sections don't instantly write the player

off due to unavailable parts, which is a definite advantage over some of the other unusual Japanese players.

Whichever early CD player you choose, it can be fun to audition it against a new design and hear how things have changed. Clearly CD was a technology many manufacturers got right from the very start. ☺

'Despite its modest styling the Fisher can give good results'

BELOW: The first player to use a tube in its output stage was the California Audio Labs Tempest from the mid 1980s. Beneath it and to the left are pictured two first generation Japanese vertical loaders – the Fisher (Sanyo) AD 800 and the Technics SL-P10, shown here on the July 1983 *HFN* cover



ALSO CONSIDER...

Philips CD150: The last 14-bit Philips. Same chips as the earlier models but flimsy plastic build and basic analogue stages result in a less exciting sound. The CDM2 transport was not as durable as the earlier designs.

Philips CD160: Essentially a 16-bit version of the CD150. The famous TDA1541 DAC chip made its debut here, but the sound quality still isn't at the top of the Philips league.

Aiwa DX-1200: Unusual early Aiwa player whose quirk is that the CD has to be loaded upside down. Most frequently encountered as the B&O Beogram CD50.

Toshiba XRV-22: Twin loading drawers (an industry first, see below) enliven this otherwise fairly basic Japanese second-generation machine.



Yamaha CD1: Rare statement piece which is little seen outside Japan. Massive and complex, Yamaha went a little over the top with this one but a working example is a joy to behold.

Mitsubishi/Diatone DP-101: Another first-generation Japanese vertical front-loader; well made but the high price when new limited its appeal. Sadly, seldom seen today.

Sony CDP-552ES/DAS-702ES: Pioneering two-box player that set the pace in 1986. Alas, laser problems will have consigned many of them to ornament status by now.

B&O Beogram CDX: An eclectic collection of old Philips parts perhaps, but arguably the prettiest of the early players. Only equals the performance of a standard CD104 though.

Technics SL-P1200: Matsushita's second attempt at a pro/domestic crossover machine met with great success. Top-notch build and a pleasure to operate; they sound good too.

Sometimes you just can't see the wood for the trees when you're buying hi-fi.

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Quad 22/Quad II amplifiers

One of the most readily available classic amp pairings on the vintage market, the Quad 22/II was also one of the most coveted. But how does it measure up today?

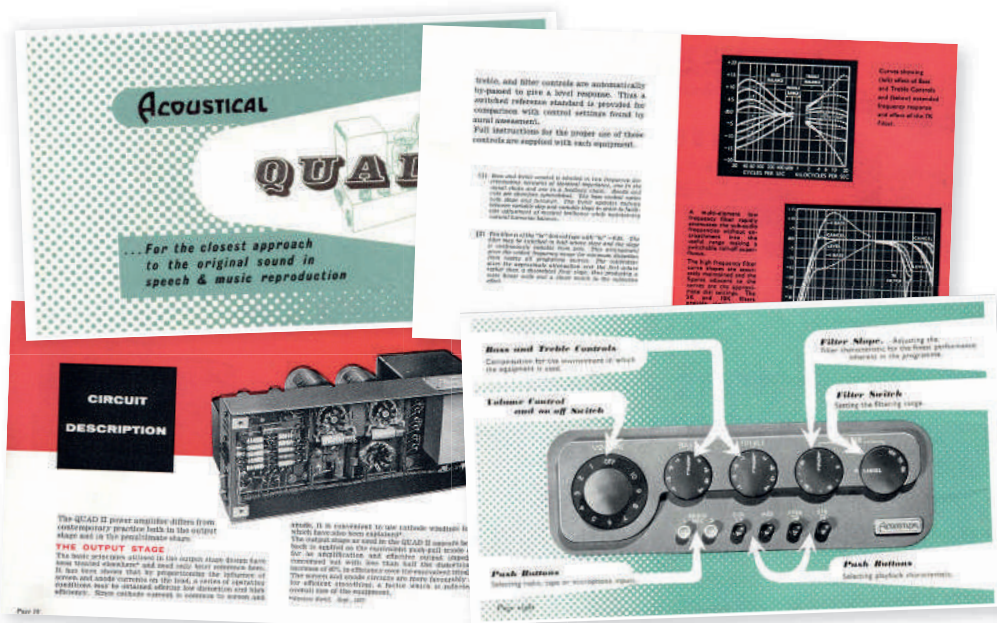
Review: **Tim Jarman** Lab: **Paul Miller**

The 22 control unit and II power amplifier have both enjoyed a presence on the hi-fi scene almost from its very beginnings. The 22 appeared in 1959, shortly after stereo LPs first became available in the UK, but the matching Quad II power amplifier had been around even longer – since 1953 in fact. Originally sold with the QC II control unit to form a mono amplifier system, the Quad II was then sold in pairs with the 22. This was the Acoustical Manufacturing Company's only stereo amplifier until 1967 (the company changed its name to Quad Electroacoustics in 1983), when the transistorised 33/303 system [see *HFN* Jul '11] was introduced.

THE GENIUS

The design of the 22/II set-up was only altered in the smallest of details during its lifetime and it was not deleted from the catalogue until 1970 – a very long production run in what was then a fast moving field. Even after it ceased to be available, new interest in the 22/II remained strong while the sheer number of units sold ensured a loyal following by users who maintained and sometimes modified their equipment instead of upgrading to the latest hi-tech offerings from Japan.

Like most amplifiers of the day, the 22/II was split into separate units, the intention being that they would be mounted inside a larger cabinet. The compact 22 could be console-mounted, although it did come with a basic metal shell so that none of



ABOVE: Green promo leaflets for the Quad II amp showing the original mono control unit (QC II). Red pages are from an original user manual; technical details were often included during this period

its working parts was exposed should the unit be left free-standing. The power amps were also unusually well packaged and had properly fitting covers for the undersides – unlike many contemporary models.

The circuits used in each unit are well executed, if basic. The real genius of the Quad system is the way the various units all fit together. Mains power and input signals are supplied to the 22 where all the controls are located. Two umbilical cables then carry both power and signals to the

Quad II units. These cables are terminated with custom-made flexible plastic boots, colour coded to differentiate between the two channels: blue for left and yellow for right or mono operation only.

MONO MODE

For the 22, mono means one channel only and selecting this mode switches the left-hand Quad II off entirely. There is an option to play a mono programme through both loudspeakers but instead of summing the stereo inputs, the 'right' input is simply routed through both channels.

The 22 takes HT and LT power from the 'yellow' Quad II, also powering the valve heaters of the matching AM and FM tuners. If a single (mono) tuner is used then this also draws HT power from the 'yellow' amp but for a stereo installation this changes to the 'blue' one to split the load more evenly.

LEFT: At a time when most consumer audio equipment looked either industrial or home made, the neat styling and ergonomics of the compact 22 control unit were a revelation





LEFT: The complete 22/II ensemble. Note the custom-made cabling between the control unit and the amplifiers, epitomising the professional approach taken by the manufacturer

Again, simple colour-coded connections were used for the tuners. Never before had hi-fi of this sophistication been packaged with such flair and attention to detail.

OPTIMUM SETTING

The recommended loudspeaker was, of course, Quad's ESL 57 electrostatic, used either singly or in pairs as the system configuration dictated. To best match these, the amplifiers were all dispatched from the factory with their output impedance set to 15ohm – idealised for driving the ESLs.

This is not an optimum setting when it comes to driving conventional speakers but it can be changed by altering the connections to the amplifier's output transformer – a simple task, although some soldering is required. It's still worth checking the settings on these amps today as units set to 15ohm are still encountered on the secondhand market. Despite its

flexibility, the 22 really only has one usable input for modern line-level sources. This is the one intended for the stereo tuner – although even this is a little over-sensitive for modern equipment so an external attenuator may be required.

The other tuner input is mono only while the tape input is routed through an extra gain stage, which adds noise. This was done to make it possible to use this input for direct connection to a tape head.

Small plug-in matching units were then used to set the required gain and EQ.

For line-level use the 'Tape N' unit is the one that is needed as this gives close-to-normal sensitivity and a flat

response, though the extra noise is still present [see Lab Report, p124].

The same arrangement is used for the phono inputs (there are two, one for a stereo pick-up and one for mono). In this case the 'A' or 'AA' matching units are the most useful, as these work reasonably well with modern MM-type cartridges.

Setting up the basic system is easy thanks to the thought that the Quad designers put into it, but connecting sources brings with it the usual old British amplifier nuisance of oddly-sized RCA connectors fitted too close together. This is a particular problem with the phono

input but an easy way around this is to swap the connections between one of the stereo inputs and the mono one inside. The result is that the outer two of the three sockets can be used rather than the centre one and the one on the right.

Thankfully the loudspeakers can be connected to the amp with traditional 4mm plugs so there are no difficulties here. The only potential pitfall is that the six-way 'Jones' plugs, which mate with each Quad II, are not that positively polarised and therefore can be inserted upside down. This will blow the fuses if you are lucky and cause considerable damage if you are not.

The 22 is beautifully styled and a delight to use once the operation of the push button source selector has been mastered. Clever internal wiring means that the buttons work in combination as well as singly, so the operator's manual is useful for working out all the combinations.

The filters (which would later become a Quad speciality) also take some working out. Note that the 'cancel' position also switches out the treble and bass controls.

TIM LISTENS

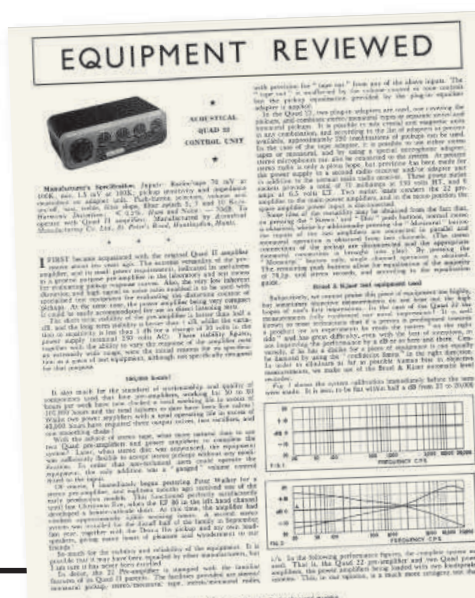
It has been popular in recent years to use the Quad II amplifiers with modern preamps or other equipment, but the design of the input circuit means that this is not really ideal. There is no LF cut-off designed into the first stage and no HF filter either, so interfacing with equipment where a DC offset or HF noise may be present (DACs for example) is fraught with potential problems. All too often a thick, muddy sound with fuzzy detail results, which is hardly a surprise given how the amplifier's circuit works.

Using the 22 as originally intended solves these problems, so this is how I configured the system. It would have been

LEFT: Stanley Kelly reviews the 22 in HFN.

The curves show the characteristics of the filters, which were essential given the variable quality of recordings and speakers at the time

'Bass was clean and dry, while the midband was pleasingly vivid'



VINTAGE HI-FI

RIGHT: Internal views of the Quad II (top) and the 22 (bottom). Both units have been carefully restored by Ampregen and the neatness of the original build has not been disturbed

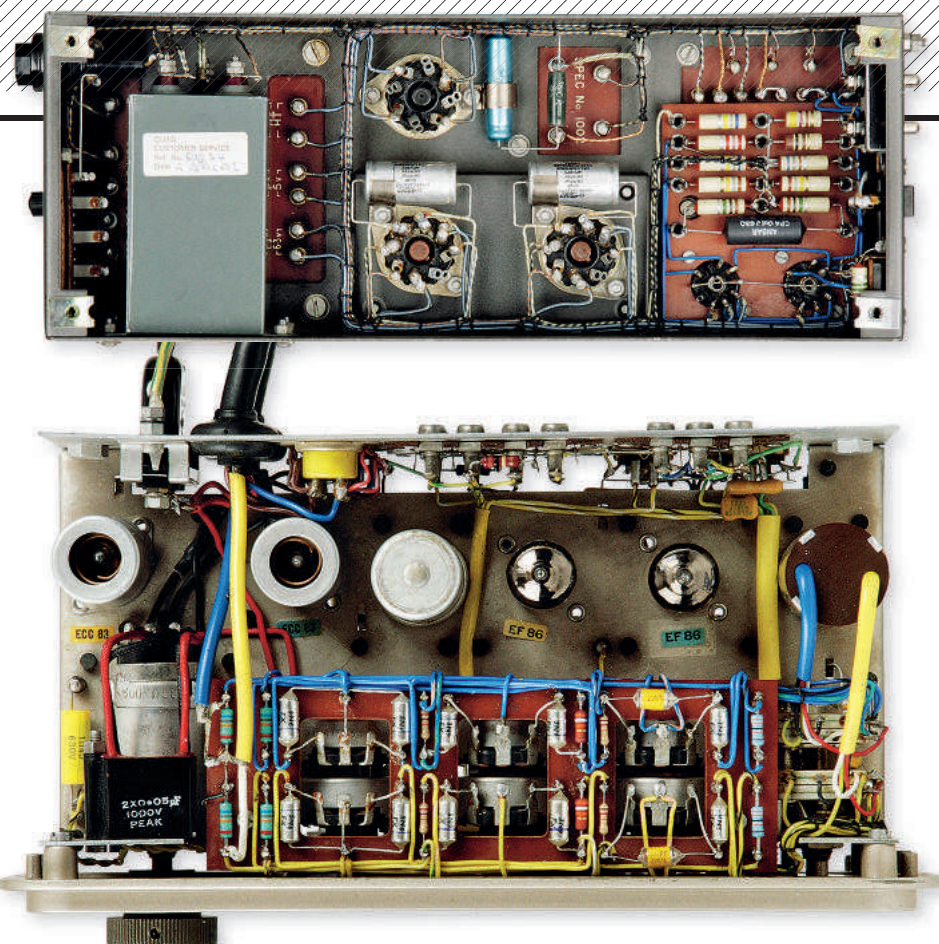
a joy to have the tuners and a pair of ESL 57s to hand too, but sadly these were not available at the time of the listening tests. As things were, my Cyrus CD8 SE2 CD player and Monitor Audio PL100 loudspeakers were pressed into service.

With around 15W per channel available, the Quad system has just about enough power to meet most listening requirements without having to make excuses for itself. As vintage valve amplifiers go it's just about optimal as regards the power/size/complexity trade-off goes. If you have heard Quad IIs producing flabby, wayward bass then the good news is that the well chosen passband of the 22 provides an effective cure. It is never going to be transistor-quick, but I considered that the results given by the complete set-up to be pretty respectable.

CLEAN AND DRY

Uncluttered and predominantly acoustic recordings seem to favour most competent valve amps so testing began with a selection of these. Here the Quad set-up made a particularly strong case for itself. One such disc was the spirited performance of 'Don't Marry Her' by The Beautiful South from *Blue Is The Colour* [Go! Discs 828 845-2] where bright and lively guitar and percussion lines are overlaid with supremely detailed vocals.

For such an old design the tonality was even-handed, bass was clean and dry, while the midband was pleasingly vivid. As was the treble which, while not particularly extended, was



at least free from harshness or grain. Meanwhile, an upper midband lift gave vocals a sheen, which made the top-end sound more interesting, though it has to

be said that the treble didn't sparkle as it can with some later designs.

Only the amp's ability to construct a really solid sound image struck me as being a little short of what is possible with modern equipment.

Separation between instruments and players was fine, but sounds seemed to come from areas in the soundstage rather than specific points.

'The Quad 22/II made easy work of this heavily processed track'

Although more heavily processed and difficult to unravel, the 22/II also made easy work of 'O Come, O Come, Emmanuel' [And Winter Came, WB 2564 69330 6]. This recording is backed by a variety of low frequency drones which will sap the power from any transformer-coupled amplifier. Nevertheless, at all but the very highest listening levels the Quad IIs refused to become flustered. The care taken over the design was made abundantly clear following a performance like this.

While I freely admit to preferring transistor amplifiers over valve designs, the appeal of this amp was proving hard to resist. If only for the ergonomic perfection of the 22 and dreams of late-night BBC Radio 3 sessions heard through the matching FM tuner...

BUYING SECONDHAND

Buying a 22/II system is fairly straightforward as there are a number of restorers active in the field. It is therefore possible to opt for a fully prepared set-up that's ready to use. But for those who wish to go it alone here are a few things to watch out for. The 22 is a reliable unit bar the usual problems with ageing components and the odd noisy valve; just

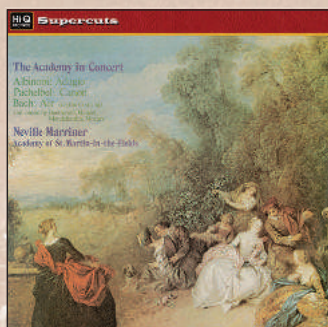
LEFT: The Quad II, shown here with the correct Mullard EF86 and GEC KT66 valves fitted. Modern replacements are available, but check their characteristics carefully before using them



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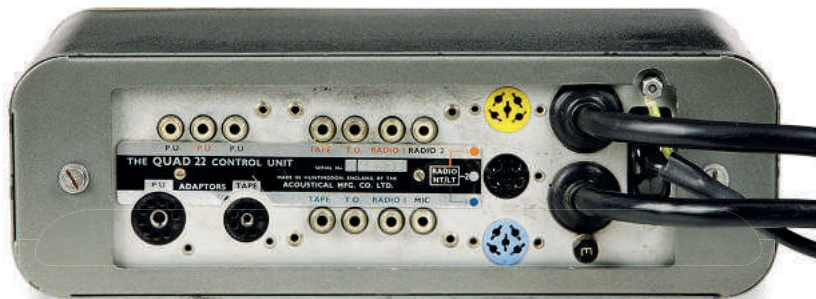
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VINTAGE HI-FI

LAB REPORT

QUAD 22/THE QUAD II (Vintage)



ABOVE: The rear of the Quad 22 is geared towards use with a complete Quad set-up. Yellow, black and blue sockets provide high voltage DC power to the matching tuners

make sure that you are not buying a (mono) QC II by mistake as the two units look very similar.

As for the Quad II, note that some were made for 100V line PA operation, meaning that the output transformer is unsuitable for hi-fi applications. Such units can normally be recognised by both the loudspeaker sockets being red (instead of red and black) but this may not always be a completely reliable guide. Check the output resistance with a meter if in doubt: the standard model should measure less than 1ohm (or around 2ohm if still configured for ESLs).

FIXING FAULTS

Some restoration work will be required even if the amplifier appears not to have been used. The capacitors develop electrical leaks and the resistors change value even while in storage. These faults will either cause other problems or degrade performance overall so it is vital to get the units checked before putting them into use.

Also, the mains transformers can fail, especially if the complete

system is used. Keeping the units in a well ventilated position can help with this but another point to watch out for is that some modern valves draw much more heater current than the originals. As such, be careful when fitting replacements and use only those which meet the original specification.

All the valve types used are common but the original types are now becoming expensive. Resist the temptation to pay over the odds as random failures (cracked envelopes, internal disconnections etc) can occur at any time, especially with the KT66s and GZ32s. It is quite in order to use a GZ34 to replace the GZ32 as this is what Quad did when these units were sent back to the factory for overhaul.

Replacing the rectifier with silicon diodes is not such a good idea. This once common modification raises the HT voltage and puts the KT66s and output transformer (among other things) under greater strain than is really good for them. In all cases the standard specification is the best; units in original condition are rightly the most highly prized. ☺



ABOVE: Original ad from 1955 for the mono QC II control unit Quad II amplifier

HI-FI NEWS VERDICT

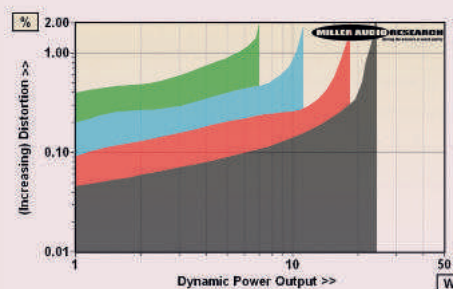
I'm not a fan of the Quad II when used with a modern preamplifier but in the context of its original system it makes a lot more sense. As for the 22, this is a masterpiece of industrial design – not to mention a fascinating audio product in its own right. Perhaps best of all, the Quad duo reviewed here is probably the most widely available complete vintage valve amplifier to be found on the secondhand market.

Sound Quality: 78%

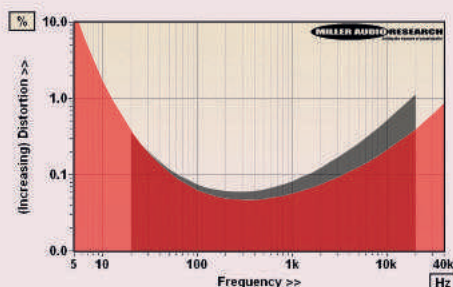
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The opportunity to test such a classic amplifier, and in such pristine condition, was a genuine pleasure. As we might have expected of Quad, the 22/II combination was very conservatively specified, its 15W rating surpassed to the tune of 2x22W/8ohm and 2x20W/4ohm. Such a consistent output suggests our II power amps were configured for a 7ohm load (15ohm was the other option) and this is further indicated by the 8/4/2ohm responses, the 8ohm curve showing a rising HF trend (+0.1dB/20kHz to +1.8dB/60kHz) while the 4ohm/2ohm traces have a gently declining treble trend. Correspondingly, the output impedance is held below 0.5ohm from 20Hz-10kHz, rising to 7ohm at 100kHz. Incidentally, there's no practical increase in power output under dynamic conditions with 24W, 18W, 11W and 7W delivered into 8, 4, 2 and 1ohm loads at <2% THD [see Graph 1, below]. So the Quad 22/II is still best partnered with sensitive loudspeakers!

Distortion shows a slight emphasis towards odd harmonics, the trend gently increasing with power output, from 0.045% at 1kHz/1W/8ohm up to 0.12%/10W (left amplifier) and 0.067%/10W (right amplifier). Versus frequency there's an increase to 0.4%/20kHz and 0.86%/40kHz at 1W/8ohm while transformer core saturation causes the inevitable rise in THD at lower frequencies from 0.1%/50Hz to a still creditable 0.35%/20Hz [see Graph 2, below]. Hum and noise is low enough at -63dBV (sub 1mV) but the A-wtd S/N ratio is still behind the best of today's tube amps at 72.4dB (re. 0dBW). Readers may view a full QC Suite test report for the Quad 22 Control and Quad II mono amplifier combination by navigating to www.hifinews.co.uk and clicking on the red 'Download' button. PM



ABOVE: Dynamic power output vs. distortion (8ohm tap) into 8ohm up to 2% (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads



ABOVE: Distortion vs. frequency from 20Hz-20kHz at 5W/8ohm (black) and 5Hz-40kHz at 1W/8ohm (red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	22W / 20W
Dynamic power (<2% THD, 8/4/2/1ohm)	24W / 18W / 11W / 7W
Output impedance (20Hz-20kHz)	0.45-0.73ohm
Frequency resp. (20Hz-100kHz, 0dBW)	+1.7dB to -6.9dB
Input sensitivity (for 0dBW/15W)	36mV / 150mV
A-wtd S/N ratio (re. 0dBW/15W)	72.4dB / 84.2dB
Distortion (20Hz-20kHz, 1W/8ohm)	0.045-0.39%
Power consumption (Idle/rated output)	210W/220W
Dimensions (WHD, 22/II)	265x90x150/310x160x120mm

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Graaf GM100 Power, boxed.....	2499
Lyngdorf SDA2175, excellent boxed.....	799
Marantz PM6004, nr mint boxed.....	199
Marantz SC7S2, excellent boxed.....	2249
McIntosh MA2275, excellent boxed.....	3599
Meridian 558 5 channel monster.....	599
Meridian 501V preamp, excellent.....	299
Micromega IA100, great integrated, ex demo boxed.....	599
Musical Fidelity Xpre, excellent boxed.....	109
NAIM NAP250 Olive 2002, vgc+ boxed, service 2010.....	1199
NAIM NAC252, excellent boxed.....	3749
NAIM NAP150, excellent boxed.....	349
NAIM NAIT 3, excellent boxed.....	279
Nightingale Armonia, excellent boxed.....	1499
Nu Force Reference 9Se v3 Monos boxed mint.....	1799
Quad QC24 Preamp, excellent boxed.....	599
Quad 33/303 pre/power combo.....	249
Quad 34/405 pre/power combo.....	499
Sugden Headmaster, excellent.....	399
Unison Research Aria S2, excellent.....	499

Digital

Accuphase DP100, excellent boxed.....	3749
Arcam Alpha 8, excellent.....	149
Arcam CD92, excellent.....	249
Audiolab 8000DAC, vgc+.....	199
Audiolab 8200CD, nr mint boxed.....	549
Audio Analogue Crescendo CD, as new.....	499
Audio Note CD2, vgc.....	349
Cambridge Audio DACMagic, excellent.....	999
Copland CDA266, excellent.....	449
Cyrus DACXP+, boxed just serviced.....	999
Cyrus CDXT2, boxed new laser from Cyrus.....	499
Esoteric X05, excellent boxed.....	1999
Goldenote Koala, near mint boxed.....	759
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Leema Stream 3, nr mint boxed.....	649
Logitech Squeezebox Touch, excellent.....	199
Mark Levinson 360 DAC, excellent boxed.....	1099
Marantz CD6002, excellent.....	99
Marantz NA7004.....	249
Marantz CD80, battleship player.....	299
Meridian 200/203, vgc.....	399
Meridian 588, excellent boxed.....	849
Micromega Duo with Duo BS DAC, excellent.....	549
Musical Fidelity A5CD, excellent.....	549
Musical Fidelity Nu Vista CD, excellent boxed.....	899
NAIM CDX2, excellent boxed remote.....	1299
NAIM CD5/2, excellent boxed remote.....	549
Quad CDP99/2, excellent boxed.....	Call
Quad CDP99/2, excellent boxed.....	499
Rega Planet, excellent boxed.....	199
Sony SCD777es, excellent boxed.....	949

AV/Accessories/Cables

Apollo Racks, various ex demo.....	Call
Cyrus PSXR, from.....	229
Isotek Aquarius ex demo.....	Call
NAIM XPS2, (2004), bumdy, excellent boxed.....	1399
NAIM Supercap 2 (2010), excellent boxed, Bumdy, SNAIC.....	2399
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B&W 685 c/w matching stands.....	349
B&W 800D, near mint.....	9499
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Focal Electra 1028Be, as new.....	2749
Focal 806V, excellent boxed.....	329
Kudos C30 in Cherry due in.....	Call
Kudos C1, early pair.....	Call
Kudos C2, ex-demo boxed.....	949
Linn Sara with matching stands, vgc+.....	349
Martin Logan Aerials i, excellent boxed.....	799
Martin Logan Aeon, vgc.....	899
Martin Logan Source, excellent boxed ex demo.....	899
Martin Logan Purity, excellent boxed ex demo.....	1299
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Spendor S3/5r, due in.....	Call
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AUDIO INNOVATIONS 1000 SILVER PRE	EXCLT	£749
KRELL 402 STEREO POWER AMP LITTLE USE	MINT/BOXED	£6450
PATHOS INPOWER CLASS A HYBRID MONO'S (SUPERB £9K?)	EXCLT	£4250
DENSEN B200 PRE/GIZMO & B300XS POWER AMP	MINT/BOXED	£1850
BEL CANTO PRE-3 & S300 AMPLIFIERS	AS NEW/BOXED	£1695
TALK ELECTRONICS TORNADO 4 MONOBLOCKS	EXCLT/BOXED	£795
TALK ELECTRONICS TORNADO 5 MONOBLOCKS	EXCLT/BOXED	£995
TRIO L07-C PRE AMP WITH MM/MC/STAGE(RARE)	EXCLT	£695
TRIO L05-M MONOBLOCKS (VERY RARE)	DEM	£695
MARANTZ MA-700 200 WATT MONOBLOCKS	DEM/BOXED	£595
H-CAT P-12A PRE AMP (£2500?)	DEM	£995
H-CAT P-12B PRE AMP (£2500?)	DEM	£1495
PASS LABS ALEPH PRE AMP (REAL HI-END)	EXCLT	£1195
MERIDIAN 501 PRE AMP	MINT/BOXED	£395
LYNGDORF SDAI 2175 INTEGRATED	EX DEM/BOXED	£1295
MARANTZ PM11 S2 INTEGRATED (£3300)	EXCLT	£1695
DENON PMA-QS101 30 KILO INTEGRATED	EXCLT/BOXED	£995
JOHN SHEARNE 2.5 INTEGRATED AMP	EXCLT	£450
JOHN SHEARNE 3.5 POWER AMP	EXCLT	£450
ADVANTAGE 200 INTEGRATED AMP (£1800?)	EXCLT/BOXED	£895
MUSICAL FIDELITY X-CANS V-3	AS NEW/BOXED	£275
MUSICAL FIDELITY A-1 INTEGRATED	EXCLT	£275

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ANTIQUE SOUNDLABS AQ-1009 845 MONOBLOCKS	EX DEM	£2995
ROGUE AUDIO 150 MONOBLOCKS (new old stock)	BOXED	£2995
AUDIO RESEARCH VS-110 POWER AMP	AS NEW/BOXED	£2450
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ANTIQUE SOUNDLABS MINI PHONO 2 BOX	VCG	£295
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MICROMEGA STAGE 2CD PLAYER	MINT	£199
MUSICAL FIDELITY CDT VALVE CD PLAYER	£299	

LOUDSPEAKERS

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FAB AUDIO FAB-1 FERRARI RED	BOXED	£4795
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SPENDOR LS35A MATCHED PAIR	EXCLT	£995
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SNELL C MKIV AMERICAN WALNUT (SUPERB)	EXCLT	£1250
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In recent times there has been renewed interest in valve amplifiers for their musical qualities. Single Ended* designs are interesting as they strip away a whole layer of components including the "phase splitter" valve, leaving the bare essentials of a valve amplifier to work their magic. But until now the power of many of these amplifiers has been limited to about nine watts unless exotic high power triodes are used, which are out of the reach of many people's pockets. Unfortunately nine Watts is just too low for many of today's modern speakers especially if you listen to orchestral works or rock music.

The recent introduction of the Tung Sol KT120** super beam pentode gave us the opportunity to design a new amplifier using only two valves to obtain power of 16 Watts in Triode or 27 Watts in Ultralinear configuration. Designed with equal emphasis on Triode and Ultralinear this amplifier will provide very good volume levels with most loudspeakers having three times the power than a single 300B valve.

Because the MB30s are mono blocks they each get an independent power transformer, a valve rectifier and a custom designed choke, giving the best possible quality of power. A wide range of operating conditions are available including 8 Ohm and 4 Ohm speaker taps and low and high sensitivity switch for operation with or without a pre-amplifier. The output transformers are our own LDT tertiary wound type having excellent bandwidth and dynamics, together with low distortion. A built in meter allows a very simple way to check that the output valves are operating at their optimum value and best performance. This will also tell you when a valve is due for replacement.

There are also things we **don't** include like printed circuit boards and transistors both of which we feel degrade the performance of valve amplifiers. The MB30 is an ideal match to our MFV (Made For Valves) and new Full Range loudspeakers. See our website for details.

Our four cornerstones are **Quality Performance Value**, and future, **Service** when you need it. In this age of "built in obsolescence" it may be unfashionable to talk about repairs and spares but our commitment to future service means you should be able to enjoy your amplifier for at least 20 years. All of our amplifiers are designed and finished in Leicester they are commissioned and serviced by the people that designed them so you can be sure of our quality control and long term performance. 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 hand made using "point to point" soldering without using printed circuit boards. We are convinced this sounds better. It also allows for easy servicing, upgrades and modifications. High quality components are used throughout.

*Using one output valve rather than the usual two in "push pull". **Also tested with the forthcoming Shuguang and Psvane KT120.

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to; it also best controls loudspeakers which are designed to have a smooth, warm, and full-bodied sound. The MB30 offers a good 20 Watts of power in Ultra Linear mode, and likely strong bass with Low sensitivity selected (default modes). In can be switched to Triode and low feedback for a more purist approach if desired. It measured well and should deliver fine sound quality. NK

Power 20watts
Frequency response 7Hz-22kHz
Noise -113dB
Distortion 0.2%
Sensitivity 800mV
Damping factor 6.8

VERDICT
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Sony TA-AH1	£5,990	Spectral Audio DMA 100s & DMC 12	£3,490	Martin Logan Summit	£5,500	Luxman M800A stereo power	£3,990
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Boulder 2010 Pre Amp	£9,990	Wilson Audio Watt Puppy 7	£6,750	Martin Logan Ascent	£1,690	Luxman D08 cd player	£8,990
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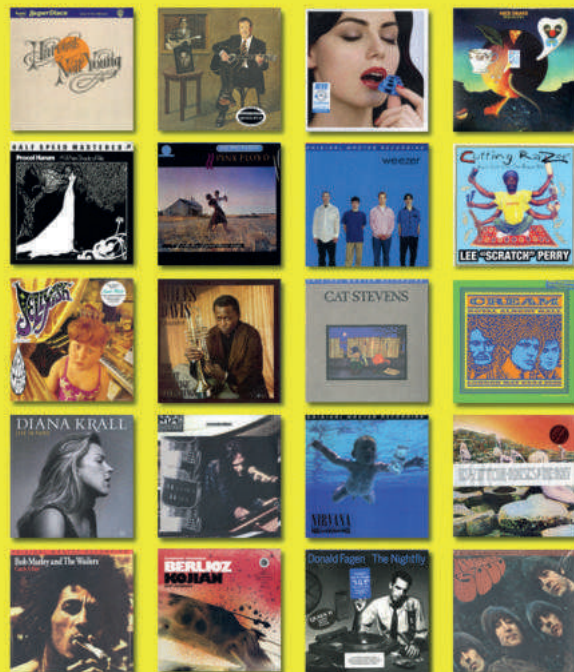
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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Have you recently been asked to recommend high-end hi-fi to buy?

Ken Kessler has...

Once more, my usual caveat of 'Far be it for me to betray even a hint of optimism,' but I keep detecting little rays of sunshine, *vis-à-vis* the high-end. They're disparate, and I am too seasoned a *kvetch* to think for a moment that there's actually a high-end revolution happening. No, make that simply a 'hi-fi revolution'.

This column has already dealt with the misleading reports of a vinyl revival – which rankle me no end – so anybody picking up on the teensy clues which suggest a bit of regained ground shouldn't make too big a deal out of it. I couldn't bear to see too many hopes dashed.

Here are some f'rinstances, in no particular order. I shall discount Panglossian chats with manufacturers and distributors putting on brave faces out of necessity, but I do take on board what is verifiable, eg, someone boasting that 'Brand X's' sales are up 100% on last year. Until I find out that they sold four units instead of two.

Obviously, what's happening on the street differs from what one hears from trade contacts – to which I'm exposed on a daily basis. But I do try to keep in touch with reality. Example: anyone who asks me 'What amp/speakers/turntable should I buy?' is probably someone I know personally (precisely as happens with you as

a 'known' audiophile collared in the pub or at work), but the frequency of the requests is increasing at a noticeable rate.

This past December, a fashion editor whom I've known for some years – we actually met at an opera – asked me 'What system should I buy?' As she was young, gorgeous and female, my stereotypical reaction – the shameful preconception – would have been to ask, how much do you want to spend on an iPod dock? Rather, she asked about proper separates: an amp, CD player, turntable and speakers.

YET MORE QUESTIONS...

This followed hot on the heels of an executive – late 20s, maybe early 30s – for an extremely luxurious watch brand wanting 'quality speakers' for a custom installation. Another based in Singapore asked the same, wishing to avoid the default brand that rhymes with 'woes'.

To put this into context, I have had more queries of this sort in the last three months than in the past three years. That, to me, is a notable increase, but I'm not yet ready to alert Sky News or the BBC.

On the other hand... I was astonished to be asked to write about high-end hardware for mainstream newspapers. In two instances, I was told specifically to include 'serious audio kit' in their seasonal

gift guides. For another, I've been invited to write a blog for their luxury website, 'dealing with high-tech stuff that also looks amazing'. What blew me away was that the editor requested a piece of 'outrageous' hi-fi equipment. Lizard-skin-clad cameras and temperature-controlled wine cellars will have to wait.

To put this into context (as with the relationship of total LP sales to, er, reality), one of those newspapers' daily editions will sell more copies than all the world's hi-fi magazines combined do every month. Maybe every year.

COSTLY PROJECTS

Next f'rinstance: I've already written in this column about the attention now being paid to high-end brands by the big luxury groups – who do not invest in losers. While I'm still waiting for this interest to demonstrate its worth in more high-profile manifestations like last year's unveiling of Hublot's special edition Monster headphones, one has to hope it may one day be referred to as 'the high-end's rite of passage' into a more professional attitude.

Just published is the first of *The Absolute Sound's* three-volume history of high-end audio. I've been approached to write at least three and as many as five more lavish hi-fi histories before I retire.

These are costly projects that, while adding a certain measure of gravitas and prestige to our beloved obsession, are also promotional vehicles. They are not the artefacts of failure but demonstrations of substance, worth, and authenticity.

And if I have any say in the matter, they will be shouted about beyond the confines of the audio community. And I don't just mean the internet.

While the survival of books in the face of Kindle is identical to the health of physical music carriers versus downloads, one thing remains true as far as I can tell: the man/woman on the street derives greater credibility from printed matter than web pages, despite the immediacy and omnipresence of the latter.

Physical newspapers ain't dead yet. Indeed, the revolution may start there. But, hey, let's not get carried away, OK? ☺

'What's happening on the street differs from what one hears in the trade'

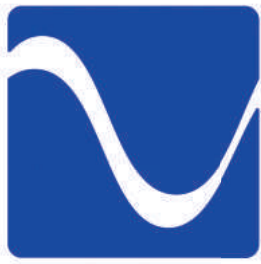
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