

# hi-fi news

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## MELODY MAKERS

Astell&Kern **AK500N**  
 hi-res network player +  
 Mark Levinson **No585** amp



**Jadis I-50**  
 Gallic tube integrated

**NAD M12/M22**  
 Masterful pre/power

**Vinyl premiere**  
 Acoustic Signature's  
 TA-1000 tonearm

**Budget Esoterica**  
 Marantz HD-DAC1

**Dynaudio 400 XD**  
 The 'connected' loudspeaker



**INVESTIGATION**  
**HD Streaming**  
 'Meridian's MQA is a  
 musical milestone' p22

**Classical Companion**  
 Klemperer's Beethoven

• **PLUS** 18 pages of music reviews & features • **VINYL RE-RELEASE** The Replacements' *All Shook Down*  
 • **OPINION** 12 pages of letters and comment • **VINTAGE REVIEW** Kolster-Brandes' pre/power combo  
 • **SHOW BLOG** KK's spin from International CES 2015 • **READERS' CLASSIFIEDS** Hi-fi bargains galore

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APRIL 15

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FREE! Chord Crimson VEE 3 interconnect See page 88





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KEF R500, Hi-Fi News & Record Review, November 2014



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# oppo

## HA-1

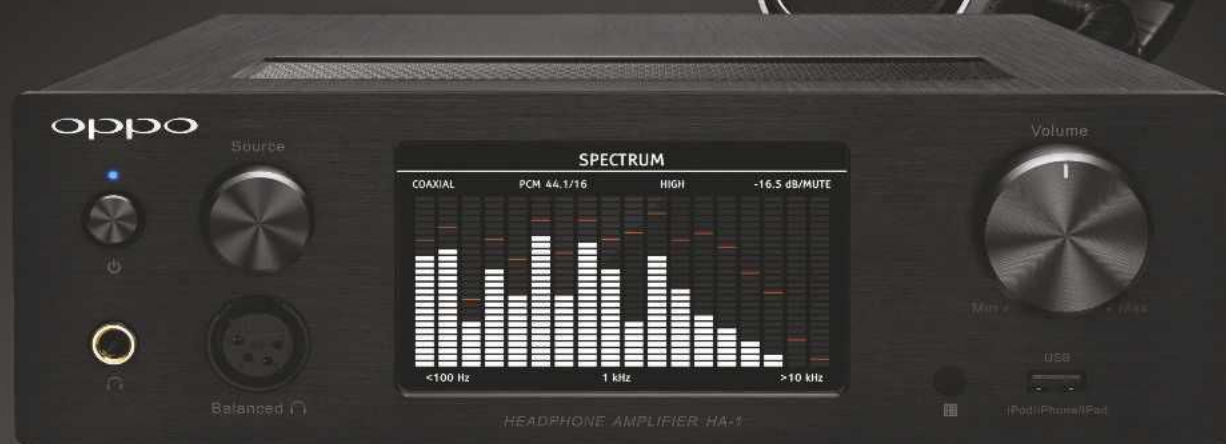
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JULY 2014

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# Asimi Ultra RCA Interconnect

hi-finews  
EDITOR'S  
CHOICE

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*HiFi News,  
December 2014*

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Go Deeper

# Hugo, the DAC by which all others are judged

“Superb”

★★★★★

*What Hi-Fi Sound and Vision,  
group test winner*

“A landmark digital product”

★★★★★

*Editor's Choice, Hi-Fi Choice*

“Chord's best-ever DAC”

*Hi-Fi +*

“Spectacular”

*Ken Kessler, The Telegraph*

“Breaks all records”

★★★★★

*Hi-Fi World*

“A game-changer”

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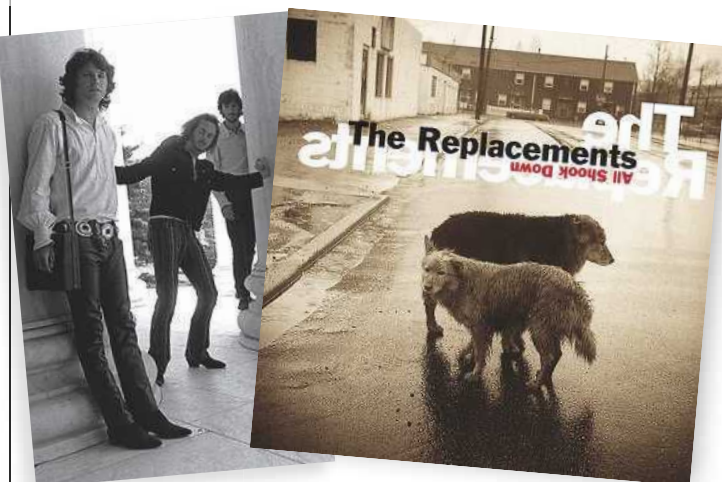


**ABOVE:** Marantz's superb HD-DAC1 compact USB/headphone amp, p68



**ABOVE:** A brace of KT150s powers the new Jadis I-50 integrated, p48

PAUL FERRARA



**VINYL:** The last Doors album recorded with Jim Morrison, *L.A. Woman*, is this month's Vinyl Icon (p78), while Steve Sutherland reassesses The Replacements' *All Shook Down*, re-released on 180g (p76)

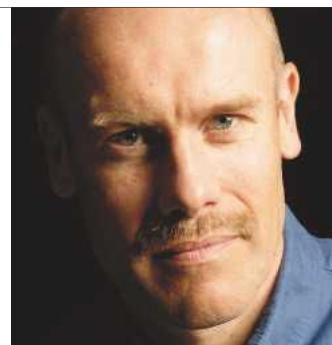
**RIGHT:** *Hi-Fi News & RR* is the exclusive UK representative of EISA's Hi-Fi Expert Group and editor Paul Miller is EISA's Hi-Fi Expert Group Manager



Is the music business, or at least our consumption of it, turning ever more 'virtual'? Compact disc sales, the principal indicator of physical media, have been in decline for many years. The vinyl diehards among us have been tempted to suggest the analogue LP revival has been crushing CD underfoot, but the plain truth is that music downloads and streaming services are sounding the silver disc's death knell. But is this new musical age any less volatile?

The IFPI (International Federation of the Phonographic Industry) has reported significant year-on-year growth in subscription services such as Spotify which are gaining ground on the file download market. As audio enthusiasts, we are principally interested in high-res downloads, not compressed formats, but the drive to streaming is still fundamentally changing the way a new generation of listeners engages with music.

At least a hi-res download with its PDF sleeve notes 'exists' as a file on a hard drive, but this remains a universe away from the theatre of unsleeving an LP and spinning up a turntable. While cloud-based streaming removes any last connection we might have with the touch and feel of music media, it's still one possible future – albeit one that's no guaranteed pot of gold.



In mid-February, MBW (Music Business Worldwide) reported Tidal/WiMP parent company Aspiro's admission that 'given the current strategic plan and the associated capital needs, the company is not fully funded for the coming twelve months'.

Investment is on the horizon and Tidal, with its support for better-than-CD resolution streaming is rapidly becoming

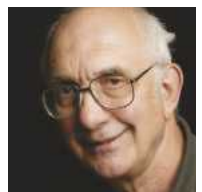
## 'Meridian's MQA may be the saviour of HD streaming'

the darling of digital audio's high-end. Overcoming internet/Wi-Fi bandwidth limitations for high quality listening on the move would certainly provide access to a wider audience.

Somewhat fortuitously, Meridian's new MQA rendering process – which offers a method of delivering hi-res audio without the hindrance of hi-res file sizes – might just prove the saviour of audiophile streaming [see p22].

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



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



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



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



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



# Networked Naim

NAIM UNVEILS NEW COMBINED NETWORK MUSIC PLAYER, DAC AND PREAMPLIFIER

Combining a classic analogue Naim preamplifier with digital network audio player in one chassis has stretched the talents of this Salisbury-based design team. Conceived to bring new customers into the Naim fold, the £3300 NAC-N 272 is also the first of its DACs to recognise DSD files, either via USB or streamed over a home network.

The roster of supported music sources includes UPnP hi-res streaming, Bluetooth (aptX), Spotify Connect, internet radio and DAB+/FM (a £295 option). Support for DSD files extends across Ethernet, USB and coaxial S/PDIF inputs – all digital media being buffered and processed via Naim's 40-bit upsampling/filtering software running on a SHARC DSP.

In addition to the wired and wireless Ethernet and front-mounted USB-A ports, other sources are shared across six S/PDIF digital connections (three coaxial, three optical) and three 'legacy' analogue inputs (one DIN, two on stereo RCAs). The same combination of fixed and variable analogue preamp outputs is also offered, the digitally-governed (opto-

isolated) volume control taking its cues from the flagship Statement NAC S1 preamp. Similarly, the final analogue stage/Class A headphone amp is based around Naim's discrete five-pole Sallen-Key filter.

Finally, and despite featuring a large toroidal-based PSU with multiple windings and

regulation, the NAC-N 272 may be further upgraded with Naim's XP5 XS, XPS and 555PS outboard power supplies.

**Naim Audio Ltd,**  
**01722 426600;**  
**www.naimaudio.com**



## Hugo re-homed

CHORD'S MKII AMP MERGES HUGO TECH



Described loosely as a 'digital' integrated amplifier, the mkII version of Chord's 120W (170W/4ohm) CPM 2800 now incorporates an FPGA-based D/A stage inspired by its Hugo and 2Qute DACs. The amp offers support for 384kHz/32-bit audio files over BNC and USB, and 192kHz/24-bit over optical. DSD64 is supported on all inputs and DSD128 via either the BNC or USB inputs, all via DoP. The CPM 2800 MkII also includes wireless connectivity via Chord's custom-designed aptX/A2DP Bluetooth receiver which offers simple pairing over a 30m range. Price is £6690.

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

## HI-FI NEWS' NUGGETS

### EXTRA EXPOSURE

Promising more 'bang for its buck' the fourth generation of Exposure's renowned 3010 integrated amp now comes with a £325 DAC option in addition to £240 MM and MC phono stages. The plug-in DAC card includes USB and BNC digital inputs, supporting 192kHz/24-bit LPCM and DSD64 music files. The basic price of the 110W/8ohm 3010S2-D amplifier is £1700 in silver or black.  
**www.exposurehifi.com**

### VENUS BY ISOTEK

New to the Isotek Discovery range and priced at £325, the EVO3 Venus AV power centre is a five-outlet mains conditioner designed to enhance and protect a complete audio or AV system. Each outlet is independently filtered of common and differential mode noise and equipped to offer a claimed 13,500A of 'instantaneous' surge protection. The rated maximum continuous loading is 10A/2.3kW.  
**www.isoteksystems.com**

## More Magico

MAGICO'S FLAGSHIP Q7 REFINED

Inspired by the technologies unveiled in its limited-edition M-Project loudspeaker, Magico has incorporated a new tweeter, midrange and crossover into its 340kg flagship Q7. The tweeter now has a slightly larger (28mm) diamond-coated beryllium dome while the 150mm midrange driver features a new Graphene-based cone material and massive neodymium-magnet motor system. Existing Q7 owners are being offered an upgrade.

**Magico LLC, 0208 971 3909;**  
**www.magico.net;**  
**www.absolutesounds.com**



## Supercharged Cyrus

FIRST CLASS D AMP FROM CAMBRIDGE-BASED BRAND

The quest for more watts without breaching the compact chassis that distinguishes all its separates has led Cyrus to develop a new power amp. The Stereo 200 is rated at 2x200W and combines a traditional linear PSU with an efficient Class D power amp design, the latter employing Speaker Impedance Detection (SID) to maintain its response into different speaker loads. Price is £1750. **Cyrus Audio Ltd, 01480 435577; www.cyrusaudio.com**



## Wadia music hub

NEW MEDIA STORAGE, STREAMING AND PLAYBACK PLATFORM



Based around a 1TB SDD that hosts both OS and player, Wadia's m330 media server offers access to locally stored and internet-based digital

music from a single chassis. External drives are supported via USB and eSata ports. **Wadia Ltd; 0208 971 3909 www.wadia.com**

## Audiolab's digital drive

M-DAC, Q-DAC AND M-PWR JOINED BY A CD TRANSPORT

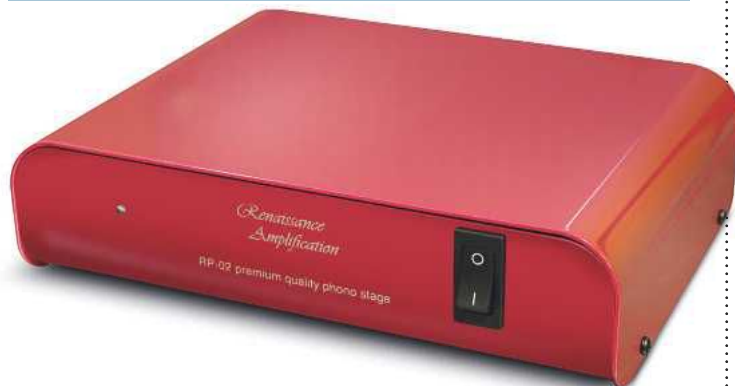


Latest addition to Audiolab's bijou LAB series separates is this slot-loading M-CDT transport. Priced at just £399 and offering both coaxial and optical S/PDIF outputs, it's the

perfect CD-playing partner for the award-winning M-DAC standalone converter. Finishes include silver and black. **Audiolab, 01480 447700; www.audiolab.co.uk**

## Vinyl Renaissance

RENAISSANCE AMPLIFICATION'S PREMIUM PHONO PREAMP



Billed as a one-stop 'fit and forget' phono stage, the £750 Renaissance Amplification RP-02 offers a fixed loading and gain solution for MM and MC pick-ups. Gold-plated RCA phono inputs are fitted for stereo input and output while a series of jumpers (all on the rear

panel) configure the RP-02 for use with MM (40dB gain, 47kohm loading) or MC (60dB gain, 50ohm loading). The sleek all-aluminium case is available in either black or red/pink metallic paint finishes. **IES Ltd, 023 9266 8282; www.higendaudio.co.uk**

## HI-FI NEWS? JUST ASK...

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## Upcoming Events

IMPORTANT DATES FOR YOUR HI-FI DIARY

- 09-12 APR** Hi-Fi & High End, Crocus Expo Centre, Moscow, Russia
- 14-17 MAY** High End Show, M.O.C, Munich, Germany; [www.higendsociety.de](http://www.higendsociety.de)
- 29-31 MAY** T.H.E. Show, Hilton Hotel, Newport Beach, CA, USA
- 04-09 SEP** IFA Berlin, The International Funkausstellung, Germany <http://b2c.ifa-berlin.de>
- 24-25 OCT** The Hi-Fi Show Live 2015, Beaumont Estate, Windsor; [www.hifinews.co.uk/show](http://www.hifinews.co.uk/show)



# International CES 2015 (pt2)

Words & pictures: Ken Kessler



International CES 2015 was – unsurprisingly – bursting at the seams with new product. As ever, it overwhelms. We saw the mock-up of the still-gestating Wilson WAMM speaker, Audeze launched a headphone at half the price of the LCD-X, Clearaudio showed a cool ultrasonic LP cleaner and one of the world's costliest MCs was unveiled by Air Tight.

Meanwhile, the Aspiro Group's Tidal has been embraced as streaming's salvation, the place was awash with tubes and vinyl, I finally met SAE's Morris Kessler [see p19] and I was more than a little disappointed at the Nakamichi brand's new direction. And I'm still reeling from the mind-boggling 3D sound demo by Professor Edgar Choueiri [see PM's report, *HFN* Mar '15].

Says Cary, its new TL-300d tube linestage is 'The Perfect Mix of Analog and Digital'. In addition to four analogue inputs, it offers five digital inputs including asynchronous USB, aptX Bluetooth, two coaxial, Toslink and AES/EBU. Its digital processing is capable of dealing with 384kHz/32-bit PCM signals and 64/128/256 DSD signals. D-to-A conversion is handled by four DACs. [www.caryaudio.com](http://www.caryaudio.com)



Hyperactive Aurender showed a dazzling array of digital products, both full-size and portable, including the N10 Network Music Player. A cross between a streamer and a server, the N10 houses a 1TB SSD and has enormous caching, announced as 120GB but likely to be double that. This features the company's linear power supply, and is one of a number of products supporting Tidal streaming. [www.aurender.com](http://www.aurender.com)

Handsome in red, white, piano black or four other hues, Muraudio's Domain Omni PX1 (also available as the DA1 with built-in 2x350W amplification) features an upper section containing a 'continuous' curve electrostatic speaker – a cylinder comprised of three 120° panels for 360° dispersion. Bass is handled by three 250mm woofers per column. [www.muraudio.com](http://www.muraudio.com)



Verity's Lohengrin IIS features all-proprietary drivers, and the speaker complement is impressive, starting with a pure aluminium foil 2in ribbon tweeter that's built entirely in-house. Doped polypropylene is used for the 15in woofer and 9in lower-mid driver, while the midband is covered by a 5in driver. Dimensions are 1590x485x596mm (hwd). [www.verityaudio.com](http://www.verityaudio.com)





While the buzz at Wilson Audio was focused on the mock-up of the forthcoming WAMM, the company showed but didn't demonstrate a new single-piece floorstander called the Sabrina, to come in below the Sophia. Specs are not yet available, but this rear-ported three-way system appears to share drivers with the Sophia 3, in a narrower enclosure. It's Wilson's prettiest loudspeaker to date. [www.wilsonaudio.com](http://www.wilsonaudio.com)



French brand Atoll, sharing a room with Gallic speaker-maker Waterfall, showed a new preamplifier/headphone amp/DAC, the HD100, seen here astride the AM50 power amp. It will feed two headphones, and accepts two line sources, one coaxial digital (384kHz/32-bit), one optical (192kHz/24-bit) and one USB (96kHz/24-bit). [www.atoll-electronique.com](http://www.atoll-electronique.com)



A second handsome turntable has arrived from Spiral Groove. Called the Revolution it uses the company's 'Balanced Force Design' approach; a multi-layer, multi-material body; platter with sloped circumference; inverted sapphire disc/hardened steel bearing and an AC synchronous motor with outboard power supply. [www.spiral-groove.com](http://www.spiral-groove.com)

Unison Research, whose parent company is Opera, showed a speaker called the Max 1. This stout floorstander is a front-firing reflex design, with a 12in woofer and 1in compression driver, crossing over at 2kHz with 12dB/octave slopes. Sensitivity is a claimed 94dB/1W while dimensions are 950x350x450mm (hwd). [www.unisonresearch.com](http://www.unisonresearch.com)



Not a loudspeaker but an amplifier was the talk of Vandersteen, the oft-seen M7-HPA Monoblock now exhibited in finished form. A hybrid tube design with liquid cooling, good for 600W/4ohm. What's unusual about it is the 100Hz high-pass filter, tailored to mate with the company's speakers with powered woofers. Still, that won't stop others from using it, especially with powered subs. [www.vandersteen.com](http://www.vandersteen.com)

Dared's Saturn Signature Class A integrated amp caught my eye because of the prominence of the new KT150 valve. Here it's used as a single-ended triode, delivering a conservative 25W/ch in Pure Class A. Sources include four line level inputs and a USB DAC capable of 384kHz/32-bit processing. [www.dared.com.hk](http://www.dared.com.hk)



Ayre

# Fresh Ayre



With the introduction of the AX-5, Ayre has taken a fresh approach and breathed new life into the Integrated amplifier.

Integrating a number of unique innovations together has allowed Ayre to create an elegant single-chassis design, without sacrificing functionality and Ayre's award-winning sound.

**In the words of Charles Hansen (CEO & Head of R&D at Ayre):**

'In the simplest view, the Ayre AX-5 is an amalgamation of the Ayre AX-7 and the Ayre KX-R. Yet in another way, the AX-5 is the most radical integrated amplifier ever designed.'

**For the full story please go to [www.symmetry-systems.co.uk](http://www.symmetry-systems.co.uk).**



t: 01727 865488

e: [info@symmetry-systems.co.uk](mailto:info@symmetry-systems.co.uk)

w: [www.symmetry-systems.co.uk](http://www.symmetry-systems.co.uk)





It was bound to happen: headphones with built-in amplifiers. Mo-Fi's Blue contains a 240mW 'custom high-powered audiophile amplifier' driving a 50mm, fibre-reinforced dynamic driver in each sealed earcup. The rechargeable battery provides up to 12 hours of playtime; clever circuitry allows the Mo-Fi to continue to play if the power runs out as they can be used conventionally in passive mode. Another setting boosts bass. [www.mofiheadphones.com](http://www.mofiheadphones.com)



SAE is back with a beast of an amp! The 2HP is so-named because it's said to deliver 2x746W, or 'one horsepower per fully differential push/pull channel'. Another claim is that it is the quietest amplifier ever made, the engineers allegedly measuring it as having a >128dB signal-to-noise ratio. See here is a prototype with polished steel fascia unlikely to reach production. [www.hear-sae.com](http://www.hear-sae.com)



Yes, that is the familiar 'N' logo of the once-great Nakamichi. Now the former cassette deck giant has been relegated to headphones, illuminated Bluetooth speakers and plastic paraphernalia like this lemon-yellow 'smile'. Called the Prismo, it's a Wi-Fi playback system. The Diesel RP1 is arguably more garish still. [www.nakamichi-usa.com](http://www.nakamichi-usa.com)

Crystal Acoustics' WiSound Cuby 7 offers pretty good performance for a contender in an unbelievably overcrowded genre – eg, Bluetooth all-in-ones selling for under £200 on Amazon. Features include line in via 3.5mm or two phono and an 'old school' optical digital input. [www.crystallaudiovideo.com](http://www.crystallaudiovideo.com)



Luxman's M-700u is a 120W/ch power amplifier boasting handsome retro looks thanks to the analogue meters. Features include a phase inverter switch, display switch, balanced and single-ended inputs, and what I think is a bridging facility; Japanese-English is not my forté. In which case, it delivers 420W as a monoblock. Dimensions are 440x190x427mm (whd). [www.luxman.com](http://www.luxman.com)

After nearly 50 years, KK finally meets his namesake (but alas, no relation): Morris Kessler, legendary founder of SAE and now head of Amplifier Technologies (ATI). Morris's hot news is the return of SAE, with a new power amplifier as seen above on this page. How I wish I'd recorded our chat! The man's a true gent. [www.ati-amp.com](http://www.ati-amp.com)







'CAS' stands for 'Ceramic Art Speakers', as that's what the enclosure is made of. The Yagura is the most 'normal'-looking of a range that includes numerous swirly-shaped models of an alien *mien*. This unit features a ribbon tweeter and metal cone drivers in an all-ceramic 1140x450x460mm (hwd) enclosure weighing 100kg. The speaker also features two 200mm woofers, one as the main driver and the other as a passive driver. [www.cas-audio.com](http://www.cas-audio.com)



Also on show from Dared [see p17] was the MARS Hybrid Vacuum Tube Amplifier, part of the company's Planet series. Weighing only 2kg with a footprint of 189x120mm, this cutie is said to deliver 25W/ch from its Class A MOSFET stage, driven by a 6N2 tube. It also delivers a claimed 3W to headphones. Inputs include one line source and a USB DAC. [www.dared.com.hk](http://www.dared.com.hk)



Roksan's Oxygene appeared in this stunning bronze-y finish. This is the CD Player, a sleek object that eliminates anything superfluous. I love this stuff, my go-to recommendation for people with an utter abhorrence of large and/or overly complex hi-fi equipment. [www.oxygene.roksanaudio.com](http://www.oxygene.roksanaudio.com)

Miura-san of Air Tight showed the PC-1 Magnum Opus, coming in at the pinnacle of the range with new, curvy body shape and a commensurate price tag. At \$15,000, it joins the rarefied strata of certain bespoke Koetsu and the Clearaudio Goldfinger Statement. Having used two of Miura-san's cartridges, I await this one with palpitating heart. [www.airtight-anm.com](http://www.airtight-anm.com)



Theta Digital arrived with two new versions of its flagship Music and Cinema Controller: the Casablanca IVa (seen here) and the Casablanca V. In 2015 form, the Casablanca IVa adds decoding for the new 3D audio formats: Dolby Atmos and Auro-3D, with future upgradeability to DTS:X. Casablanca V ups the output to 24 channels. [www.thetadigital.com](http://www.thetadigital.com)

A massive touchscreen dominates the front of Boulder Amplifiers' ambitious 2120 D/A Converter. This enables it to display cover art and all manner of information, including unit status, sample rate and metadata. Customisable via modules, inputs can include Ethernet, USB, HDMI, AES3, S/PDIF and Toslink. Construction incorporates four isolated chassis. [www.boulderamp.com](http://www.boulderamp.com)





## SHOWBLOG Sights and sounds from around the globe



Long awaited, the Audeze EL-8 headphone is a much smaller beastie than any of the massive LCD circular cup models. Like its highly-praised bigger siblings, the EL-8 features planar magnetic drivers. Also seen was a sealed-back version in prototype form, for users who want isolation in noisy environments, so expect to see them used in-flight. Price in the US is \$699. [www.audeze.com](http://www.audeze.com)



These speakers from Status Acoustics, dubbed Voce Fina, owe their visuals to cabinetry made of 2cm-thick granite, so no two pairs will look the same. Drivers are a 1in Scan-Speak soft dome tweeter and a 6.5in beryllium alloy cone woofer. Dimensions are 368x232x286mm (hwd). [www.statusacoustics.com](http://www.statusacoustics.com)

Test gear rarely figures in CES reports because so little appears at the show. However, Etani's tiny ASA-10 mkII Audio Sound Analyser does all of the usual stuff like real-time spectrum analysis, etc, but via apps... including cartridge testing! [www.etani.co.jp](http://www.etani.co.jp)



Two new integrals joined the Pass Laboratories line-up: the INT-60 and INT-250. Both accept four line inputs, there's a digital level display as well as analogue meter, volume rotary and mute button. Power per channel corresponds to the model number. [www.passlabs.com](http://www.passlabs.com)



Vivid may have been inspired by Porsche and Lamborghini, who now offer matte finishes. The Oval V1 was seen at CES bearing this rich Wedgwood Blue matte finish – the antithesis of the gloss the brand normally uses. Drive units include a 26mm metal dome tweeter and a 158mm metal coned woofer. Dimensions are 1130x255x240mm (hwd). [www.vividaudio.co.uk](http://www.vividaudio.co.uk)



FireBoy (top) and FireJoe hail from Japan, the former a valve-equipped DAC and the latter a power amp. FireBoy has headphone and preamp outputs, and accepts Apple AirPlay and Android DLNA Wi-Fi, USB and line-in. FireJoe is rated at 40W/ch. Note the literature says 'Fire', the fascias say 'Frie'! [www.jaben.com](http://www.jaben.com)

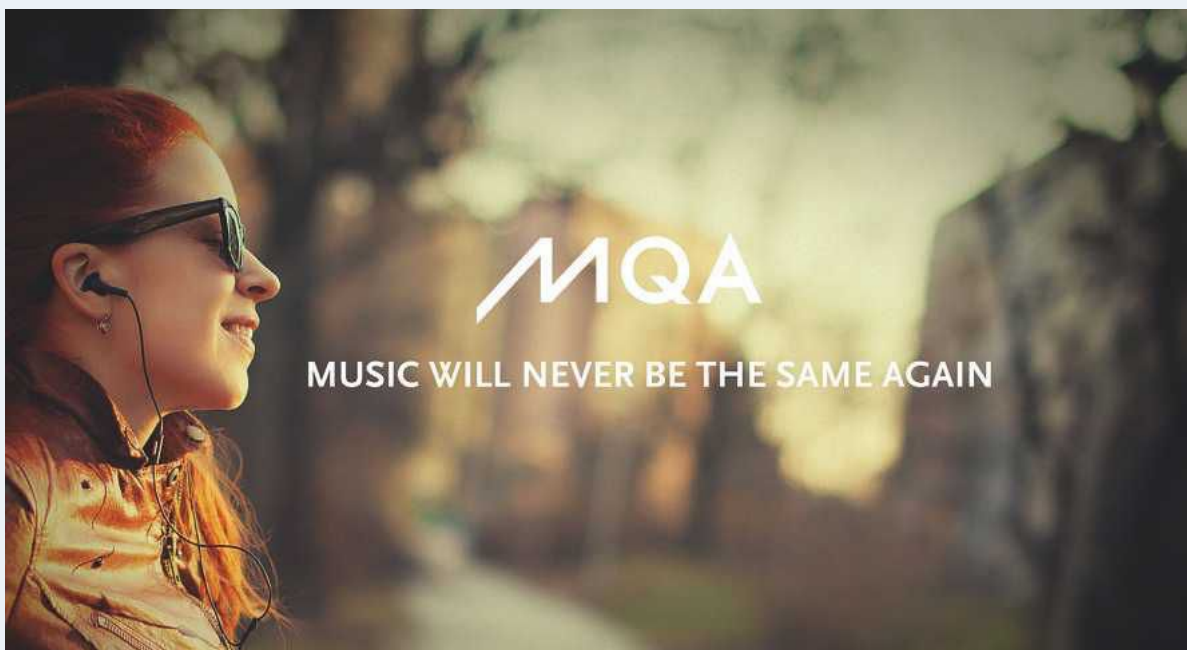
# Next month

Paul Miller reports from  
The Bristol Sound & Vision Show

# Master sound, minor size

Keith Howard on how Meridian's MQA promises hi-res sound at low-res rates

**RIGHT:** MQA technology is said to be an entirely new way of capturing recorded music digitally that not only trumps the sound quality of current hi-res formats but does not require high data rates. It is also backwards compatible. For more see [www.musicischanging.com](http://www.musicischanging.com)



Real breakthroughs – not the ones that PR men peddle to the credulous every week – are rare in audio technology. Not every hi-fi historian, whether of the academic or armchair variety, would come up with the same list but items like the triode valve, negative feedback, stereo, FM radio, the tape recorder, the LP record, the transistor, the acoustic suspension loudspeaker, Ambisonics and the compact disc would feature in many and the roll, crucially, would be quite short.

**RIGHT:** Bob Stuart founded Meridian, with Allen Boothroyd, in 1977. He is now Meridian Audio's chairman and CTO. The company was the first to market active speakers for the home user and the first British company to manufacture a CD player



Although it's early days, it seems certain that the latest concept to emerge from the fertile brain of Meridian Audio's Bob Stuart and his long-time collaborator Peter Craven is about to add itself to the list. It's called MQA – Master Quality Authenticated – and it's a thoroughgoing attempt to close the gap that has opened up in audio between convenience and performance, the first epitomised by lossy compression schemes like MP3 and AAC which reduce file size sufficiently for a substantial music collection to be carried about in a hand-held device, and the second by hi-res, uncompressed audio files which can occupy 72x the memory or more (this comparison for a 128kb/s compressed file versus a stereo, 192kHz/24-bit one).

## UNPRECEDENTED SOUND

But MQA is more than a technology, more than a means of achieving unprecedented sound quality at reduced data rates: it is a new philosophy applied to the digital

coding of audio signals in which the old way of viewing the problem – centred on communication theory and the work of Claude Shannon – is replaced by a human-centric approach in which the capabilities of the human auditory system dictate the performance requirements, and not merely in respect of familiar

concepts like bandwidth, signal-to-noise ratio and distortion.

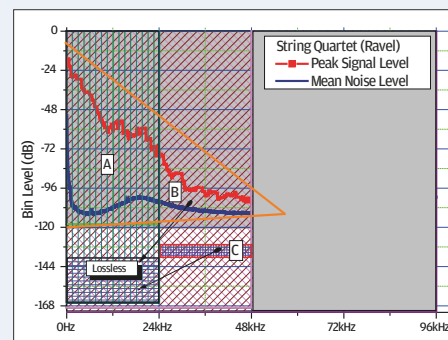
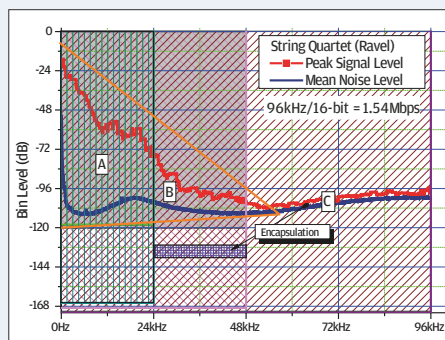
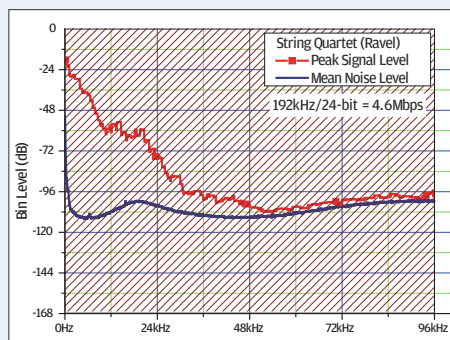
This revolutionary approach is summed up in MQA's stated aim

of introducing no more 'harm' to an audio signal than it suffers in passing through a few metres of air.

MQA removes the distinction between convenience and quality by, it is claimed, providing even better sound quality than that delivered by current 96kHz/24-bit or 192kHz/24-bit recordings but at significantly reduced data rate. In practice this means a file that can typically be streamed at a 1Mb/sec average data rate or replayed over any 44.1kHz/24-bit or 48kHz capable device provided, of course, that an MQA decoder is fitted. The

'MQA is more than technology – it's a new philosophy'





download file, which is around 1.4Mbps, has full legacy backwards compatibility which means that even if a decoder is absent the file will still play, albeit without the sound quality improvement.

## HOW DOES IT WORK?

Although MQA has been in development for some years, Bob Stuart didn't begin to talk publicly about what he and his collaborators have created until last year. He and Peter Craven (well known for his previous work developing apodising filters with Meridian) co-presented a lecture at the Audio Engineering Society UK section last June, and a paper containing broadly the same information was presented at the AES Convention in Los Angeles in October. Then, shortly before Christmas, a press launch was held at The Shard in London and another took place in New York.

The information presented at these events was tantalisingly incomplete, but the picture becomes clearer when combined with the text of two patent applications, now in the public domain: 'Doubly compatible lossless audio bandwidth extension' (GB2503110) and 'Digital encapsulation of audio signals' (WO 2014/108677).

Both can be downloaded as PDFs from Espacenet ([worldwide.espacenet.com](http://worldwide.espacenet.com)) but, be warned, they are long and complex. What's more, a further six applications relating to the technology have yet to be published.

So how does it work? In its aim to convey the inherent sound quality of analogue and digital masters with unprecedented fidelity, MQA puts an emphasis on time domain performance over frequency domain performance, a thread which can be traced back to Peter Craven's

Meridian-sponsored work on apodising filters. In effect, Meridian has bought into the notion that the steep low-pass anti-aliasing and reconstruction filters of classical digital audio practice add audible 'time smear' or 'blur'.

It's an idea with a long history in high-end audio that encompasses Mike Story's work at dCS and stretches back to Bob Moses' DigiMaster filtering system, introduced in the Wadia 2000 Decoding Computer of 1989 (and presaged by an IEEE paper of two years earlier). But MQA takes this concern with time domain performance to unprecedented heights. It sets as its target 10µs time resolution with extant recordings and considers 3µs to be desirable for future audio archives.

The first of those figures, 10µs, might seem to imply that conventional 96kHz recording – for which the sampling period is 10.4µs – ought to be sufficient, but this is to ignore the effect of the anti-alias and reconstruction filters which have the effect of elongating the system impulse



**ABOVE LEFT:** [Fig. 1] Shannon diagram showing the coding space for a 192kHz/24-bit recording with the peak and average noise spectra of a piece of music (a string quartet)

**TOP:** [Fig. 2] In the first 'fold' of MQA processing, called encapsulation, the data in the upper half of the spectrum is stored within the lower half, then the signal is downsampled by a factor of two from 192kHz to a 96kHz sampling rate

**ABOVE RIGHT:** [Fig. 3] In the second fold, the data from the top half of the spectrum – which includes the data from the first fold – is buried losslessly within the noise floor of the baseband (up to 24kHz)

**LEFT:** Meridian's DSP7200SE, like its other SE floorstanders, has been updated to accommodate MQA-encoded digital inputs

response far beyond one sampling interval. A conventional, frequency-domain view of the human auditory response suggests that this is unimportant, but much recent psychoacoustic research, inspired by the evolutionary argument that human hearing developed to extract potentially life-saving information from natural sounds as quickly as possible, has cast doubt on this view's relevance.

Inherent in the Fourier model is a trade-off between time and frequency resolution – described by an uncertainty relationship – which recent experiments have indicated can be bettered by human listeners by a factor of up to 12. As long ago as 1946 Dennis Gabor, best known as the inventor of the hologram, claimed that human listeners could beat the uncertainty principle by a factor of seven; now it seems that even that startling figure was an underestimate.

It is this and other hearing research of recent years which has emphasised the extraordinary time domain acuity of human hearing that has inspired Bob Stuart to contrive a completely fresh approach to digital audio with MQA.

## END-TO-END SYSTEM

There is no room here to go into meticulous detail but the combination of elaborated sampling techniques and meticulous control of all the digital filtering from recording to replay has allowed unprecedented time domain performance to be achieved – significantly better than simple apodising can with conventional sampling techniques and no knowledge of the filters used during recording and replay. This is why MQA is an end-to-end system that encompasses the entire chain from analogue-to-digital conversion in ➤

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## INVESTIGATION

succeeded in raising the breakup frequency of its aluminium domes to 37kHz but the resulting resonance is extremely high-Q, which in the MQA philosophy is undesirable. These factors have all to be taken into account if MQA's low-blur advantage is to be heard to full effect.

### WIDE-RANGING IMPACT

If Meridian had simply produced an unprecedentedly low-blur recording/replay technology running at a high sampling rate it might have been hailed an audiophile breakthrough but it wouldn't have had the wide-ranging impact that MQA promises. Because while low time domain blur is the key MQA philosophy, the technology itself is as much about cleverly packaging low-blur audio signals in backwards-compatible 44.1kHz/24-bit or 48kHz/24-bit files that can go anywhere and be replayed anywhere that conventional PCM audio files can.

MQA always maintains the base rate of the digital source signal, so 88.2/176.4/352.8kHz sources are packaged in a 44.1kHz container, while 96/192/384kHz sources are packaged in a 48kHz container.

At the pre-Christmas press launch Bob Stuart used the four graphs shown in Figures 1 to 4 to show how this 'music origami' process works, in this case for a 192kHz source. The first 'fold' reduces the sampling rate from 192kHz to 96kHz, and the second from 96kHz to 48kHz. Although it may seem from the diagram that these two processes are much the same, that isn't the case. The second fold (from 96kHz to 48kHz) is lossless whereas the first (from 192kHz to 96kHz) is not. Shocking as this may be to an audiophile audience which has come to regard 'lossless' as an essential label for high-resolution digital audio, in MQA totally lossless

the studio to digital-to-analogue conversion in the home. Even the behaviour of the tape machine is taken into account when legacy analogue material is being encoded.

Only by controlling this entire process can MQA's exemplary time domain performance be achieved. It also allows the sound heard during mastering to be reproduced reliably in the home, and for an indicator (say, an LED on hardware or an icon on-screen) to affirm that this is the case – hence the name Master Quality Authenticated.

### ANALOGUE LIMITATIONS

In a blog-published email response to a question about the time domain advantage of MQA, Bob Stuart responded that, compared to conventional high-quality 192kHz/24-bit recording and replay (figures in brackets), leading edge uncertainty is 4µs (250µs), total impulse duration is 50µs (500µs) and perceptual smear is less than 10µs (at least 100µs).

In fact the time domain performance of MQA is so good – the 'blur' is so low – that analogue devices in the chain can be limiting factors in perceiving its improvement. This is the case with most microphones, some electronics

**ABOVE:** MQA ready – the latest DSP SE speakers also have beryllium dome tweeters

**BELOW LEFT:** [Fig. 4] Downsampling by another factor of two gives the backwards-compatible MQA file which, in a DAC fitted with an MQA decoder, can be unfolded again to 192kHz

**BELOW:** [Fig. 5] End-to-end frequency and impulse responses for MQA

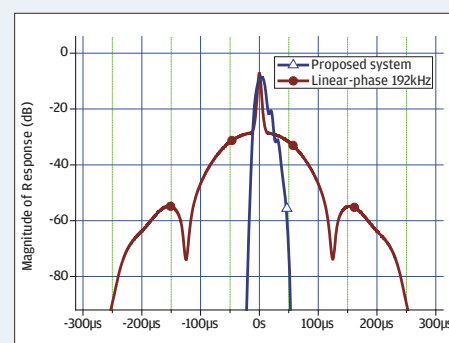
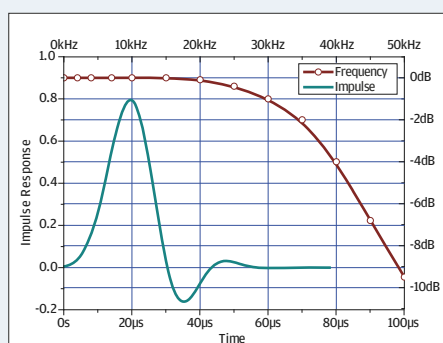
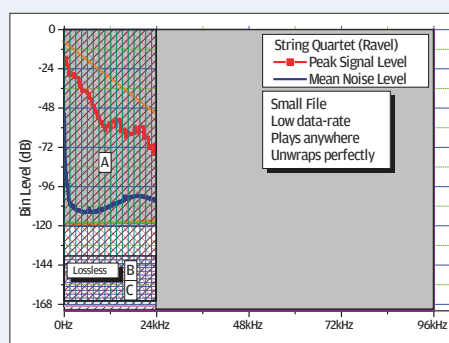
**BELOW RIGHT:** [Fig. 6] MQA impulse response (blue trace) compared with trace for a conventional 192kHz chain

and many loudspeakers and headphones. That old justification for deliberately limiting bandwidth – 'the wider you open the window the more muck flies in' – is no longer viable because each low-pass filter in the chain from microphone to loudspeaker, and there can be many of them, lengthens the system impulse response.

Particularly in respect of loudspeakers, wide bandwidth isn't itself sufficient: there must also be no prominent resonances extending the impulse response at higher frequencies. In this context it is relevant that the new Special Edition versions of Meridian's DSP loudspeakers have been equipped with a beryllium dome tweeter.

Because the longitudinal speed of sound in beryllium is about 12,000m/s compared with about 5000m/s for aluminium, magnesium or titanium, beryllium is capable of much higher ultrasonic breakup frequency, which can then be damped to remove blur-inducing ringing in the transient response.

Typical 25mm aluminium domes have a breakup mode at about 27kHz and, moreover, it is usually high-Q and so produces a long resonant 'tail'. B&W, using two different design enhancements, has





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The DAC2 digital converter  
The AHB2 power amplifier  
The SMS1 speakers.



**LEFT:** Top of the range of Meridian's DSP active speakers, the DSP8000SE is MQA-ready as are the two other Special Edition models. The Explorer² DAC is MQA-ready also

operation is sacrificed in order to maintain low blur.

At the same time MQA is lossless in the sense that, as exactly the same processing is applied when mastering in the recording studio as when replaying the music, the sound heard in the studio is conveyed to the end-user without modification.

### CODING SPACE

The first of the four graphs pictured (Figure 1) is a Shannon diagram showing the entire coding space for the 192kHz/24-bit source and, occupying only a small portion of it, the peak frequency spectrum of a real audio signal (red trace) – in this case the Ravel String Quartet. This emphasises the wastefulness of conventional hi-res coding: the orange triangle that encompasses the musically relevant part of the signal (the remainder is noise) in Figure 2 has an area about one-sixth that of the entire coding space. Which means that five-sixths of the data rate is squandered.

As Figure 2 also indicates, some musically relevant information may be present in the upper half of the spectrum, from 48kHz to 96kHz, represented by the right-hand tip of the orange triangle. When this upper half is folded down below 48kHz, aliasing is allowed to occur. Conventionally this would be

deprecated but it is justified here because it permits the use of gentle, low-blur filtering (which can't very well be termed 'anti-alias' here, although that would be its role in conventional downsampling).

The aliased components are much lower in level than the audible signal (below 24kHz, say), sufficiently so that Meridian's testing has shown them to be inaudible. In the MQA lexicon this initial folding process is known as encapsulation.

The second fold, illustrated by Figures 3 and 4, is able to be lossless because, as illustrated by the

noise floor of the original analogue signal (blue trace), much of the available dynamic range with 24-bit processing is occupied by noise. Principally because

of the combination of environmental noise and microphone self-noise (plus tape noise with analogue masters), very few recordings actually exceed 16-bit dynamic range. Add to this the fact that we can hear signals within the noise only to about 10dB below the noise level and it follows that bits 19 to 24 carry no useful information.

So in the second fold process, buried data techniques are used to place the signal information from above 24kHz within the noise floor below 24kHz. If an MQA decoder is present in the playback DAC then

these two folding processes are undone to restore a 192kHz/24-bit output with the end-to-end frequency and impulse responses shown in Figure 5.

To put the impulse response in perspective, Figure 6 compares it to that of a typical 192kHz/24-bit ADC/DAC chain and Figure 7 to 10m passage through air (at typical temperature and relative humidity). If no decoder is present then the file replays at 44.1kHz or 48kHz, assuring backwards compatibility.

If the playback device is only 16-bit capable, eg, if the signal is recorded on CD or passed over a 16-bit link, then a decoder can reconstruct the baseband (area A in Figure 2) losslessly along with a lossy version of B (and C), which sounds very close to the high-res original and much better than CD.

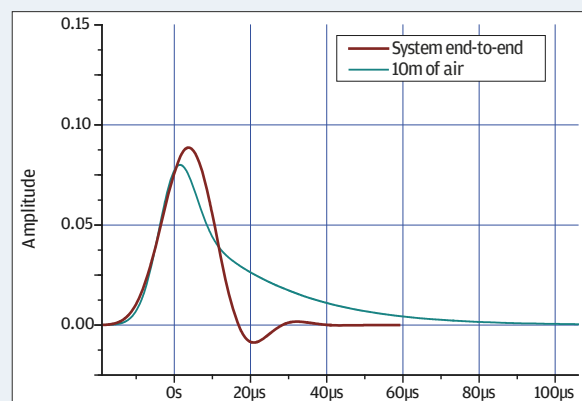
### ONE RELEASE FORMAT

You can appreciate from all this why MQA has reportedly been well received in recording studios: it provides for sound quality which exceeds that of current hi-res formats yet it does not require high data rates or disenfranchise users who don't have a decoder. Only one release format is required to cover the gamut of replay possibilities, and MQA material can be distributed just like conventional PCM – streamed, made available as a WAV or FLAC download, even put on a CD.

Moreover the record companies can deliver the sound of their masters without actually releasing them to the public, which is effectively what happens with many current hi-res downloads.

What the audiophile really wants to know, of course, is just how good does MQA sound? We'll be exploring that thoroughly in the near future. ☺

**BELOW:** [Fig. 7] Comparison of the MQA impulse response (red/brown trace) with that of sound transmission through 10m of air





# Mark Levinson No585

Featuring a built-in DAC with hi-res-capable USB input, the long-awaited integrated amp from Harman's high-end Mark Levinson brand is a powerful all-in-one package

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

**B**ack in the 1980s when CD was new, marketing folks might erroneously have called the Mark Levinson No585 a 'digital amplifier'. A replacement for the old No383 100W integrated amp has been anticipated for many years, and when it was previewed at Munich's High End exhibition last summer it was revealed that it would be an all-encompassing integrated component priced at £10,500, featuring a built-in DAC and a suite of digital as well as analogue inputs.

Parent company Harman International Industries, manufacturers of high-end Revel loudspeakers and Mark Levinson electronics – alongside JBL Synthesis and Lexicon electronics, and JBL's statement 'Project' speaker designs, in the conglomerate's Luxury Audio Group division – has spent the past few years undergoing some major restructuring 'in the background' while maintaining its day-to-day operations.

## A BEEFY REPLACEMENT

As a consequence, fresh-up Mark Levinson products have been relatively few and far between, exceptions during recent years being the awesome No53 flagship monoblock priced at £23,500 [*HFN* Jan '11] and, somewhat later, the No52 'Reference' preamplifier (£28,000) to partner them, an awesome two-box design which can lay claim to being one of the most desirable preamps in the world [*HFN* May '14].

Recently Harman has opened a brand new electronics R&D facility in Connecticut, headed up by Todd Eichenbaum [see interview, p31]. The reorganised design team there is busy on a raft of designs and this new 'entry-level' amplifier is Mark Levinson's first integrated since 2006, when the No383 was discontinued.

Rated at 200W/8ohm, the No585 is considerably more beefy than the No383 and is a fully balanced Class A/B design

employing 12 output devices for each channel in a double mono configuration. At the heart of the amplifier's on-board digital audio processing stage is an ESS Sabre 32-bit D/A converter with proprietary jitter elimination and fully balanced, discrete current-to-voltage circuitry.

The USB interface employs a USB audio processor from C-Media capable of asynchronous data transfer of PCM files at up to 192kHz/32-bit resolution and DSD natively at both 64 and 128fs with supplied ASIO drivers.

The No585 has many separate power supplies, each optimised for its particular function. First, a small switching supply is

used to provide power for 'housekeeping' functions while the unit is in standby. Second, a larger one powers the digital and control circuitry. Finally, eight linear power supplies, four per channel, provide power to all the analogue circuitry.

Separate outputs from a 900VA toroidal transformer feed the left power amp, the right power amp, and the left and right power supplies for the analogue preamp circuitry. Four linear voltage regulators, two per channel, provide 'a quiet, rock-steady power source for critical preamp and DAC analogue circuitry' says the design team. It employs individual signal switching relays for each of its analogue inputs, while



**RIGHT:** A single 900VA transformer (with dual secondaries) feeds independently-regulated supplies for the 12-transistor strong Class A/B power amp(s) and DAC section





volume adjustment is via discrete 15-bit R-2R resistor ladder networks and low-noise analogue switches.

### COVERING ALL BASES

As is typical of all Mark Levinson components, the No585 has been designed with meticulous attention to detail, in order to ensure extremely high sound quality commensurate with its price. It employs a heavy-gauge chassis and card-cage architecture to isolate critical low-level analogue and digital circuitry, and features audiophile-grade internal components and top-quality rear-panel connectors [see pic, p33].

At the same time it features comprehensive functionality to accommodate real-world installations rather than simply appealing to 'purist' knit-your-own-sandals types. It has four analogue and six digital inputs to cover pretty much all possible source requirements and the fascia sports buttons

for governing display brightness, absolute phase polarity, mute, balance (in 0.1dB steps), and for entering the amplifier's configuration menu [see boxout].

All functions, including standby on/off, can also be accessed via the amplifier's IR handset, a compact all-metal affair which is perhaps the product's only let-down. It just doesn't sit in the hand anything like as satisfactorily as the stubbier and more rounded handset that accompanied the old integrated model (still supplied for use with Mark Levinson's current preamplifiers).

Curiously, the new handset adds 'transport' keys – next, previous, pause/play and stop – for controlling computer audio playback via USB. Correct functionality can't possibly be guaranteed with all Mac and PC music playback software, however I can confirm faultless operation with foobar2000 and JR Media Centre running under Windows – although I question its real usefulness.

'Clari-Fi is meant to restore "the full listening experience"'

### ON THE MENU

As with the brand's existing preamps – and the long defunct No383 integrated which this No585 replaces – there are myriad settings one can configure via the set-up menu. The analogue and digital input levels can be trimmed to even-out level differences between sources, inputs can be named as well (a most desirable feature never to be overlooked) and minimum/maximum output levels determined – including the muting level. The No585's line outputs can be configured to be fixed level (for recording) or variable (to facilitate a 'preamp output'), and if set to the latter and used to drive powered subwoofers there's the option of switching in a 80Hz high pass filter. And any one of the amp's four analogue inputs can be chosen to act as a pass-thru' for integration with a surround processor if required. The DAC's choice of 'Sharp', 'Slow' and 'Minimum Phase' digital filters for playback of PCM files [see Lab Report, p33] are also selectable, as is a choice of 47, 50, 60 or 70kHz filters for when playing DSD files.

**ABOVE:** Rotary source selector and volume controls are also used to navigate the amplifier's configuration menu, such as naming/trimming inputs. They flank the unit's red display

'Scrubbing' within tracks isn't supported, and if you're pushing into the amp's USB input from a computer and want to avoid using a keyboard and/or mouse, won't you be navigating your music collection using a control app on a phablet? Surely most users will...

A further button on the new handset, placed prominently in centre position, turns the amplifier's 'Clari-Fi' processing on/off. A function of the digital section's on-board DSP, Clari-Fi is a proprietary 'music restoration' algorithm that claims to identify which music sources have been lossily compressed and, in real time, restore playback to the 'full listening experience'.

### FILTERS BURIED IN THE MENU

As with Sony's DSEE or Pioneer's 'Sound Retriever' processing designed to enhance the sound quality of compressed media, it's moderately successful at adding clarity to low-bitrate audio, seemingly boosting the 5-12kHz frequency region to add some pizzazz. Clearly, audiophiles will pay it scant attention as it's more appropriate to in-car audio and portable playback systems than the pursuit of high fidelity *per se* – but I did find it quite effective when streaming YouTube videos and the like.

Most owners surely will find it a lovely amplifier to use thanks to its easy-to-read display and ultra-fine volume adjustment in circa 0.1dB increments. Even the law of the volume control can be configured to taste. Nevertheless, audio enthusiasts keen to experiment with the DAC's filters on the fly will rue the fact that the filter options are buried in the menu and not *directly* ➔

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**Thursday 21st**

Naim Day

**June 2015**  
**Saturday 20th**

Computer Audio  
& DAC Day



## TODD EICHENBAUM

While Harman's near-legendary design facility in Northridge, CA, continues to focus on speaker design, electronics such as its prestigious Mark Levinson components are now developed in Shelton, CT. Head of the new Shelton development team is Todd Eichenbaum, who joined Harman in Feb '13

after spending a lifetime designing components for Krell Industries.

In his youth he studied electronics engineering and after gaining his degrees he worked as a designer at Krell until 1995, leaving to work on a series on upmarket in-car audio components for specialists Precision Power Inc. Three years later he returned to Krell as the company's senior analogue engineer and was promoted to become Krell's VP of product development in 2008.

Says Todd: 'As a student I remember having what I would call a life-changing moment when I compared the amplifier I then owned to a Mark Levinson. It was fantastic in every aspect: detailed, three-dimensional, and just plain huge. It was also completely unaffordable! I went home disappointed, but excited at having heard what was possible from high-end audio.'

'We've ten engineers focused on rejuvenating the Mark Levinson product line. We've just showed our latest No536 mono power amp at CES, one of several ground-up designs scheduled for release in the near future.'



**ABOVE:** Fresh styling is a little 'cleaner' and more modern – while remaining characteristically 'Mark Levinson'. Substantial heatsinks are encased within the chassis frame to avoid sharp edges

switchable via the handset. And when using the on-board DAC the amplifier's display only indicates incoming sampling rate for a brief moment – if and when the sampling frequency *changes*. Mind you, this is adequate to determine that your computer source has been correctly configured in the first place.

### **SUPERB TRANSPARENCY**

Feed any good quality source into the No585 and its sophisticated sound is instantly apparent.

It appears as more powerful, 'faster' and more immediate than the No383 of old – a tad more crisp and vivid. It just seems 'cleaner', and it delivers more explicit low frequencies, with

no soporific softening of leading edges through the midband and HF.

Revisiting the 96kHz/24-bit recording of the jazz/rock combo Vantage Point (featuring drummer Simon Phillips and pianist Jeff Babko) made for the DVD-Audio album *Resolution* produced by Mark Waldrep [AIX Records AIX 80040] revealed just how vigorous a performer the amplifier is, and confirmed its first-rate transparency to fine detail.

Waldrep's hi-res productions are uncompromisingly explicit, and this new amplifier was excellent at showcasing the recording's lifelike dynamics, and it delivered images of the musicians performing in a natural space in a most convincing manner. All the while the sound remained endearingly luscious and

'relaxed', with a smooth midrange and sweet treble but without ever appearing too creamy and mellow.


Light-footed while simultaneously meaty and powerful, it's every bit a high-end performer, despite its 'entry-level status' in the Mark Levinson product portfolio. It proved perfectly competent at exposing the dexterous plucking by guest bassist Alphonso Johnson and revealing his subtle phrasing, where too often the clarity of the bass can be masked by the wallops of

Simon Phillips' kick drum in this 'live take' AIX recording.

It's also wonderful at carrying music's inflections and accents. Whether it was with hi-res demo tracks or any regular recordings

in my current playlists, this new amplifier threw a most musical, accurate and detailed soundstage in front of me.

On *New Moon Daughter* [Blue Note Japan TOCJ-5996] Cassandra Wilson's opening 'Strange Fruit' had all the sumptuousness and atmosphere I'm accustomed to hearing from this track, with the cornet solo at the beginning occupying a perfect space at the rear of the soundstage. The reverberation tails sounded convincingly natural. I was entranced by the manner in which the amplifier portrayed the atmosphere in her psychedelic jazz re-working of Tommy Boyce and Bobby Hart's classic 'Last Train To Clarksville'.

And on Keith Richard's under-appreciated solo album *Main Offender* 

*'It is wonderful at carrying musical inflections and accents'*





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## MARK LEVINSON NO585



**ABOVE:** Two coaxial and optical S/PDIF digital ins plus USB and AES/EBU are joined by three RCA analogue line ins (one pre out), one balanced XLR in and 'Hurricane' 4mm speaker terminals. System controls include Ethernet, RS232, IR and 12V triggers

[Virgin CDVUS 59] the amplifier delivered the infectious verve of the musicians' performances with aplomb. Tracks such as 'Wicked As It Seems' fizzed with pent-up energy, while on 'Will But You Won't' I could actually hear when the second guitar mic feed opened up, prior to hitting the loud pedal and letting rip.

### REVEALING DEPTHS

All the while I'd been listening to the amplifier's built-in DAC. So turning attention to the performance of the No585's DAC section I set up some straightforward comparisons, listening in turn to a T+A DAC 8 [HFN Oct '12] and Antelope Audio Zodiac Platinum [HFN Feb '15] hooked up to the amp's balanced inputs.

Differences in sonic presentation were fascinating – largely in terms of subjective tonality and 'character'. The T+A sounded characteristically vivid and razor-sharp, a tad more squeaky-clean, while Antelope's Zodiac (which costs almost as much as the No585 when partnered with its Rubidium clock) appeared more robust, 'organic' and free-flowing.

I never felt the least bit short-changed listening to the No585's built-in D-to-A converter – possibly because any qualitative variations in using a more costly separate DAC can become masked by the necessity for interconnecting cables. There's much to be said for having everything integrated – though future upgrading becomes less straightforward, of course.

Due to the No585's crisp immediacy I sometimes thought it a little 'lean' in bass weight, only to be caught off guard by recordings containing *true* low-bass content.

One such moment came when listening to 'Comes Love' from Joni Mitchell's exquisite *Both Sides Now* album (recorded in London's Air

Studios) in 96kHz/24-bit resolution [DVD-Audio, Reprise 47620-9], when the bass trombone doubled by the string bass suddenly go very deep indeed. So not only is the No585's midrange extraordinarily transparent and clean, it is also very revealing of low frequency detail.

And Vince Mendoza's sumptuous orchestral arrangement in 'At Last' was served up with a tremendous sense of space thanks to the amp's subjectively super-quiet background – fine detail such as the quiet piano notes balanced low in the mix hovering like a halo above Mitchell's cigarette-scarred contralto.

In the world of high-end audio an integrated amplifier might be considered something of a 'compromise', especially one with an on-board DAC. But not here, the Mark Levinson No585 delivering a powerful sound with superb dynamic-range capability, smooth and grain-free high frequencies, an uncoloured, natural-sounding midrange, and possessing the ability to throw a wide, deep and stable soundstage. I could live happily ever after with it, it's that good. ☺

### HI-FI NEWS VERDICT

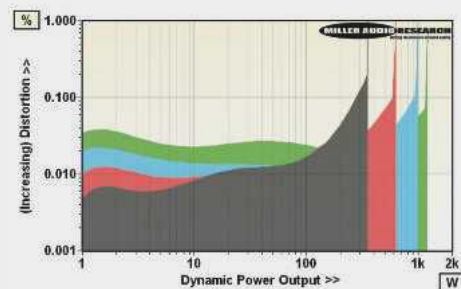
Proof positive that you don't *have* to have a rack-full of separate boxes in your living room to enjoy fabulous high-end music replay, the No585 integrated unit sounds simply sublime – and delivers adequate power to drive even pretty demanding loudspeakers. Its built-in hi-res PCM and DSD-capable USB DAC makes it even more desirable for those wanting a no-compromise set-up while remaining resolutely clutter-free.

Sound Quality: 89%

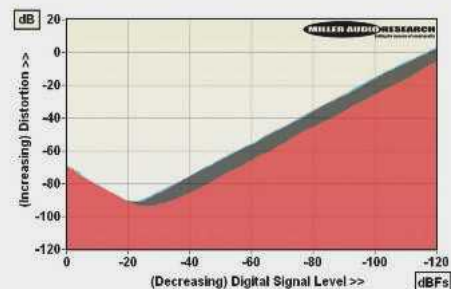


Levinson's 0-80 volume control (scaled in steps of 0.1 but not precisely  $\pm 0.1$  dB) is accurate to  $\pm 0.5$  dB over the top 60 dB of its dynamic range. The No585 is also very powerful, obliterating its 200W specification with a 2x285W/8ohm and 2x455W/4ohm performance, increasing to 355W, 635W, 988W and 1211W ( $\sim 35$ A at  $<1\%$  THD) into 8, 4, 2 and 1ohm loads under dynamic conditions [see Graph 1, below]. Distortion increases gently from 0.007%/1W to 0.02%/100W and 0.03% at the rated 200W (all at 1kHz) but also at very low frequencies – 0.05% at 20Hz and 2.5%/5Hz (10W/8ohm). The response is somewhat load-sensitive, extending down to  $-0.04$  dB/20Hz but varying at 20kHz from  $-0.1$  dB,  $-0.25$  dB,  $-0.5$  dB and  $-1$  dB into 8, 4, 2 and 1ohm. The S/N ratio is healthy at 89.4 dB (re. 0 dBV).

Tested via the pre-outs (power amp disabled) THD via the S/PDIF and USB inputs rises quite quickly beyond 2.5V so a 'standard' 2V/0 dBFS level was established at Vol = 61.4. THD is moderate but consistent at 0.04% (100Hz-20kHz, but 0.12% at 20Hz) and reaches a minimum of 0.001-0.0012% at  $-25$  dBFS [see Graph 2] while the A-wtd S/N ratio is a respectable 108 dB via S/PDIF and only slightly poorer at 105 dB via USB. Low-level resolution is good to  $\pm 0.2$  dB over a 100 dB range. The three digital filters influence response, stopband rejection and time domain ripple – 'Sharp' ( $-6.3$  dB/90kHz) is a conventional brickwall type, 'Slow' ( $-9.6$  dB/90kHz) has the least pre/post ripple but the poorest stopband rejection while 'Minimum Phase' ( $-6.0$  dB/90kHz) offers an acceptable stopband rejection (75 dB), no pre-event ripple but the most post-event echo. 'Slow' would be my choice for 96/192 kHz music files. PM



**ABOVE:** Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads. Maximum current is 34.8A



**ABOVE:** THD vs digital level over a 120dB range via line out (S/PDIF 1kHz, red & 20kHz, black; USB 20kHz, blue)

### HI-FI NEWS SPECIFICATIONS

Power output ( $<1\%$ THD, 8/4ohm)	285W / 455W
Dynamic power ( $<1\%$ THD, 8/4/2/1ohm)	355W / 635W / 988W / 1211W
Output impedance (20Hz-20kHz)	0.025-0.130ohm
Frequency response (20Hz-100kHz)	$-0.03$ dB to $-1.28$ dB
Input sensitivity (for 0 dBV/200W)	25mV / 365mV (balanced)
A-wtd S/N ratio (Analogue/Digital)	89.4 dB (0 dBV) / 107.7 dB (0 dBFS)
Distortion (20Hz-20kHz, A/Dig)	0.05-0.0045% / 0.12-0.040%
Power consumption (Idle/Rated o/p)	88W / 845W (1W standby)
Dimensions (WHD) / Weight	434x193x506mm / 34kg

# Astell&Kern AK500N

Having redefined portable hi-fi, Astell&Kern has turned its thoughts to music at home: the result is as idiosyncratic as you'd expect, but the sound is remarkable

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

There's an apparently amusing note in the instruction manual for Astell&Kern's AK500N, the company's new £8999 network player. It says 'This device was tested for typical body-worn operations with the back of the portable music player kept 5mm from the body.'

While still sniggering that anyone would want to lug around an 11.4kg unit clearly designed for home use (albeit powered by an internal battery), I received a picture of an AK500N user doing just that, employing a frame on his back built by Japanese company VanNuys, which also makes cases for the more obviously portable A&K products. Oh well...

## APPS ON THEIR WAY

The AK500N is the first 'desktop' model from the Korean company, and is set to be joined this year by a matching power amp and enhanced supply, thus creating a complete 'just add speakers' system.

More on that in our interview with A&K's James Jeong [see p37], but for now we have a unit combining the functions of network server/player, CD ripper, USB/MicroSD card player and DAC with asynchronous USB and Bluetooth – and all in a strikingly styled, almost cubic package.

It's smaller than pictures might suggest, standing just over 240mm tall and a little less in width and depth. There's a slot-loading CD transport for disc-ripping only, not playback, in the front panel, while the slightly offset sculpting reminds me more of 'stealth' technology than the mountain said to have inspired it (the Swiss Matterhorn). The flip-up 7in (178mm) WXGA touchscreen panel on the top plays host to an extensive series of set-up and control options.

There's no conventional remote control handset, but iOS and Android control apps for smartphones and tablets are due in April. However, it's also possible to

'drive' at least the playback functions of the AK500N using third-party apps, A&K recommending Network Music Player for iOS, or Bubble UPnP on

Android. I found Bubble UPnP the more convenient, which is perhaps not surprising given that the player runs on an Android operating system. I also had good results using PlugPlayer on OS X. When the apps become available the update will also add internet radio functionality.

As a CD ripper, the A&K offers the choice of WAV or FLAC storage, using the

cdparanoia extractor software and the GraceNote database for metadata look-up, and a choice of ripping speeds, but

its capabilities go way beyond CD-quality music: it can handle content up to 384kHz/24-bit, as well as offering native playback of both DSD64 and DSD128 files using a dedicated chipset.

In fact, all the files it plays can be repurposed to DSD before they pass through the onboard digital-to-analogue conversion, which uses the same dual Cirrus Logic CS4398 DAC chips, one

'At the heart of the AK500N is a terabyte of SSD storage'



**RIGHT:** The unusual faceted front panel is said to be derived from the shape of the Matterhorn; slot-loading CD drive is only for ripping



## MUSIC AT A TOUCH

Apart from the quirky looks, what sets the AK500N apart is the flip-up touchscreen for set-up and control, looking for all the world like an add-on tablet computer. This can be used to drive the system for playback (although forthcoming apps may prove more convenient), but a touch of the standard 'cog' symbol takes you into the settings menu. You can go as deep as you like – moving and copying files between folders on the SSD storage, or accessing USB devices connected to it – and these menus also let you select gapless playback (though it's not infallible), or decide whether or not the AK500N will convert all your files to DSD before they hit the DAC.

It's possible to decide the format you want when ripping discs inserted into the front-panel slot (WAV or FLAC), and choose whether the player charges, or isolates itself completely, during playback. Experience suggests the latter is preferable. The panel also allows setting of the USB-B input to the rear, so you can decide whether it's allowing the unit to function as a DAC, or in 'MTP' mode for file transfer from a computer, and enabling various 'housekeeping' settings.



**LEFT:** The AK500N's top touchscreen is its control hub: side connections allow for 'phones (2.5, 3.5 and 6.35mm) plus USB and MicroSD storage. The only conventional controls are for volume and power



for each channel, found in the company's very upmarket AK240 portable player.

### STEPS TO EXCLUDE NOISE

At the heart of the AK500N is 1TB of SSD storage, upgradable to 4TB if required, and that internal battery, designed for total isolation from any mains or power-supply noise. Unless you choose the 'charge while playing' option in the menus the system can be disconnected from the mains for up to seven hours or so, when in use.

This idea of noise-exclusion extends to the input and output provision, which includes fixed and variable-level RCA and balanced outputs, AES/EBU, optical, coaxial and BNC digital inputs and outputs, USB-B and USB-A ports to the rear and USB-A and MicroSD card slots on the side-panel. There's also a choice of balanced or conventional headphone output, using 2.5mm, 3.5mm and 6.35mm sockets – also on the side. Each of the audio connections can be enabled or bypassed individually using the menu system, meaning those not in use are unable to create interference or allow noise ingress.

All-in-all, this unusually-shaped unit is a very long way beyond the novelty it may seem at first glance: clearly a lot of attention, and a lot of the knowledge gained in creating the company's range of high-quality portable players, has gone into its design and construction, and the optimisation of its performance.

What's more, while the menu system may seem complex, simply because it's so comprehensive, with a little familiarisation it's easy to get to grips with the set-up of the AK500N. As soon as it connected to my home network (it can use either Wi-Fi or

*traditional philosophy*  
*modern design*



## *Triode 25*

### *Class AB Push-Pull amplifier*

*The Triode 25 is a Class AB Push-Pull integrated amplifier that utilises four EL34 tubes in the output stage for increased power output from a valve design. It can operate in two modes (Triode and Pentode) and has a switchable feedback level to suit the sound performance of any system. The additional manual bias adjustment ensures long-life and optimum performance from the supplied valves.*

*On top of four Line level inputs, the USB Type-B input is DSD compatible and can also handle studio-quality 32-bit/384kHz audio files.*

*The Triode 25 offers a perfect combination of tradition and modernity.*





**LEFT:** Internal view reveals quite a lot of fresh air between the CD drive and rest of the player electronics. Lower down is the dock for up to four SSD hard drives [left], and the battery power supply [right]

## JAMES JEONG

As general manager of the strategic planning team at Astell&Kern's parent company since 2001, James Jeong has been closely involved with the development of the AK500N. Asked why A&K had expanded into 'home' audio, he replied that 'our medium and long-term goals were always to build a strong brand position in high-end home hi-fi while continuing to develop and progress our award-winning portable line. We want to provide our customers with more options.'

That unusual styling, he says, was 'inspired by images in nature. The core design features multiple facets coming together in a single point, symbolising the greatness of Switzerland's Matterhorn, ever-changing with time and the amount of light.' Talking about two of the major elements of the design, he told me the decision to offer DSD upconversion was simply because 'it's the format many audiophiles enjoy', but he also revealed that the most challenging part of the design was ensuring reliability for the battery PSU.

James also revealed the AK500N will be joined by a matching power amplifier, the AK500A, and an outboard power supply dubbed the AK500P. First seen at the International CES 2015, they're due to be launched at the High End Show in Germany in May. And he agreed that, while there are no specific plans he can announce yet, there is scope for the AK500N design to be trickled down to lower-priced home products in the future.

Ethernet) it performed a firmware update – seemingly inevitable with any network-connectable product! – and was then ready for action.

It can work directly as a USB DAC with a wired connection from a computer, also necessary if you want to copy music from your computer to the A&K, and don't want to put it all on a USB drive. Connecting it to my MacBook Air, I was able to use Android File Transfer to copy music to the unit's internal storage.

The AK500N will function as a standalone device, as a network player for content stored locally on a NAS device or on a computer running UPnP/DLNA server software – for Windows users, the company provides MQS Streaming Server for download – and it will also make its stored content available to any other playback devices on the network.

### SOLIDITY AND SPEED

To say that I was taken aback by what the AK500N can do was something of an understatement. From the off it impressed with the kind of big-boned yet agile and finely detailed sound one would expect only from the very highest of 'fi – which I guess, given the price, is just what it is.

Cast aside any expectations of gimmickry you may have when surveying its unusual form-factor. This is a very serious piece of equipment, daring to be different when it comes to its aesthetics, and demonstrating that not *all* good things come in 430mm-wide packages. I tried all the various input and playback options

available here (and there are quite a few!) and found the A&K to be most impressive when playing from its internal storage or as a network player for music from my NAS, where it delivered a sound with as much scale and information as any high-end streaming device, especially from higher resolution PCM and DSD files.

There's a solidity and speed to the bass that very few network devices, let alone CD players, can match, while the sense of soundstage depth, focus and presence shows just how well midband and treble information is handled.

The AK500N also copes very well with high-resolution files on USB storage, either via the rear or side ports, but to my ears sounds a little softer when connected direct to a computer via a USB cable, and used in DAC mode [see Lab Report, p39]. It's still very impressive, and more than a match for many an offboard USB DAC, but it never quite reaches the heights it can when streaming from its own SSD storage.

The Bluetooth option, meanwhile, is – well, a Bluetooth input: as ever it's a triumph of convenience over substance, and ought only to be used in emergencies (or at least only for short-term listening).

I've already mentioned the effect of the battery power but, to reiterate, it's perhaps best described as removing a slight thickening of the sound encountered when you opt for the 'charge while playing' setting. I got the best results with the power supply disconnected completely, which was a bit of a pain as the multipin

*'It reaches the heights when streaming from its SSD storage'*





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

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



BERLINA-SERIES

## EDITORS' CHOICE.

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

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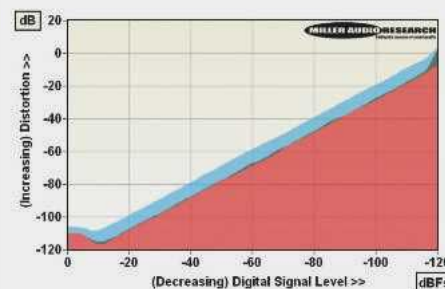
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## LAB REPORT

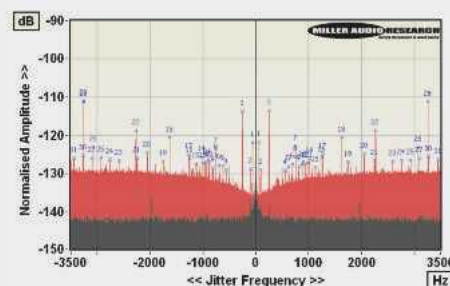
### ASTELL&KERN AK500N

Although A&K employs a pair of CS4398 DACs this chip is still only a 192kHz device, but its compatibility with DSD2.8 and DSD5.6 streams allows the AK500N to service higher rate LPCM/DXD files by conversion to DSD without downsampling. Nevertheless, while our sample was lab tested before any firmware updates were received, the results suggested that 48kHz inputs via S/PDIF and USB were also being converted to DSD while 96kHz and 192kHz inputs remained as LPCM... The rise THD+N at high frequencies was marked – 0.05% for 48kHz/24-bit versus 0.00085% for 96kHz/24-bit (20kHz/–10dBfs signal). All else was consistent with sample rate, including the wide 112dB A-wtd S/N ratio, excellent  $\pm 0.1$ dB resolution over a 100dB range, the 3V maximum balanced output (fixed XLR) and fabulously low 3ohm source impedance.

Jitter was a little higher than anticipated at ~275psec via the digital inputs [red trace, Graph 2] but proved exceptionally low at <10psec via both internal or external SSD storage (the latter via USB Type A connection). This is clearly illustrated by the black spectrum in Graph 2, below. Distortion via SSD was lower with 48kHz/24-bit files because, unlike via S/PDIF, the conversion appeared to be LPCM throughout. A figure of 0.0008% (20kHz/0dBfs) is truly excellent [see Graph 1, below] as is the 112dB A-wtd S/N ratio, unchanged from the S/PDIF and USB tests. Responses are ruler-flat too, extending to 45kHz within  $\pm 0.1$ dB (96kHz files) and 90kHz within  $\pm 0.4$ dB (192kHz files). Readers may view comprehensive QC Suite test reports for the S/PDIF and USB-drive audio performance of the Astell&Kern AK500N by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



ABOVE: Distortion versus 24-bit/48kHz digital signal level over a 120dB range at 1kHz (S/PDIF, red; SSD/USB disc, black) and 20kHz (SSD/USB disc, blue)



ABOVE: High resolution 24-bit/48kHz jitter spectra comparing S/PDIF (red, marked) with USB disc (black)

### HI-FI NEWS SPECIFICATIONS

Maximum output level (Balanced)	2.97Vrms at 3ohm
A-wtd S/N ratio (S/PDIF / USB disc)	112.0dB / 112.0dB
Distortion (1kHz, 0dBfs/–30dBfs)	0.00019% / 0.00017%
Dist. & Noise (20kHz, 0dBfs/–30dBfs)	0.0008% / 0.0032%
Freq. resp. (20Hz–20kHz/45kHz/90kHz)	–0.0dB to +0.0dB/+0.1dB/+0.4dB
Digital jitter (S/PDIF / USB disc)	275psec / <10psec
Resolution @ –100dB	$\pm 0.1$ dB
Power consumption	13W (9W standby)
Dimensions (WHD) / Weight	214x243x238mm / 11.4kg



LEFT: There's a choice of balanced or RCA phono outputs, and either fixed or variable level, plus a good range of digital input options, Ethernet and USB A/B

connector is fiddly to reattach, since it's at the back of the unit.

Similarly, I experimented a lot with the AK500N's 'convert everything to DSD' option, and while it added some heft to the sound of MP3 files and some CD rips, I found it rather over-egged higher-res files, giving them a sheen of smoothness allied to a slightly saccharine treble. So I hope the forthcoming apps will have a button to turn this facility on and off, as I have a feeling it may suit some tracks and not others.

The only other glitch was a hesitation with some albums with music stretching across multiple tracks – there's an on/off button for gapless playback, but even so some (not all) high-res content seemed to catch it out in this respect.

### WHO DARES WINS

However, when the AK500N is good, it can be stunning. Opening listening with some high-resolution content, namely David Bowie's *Ziggy Stardust* in DSD [EMI 521 9002], I was immediately impressed with the thump of the bass as the album opened, and the sheer impact of the acoustic guitar, sharply focused along with Bowie's voice, plus the way the sound maintained its integrity and clarity even when the tracks got rather rockier.

Similarly with ELP's *Brain Salad Surgery* [96kHz/24-bit HDtracks download, Razor & Tie ELP0BSS401-DL], the A&K showed its stuff with real drive from the drums and guitar, allied to a wonderful bass snarl from Keith Emerson's bank of synths when required, such as in the 'not on the

album' title track included as part of the 40th anniversary package. And in the transition between the first two parts of 'Karn Evil No 9' there was no hint of a gap!

'Extra' by Chip Taylor and Carrie Rodriguez [*Let's Leave This Town* – Trainwreck TWO19] saw the AK500N demonstrating its ability when it comes to the sound of real instruments (in this case guitar and fiddle) and the tonality of voices, giving the track all of its good-natured immediacy and humour. Mind you, it can also deliver all the power and weight you could want with those big operatic and orchestral pieces, grabbing the attention with the texturing of the instrumental timbres.

By any standards this is a remarkable digital player/streamer/ripper thingy – just how do you describe it? – and even more striking for daring to be different. ☺

### HI-FI NEWS VERDICT

However unlike a conventional network storage/player device it may appear (and the design shows the greater freedom such hardware brings), the AK500N is even more extraordinary in the way it performs. Don't let the looks put you off, as the sound from this innovative unit is nothing short of remarkable, with excellent slam and weight allied to very fine detail and serious, sustained musical involvement.

Sound Quality: 88%



# Dynaudio Focus 400 XD

This active speaker offers a no-compromise approach to high-end audio. Can it make separate amps redundant?

Review: **Steve Harris** Lab: **Keith Howard**

**L**ast autumn, Dynaudio announced three new loudspeakers that looked almost exactly like its existing Focus XD models. But in reality, the Focus XD series, including the £7250 Focus 400 XD reviewed here, is completely different.

As Dynaudio says, 'This is not *just* a loudspeaker.' With built-in Class D amplification and its own volume control, a pair of Focus XD speakers can be connected directly to digital sources, accepting hi-res signals up to 192kHz/24-bit and having its own remote for volume control. You have only to add the digital source to create a hi-res digital audio system.

There might be nothing so new about equipping a hi-fi speaker with a digital input [see boxout] but with the Focus XD line, Dynaudio has carried the idea to its logical conclusion, also adding wireless capability.

## A STRAIGHT-THROUGH APPROACH

Dynaudio launched the first of its Xeo wireless speakers, which receive signals from the matching Xeo transmitter or hub, in 2012. But the Focus XD line is aimed at a different customer: the audiophile who appreciates the purity of its straight-through, hi-res digital approach.

So Dynaudio does not see Focus XD primarily as a wireless product, and has chosen not to package a wireless hub with the speakers. This remains a separate option. Yet it might still seem surprising that the speaker itself is not equipped with a USB input. KEF, for instance, offers USB convenience with its X300A, a superior desktop speaker intended to do justice to 96kHz/24-bit audio. Instead, the digital input for the Focus 400 XD is a coaxial RCA phono for the S/PDIF standard. This is fine for connection to a CD transport or universal player, but not so helpful for computer users.

For ultimate cable-free convenience, you can indeed run both speakers wirelessly from the Xeo Hub, which provides inputs for analogue, coaxial digital, optical digital and

USB. The current Hub accepts signals up to 96kHz/24-bit, but the signal that it streams to the loudspeakers is always 48kHz/16-bit.

Dynaudio is working on a new hub, called Connect, which will allow true 96kHz/24-bit streaming to its Focus XD speakers. Until this becomes available, and even after that if you want the benefits of 192kHz/24-bit, you will need to use a wired digital connection.

Described as a compact floorstander, the 400 XD stands just under 1m high, and the excellently-finished cabinet is as slim as it can be given the size of the woofers. There are four finishes, with a choice of Rosewood or Walnut real wood veneers, or Satin Lacquer in white or black. For stability, the cabinets are supported on an outrigger frame that very neatly incorporates both carpet-piercing spikes and rubber feet for use on hard floors.

All drive units are made in-house. For the 400 XD there are two 170mm woofers, with cones made of Dynaudio's proprietary composite of magnesium silicate polymer and lightweight aluminium-wire voice coils. The tweeter has a 28mm silk-fabric dome with Dynaudio's 'Precision Coating'.

From this description, ignoring the little combined IR receiver and LED indicator array in the Focus 400 XD's top corner, you could mistake this speaker for the passive Focus 260. The difference lies, of course, in the electronics inside. Each 400 XD includes a digital crossover, which sends appropriately-tailored signals to three efficient 150W power amplifiers, one for each drive unit.

Making further use of the DSP possibilities, Dynaudio has implemented a new algorithm which identifies and pre-compensates resonances. According to Dynaudio, 'Listening tests showed a clear preference for the corrected loudspeaker

**RIGHT:** Seen here in black lacquer, the Focus 400 XD uses Dynaudio's own 170mm woofers and 28mm coated silk dome tweeter. The IR receiver and LED display can be seen at the top corners







## SYSTEM IN A SPEAKER

Meridian introduced the first active speaker that could accept a digital input, back in the early years of CD. A prototype was demonstrated at a 1985 show and by 1988 Meridian had gone into production with the groundbreaking D600. This was an active speaker, using linear (analogue) amplification, with a D-to-A converter at its input. For CD listening, you simply connected your CD transport via a digital cable. With the D600 came the ability to control the system by pointing a remote at the speakers, which could become the only system components that needed to be visible. After this Meridian went on to develop its well-known and sophisticated DSP speakers. More recently, Linn, with its own long history of active speakers, introduced its Exakt concept with the slogan 'The source is in the speaker'. Again, the aim was to keep the signal in the digital domain as long as possible, so the output from a Linn digital music player goes straight to the digital crossover in the speaker before being converted to analogue in DACs that feed the amplifiers for each of the drive units. Dynaudio is presenting its own spin on this theme here, using Class D amplification.

versus non-corrected, even though they had almost identical frequency responses.'

## MAKING A CONNECTION

While the upper woofer crosses over to the tweeter at around 2.5kHz, in this two-and-a-half way system the lower woofer operates only up to 300Hz. The filters are linear-phase and avoid the downward beaming effect that can characterise passive two-and-a-half way designs.

On the small back panel there are no 4mm speaker wire binding posts. Instead, you find inputs and outputs: three RCA phono or coaxial sockets. Two of these are the digital-in and digital-out used for operating the speaker in 'direct' mode with a wired connection, rather than making use of signals received wirelessly from a separate hub.

Before making these connections, you need to set the switch marked Channel Mode, the options here being Master, Slave and External. You can wire your S/PDIF stereo digital source to the input of either speaker, and that speaker is then set as the master, the other set as the slave. The master speaker can send audio signals wirelessly with a maximum resolution of 96kHz/24-bit, along with control commands, to the slave.

If you want to benefit from 192kHz/24-bit signals, you need to add a wired connection between the two speakers, from the digital output of the master to the input of the slave. There's no provision for DSD/SACD signals.

To connect an analogue stereo source, you must use a traditional pair of interconnects (an analogue input sensitivity switch gives +6dB, 0dB and -6dB settings).

If you wish to control the 400 XD from a conventional analogue preamplifier, it can be run as a straightforward active speaker without volume control by setting the Channel Mode switch to External.

A rotary control for Speaker Position compensation can be used to adjust the bass response when the speaker is placed near one or more walls, via three marked settings, while a three-position Treble switch offers subtle but useful adjustment settings of -1dB, 0dB and +1dB.

A Zone switch provides for multi-room or multichannel applications by assigning the speaker to zones designated Red, Green and Blue. Finally, there is a power on/off switch above the IEC mains inlet as both speakers need to be powered from a wall socket.

With the 400 XD comes a small remote handset, which can control both the speaker and any inputs coming from a Xeo wireless hub. There are also buttons to select the various sources from a Hub. However, the relevant controls for the speaker are the larger '+' and '-' keys for Volume, and a Direct selection button (In) which toggles between digital and analogue inputs.

Finally, the display can be switched on or off. On the 400 XD itself, the display consists of a vertical row of LEDs which indicate the volume setting, a single LED at the bottom of the set turning from red on standby to blue when operational.

## AS FOCUSED AS ITS NAME

Setting-up proved really simple, as intended. We connected it directly to the Editor's Cambridge universal player, which provided CD replay as well as high-res

'There are no 4mm speaker binding posts on the back panel'

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## DSP LOUDSPEAKER



**ABOVE:** Hidden behind the control panel are the active electronics. From the input, signals go to the DSP that provides the crossover and in turn feeds three 150W Class D amplifiers

material from a 2TB external drive. We started with some recent downloads.

On a good clean modern studio recording, the XD 400s could sound as focused as their name, precise and quick, so that the music could be ear-catchingly detailed without sounding etched or over-sharp, and in fact we preferred the treble set at +1. With Bobby Hutcherson's 'Enjoy The View' [96kHz/24-bit, Blue Note 001977902] vibes had a real top end sparkle that might 'sting' on some speakers, but at the same time they had a mellow warmth and body.

The ensemble as a whole was finely-layered, with an almost 'visible' perspective between the punchy, fulsome sound of Joey DeFrancesco's Hammond slightly to the left, and the energetic drumming of Billy Hart at the rear, with David Sanborn's sax floating a little to the right.

Hart's cymbal sounds were particularly impressive, once again naturally bright and singing out, yet never edgy, just with that kind of really coherent attack that you hear live. And when DeFrancesco picked up his trumpet you could feel that the sound was coming from above the keys, while his famously accurate, solid-sounding and propulsive pedal bass sounded both even and unexaggerated.

With Diana Krall's *Wallpaper* [48kHz/24-bit, Verve 4701861] the opening 'California Dreaming' was truly lush, with the background strings framing a suitably wintry space around the piano, vocal and

rhythm, while those quiet but arresting background vocals from Graham Nash were just the perfect finishing touch.

### FLOYD'S BIG BANG

On 'Desperado' Krall has a real Henley-like husk, while on other tracks the 400 XD revealed all her varied vocal colours as she runs the gamut of styles in this well-crafted album. There's the almost little-girl sound on her 'Alone Again (Naturally)' duet with

Michael Buble and the singer's country-tinged sound on the title track.

Turning up the volume for Pink Floyd's *The Endless River* [Warner/Columbia], it was intriguing to hear how the XD 400 handled

the bomb-like boom that comes after the start of the opening 'Things Left Unsaid'. With the level turned up almost as much as the room could comfortably stand, that big bang could certainly become a floor-shaking whoomph but somehow it could or should have been even more visceral.

Listening to Voces8 and 'Nimrod (Lux Aeterna)' from the vocal group's new album *Lux* [96kHz/24-bit, Decca Classics 478 8053; see p92], there was an impressive sense of sweep and scale that made this take on Elgar very effective. There was a good sense of definition and clarity although this recording can make the group sound like more than eight voices. In our listening set-up, though, this was one item where it could be worth turning the treble control back to -1. ➔

**'The 400 XD revealed all of Diana Krall's varied colours'**

## JAN A PEDERSEN

Well-known in the industry and with a prominent role in the AES, Jan Abildgaard Pedersen joined Dynaudio as development director in 2014, after some years with B&O. Earlier he'd headed room correction development at Lyngdorf Audio.

His experience in interfacing loudspeakers and rooms led to the Focus XD's Speaker Position switch. As he says, 'This EQ in the Focus XD is much more than just a bass adjustment. It actually takes the acoustical effects of boundaries into consideration so that these are compensated correctly. This allows the user to effectively remove most of the room influence on the bass response of the loudspeaker.'

In the Focus XD, all signals are processed digitally right up to the output of the amplifier. 'In practice, this means that regardless which input signal you put into the system it is processed at very high resolution and sample rate. Actually, the DSP internally is running at 32-bits double precision, which means that all internal processing is done at 192kHz/64-bit.'

Had the Focus XD development benefited from Dynaudio's long experience in the pro sector?

'This is absolutely true, and in addition to this we also used the huge knowledge found in our Dynaudio R&D team. We also added new experience from our line of wireless products into this, along with our experience from car-audio tuning. So the Focus XD takes something from all of this and merges it into a unique product.'





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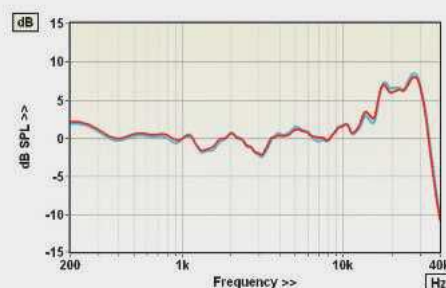
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## DYNAUDIO FOCUS 400 XD

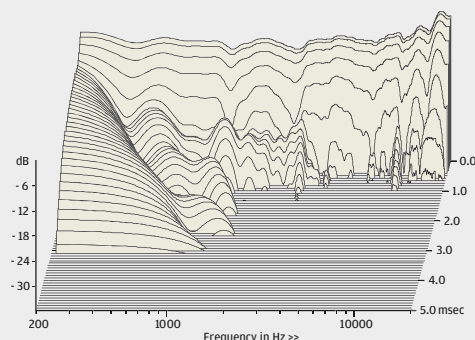
As an active loudspeaker – and a DSP-equipped one at that – the 400 XD doesn't have the conventional sensitivity or impedance of a passive model. According to Dynaudio's spec, the analogue input sensitivity is 1/2/4Vrms depending on the setting of the three-position rear panel switch; input impedance is not specified. One of the advantages of active operation is that each power amp can be designed with knowledge of the characteristics of the drive unit to which it is connected, so the three 150W modules in the 400 XD should be capable of achieving full output into whatever loads the drivers present.

Forward frequency responses, measured on the axis of the soft-dome tweeter [Graph 1], show a distinctly concave trend through the presence band – something which tends to recess the stereo image somewhat and, potentially, bleed a little life from the music – plus, in the last audible octave above 10kHz, a rapid rise in output amounting to about 5dB by 18kHz, although this will be ameliorated by listening slightly off-axis to either side. Principally because of this upper-treble rise the frequency response errors are high at  $\pm 4.5\text{dB}$  and  $\pm 4.8\text{dB}$  respectively but pair matching error is excellent at  $\pm 0.6\text{dB}$  (200Hz–20kHz). Ultrasonic output falls away rapidly above 30kHz as a result of what appears to be internal filtering.

With the Speaker Position control set to 'Neutral' our diffraction-corrected near-field bass measurement shows the LF extension to be 48Hz (–6dB re. 200Hz) – typical for a modern floorstander of this size. If the control is set to 'Wall' a quite broad 5.5dB notch is introduced at 85Hz and another 1.7dB notch at 700Hz; if it's set to 'Corner' the 85Hz notch deepens to 10dB and further lesser notches are present at 250Hz and 700Hz, suggesting that the filtering for these different boundary conditions is more than usually sophisticated. The cumulative spectral decay waterfall [Graph 2] evinces very fast energy decay and well suppressed resonances. KH



ABOVE: The 400 XD's forward response shows a recessed presence band but lifted upper treble



ABOVE: The CSD waterfall shows excellent suppression of any cabinet or driver resonances – a great result

## HI-FI NEWS SPECIFICATIONS

Frequency response error (200Hz–20kHz, L/R)	$\pm 4.5\text{dB}$ / $\pm 4.8\text{dB}$
Pair matching (200Hz–20kHz)	$\pm 0.6\text{dB}$
LF/HF extension (–6dB ref 200Hz/10kHz)	48Hz / 36.5kHz/36.7kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.9% / 0.7% / 0.2%
Dimensions (HWD)	980x198x307mm

**LEFT:** On the rear panel are digital and analogue inputs and controls for speaker-position bass compensation and treble level. The USB service port is for firmware updates, not for hi-res audio signal input

Cat GCD 4001]. On the supremely atmospheric 'Somebody Loan Me A Dime', the 400 XD had me holding my breath as the mood was set up by organ and piano, before Scaggs entered with his great minor-key blues guitar solo.

### BIG SPACES

With *Entre Cada Palabra* by Marta Gomez [Chesky JD301], the heavy bass on 'Maria Mulata' was arguably too well-controlled. Although the sound was big and airy, the 400 XD didn't deliver the greatest sense of live musicians in a draughty acoustic.

But with *The Master* (featuring the conga maestro Candido) from Chesky's Binaural+ series the 400 XD successfully conveyed the vast space in the recording and intensity of the vocal, bringing out the way Candido almost caresses the congas.

Returning to the NAS drive, we listened to Paul Lewis' *Pictures At An Exhibition* [96kHz/24-bit, Harmonia Mundi HMC 902096]. There are an infinite number of ways to record a piano, but there has to be a balance between its close-up sound and the bloom that emanates as it is redistributed by the venue, and the 400 XD showed just how well this balance was achieved here. There was a weighty but never unnatural bass, while the instrument seemed anchored solidly within a pleasingly resonant acoustic. An excellent and satisfying sound. ☺

## HI-FI NEWS VERDICT

Though it can be used cable-free with a wireless hub, the *raison d'être* of the 400 XD is that with a direct connection it provides a pure hi-res digital signal path from source to the drive units. As a compact floorstander, it can't command the ultimate sense of scale achievable by a bigger speaker. But the results can be impressive, seemingly with a special kind of neutrality, unforced precision and detail.

Sound Quality: 84%

0 - - - - - 100



We experienced one oddity with the 400 XD. On a couple of occasions, after tinkering with controls while the music was playing, we became aware of a channel imbalance, the right slave speaker becoming louder than the left master. Switching the 400 XD's off and on again corrected the problem. So maybe you shouldn't fiddle with the controls on the fly!

Turning to CD, we started with *Boz Scaggs' Greatest Hits Live* [Gray

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## Jadis I-50

This French-built integrated tube amplifier has a novel twist – at least in valve amp terms – with the inclusion of a USB input to replay your hi-res music files

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

To open, a confession: I've admired big tube amps from afar rather than coveted them up close. It's not any kind of ideological problem, nor fears about the difficulties of having hot tubes in close proximity to small children or pets, as I have neither – it's just that, for whatever reason, valve-powered amplifiers and I have crossed paths relatively infrequently. And certainly not many valve amplifiers as ambitious as the gorgeous-looking £7200 Jadis I-50.

Made in Villedubert, close to Carcassonne in the Languedoc-Rousillon region of France, the 50W-per-channel I-50 is the latest model in a six-strong line-up of integrated amps from the company. A plate atop the I-50's power transformer housing describes it as an *Amplification à lampes*, and what 'lamps': the main output tubes here are the latest KT150s from Tung Sol, the same company responsible for the development of the classic 6550 in the 1950s, and which of course started out a century ago as a maker of lightbulbs.

### SPECIAL TRANSFORMERS

A development of the famous KT120, you'll find the same tubes in designs such as the Audio Research GS150 power amplifier [*HFN* Jan '15], and the Icon Audio MB90 MkII-150 [*HFN* Mar '14], giving 120W into 8ohm against the 50W of the Jadis. But while the new valve, with its distinctive ovoid shape (designed to obviate microphony and improve heat dissipation), is much admired by valve amp designers, it brings its own problems.

Unfortunately it's not a drop-in replacement for existing power valves, such as the KT88 or KT90, but requires an amp to be designed around it, down to the output transformers, in order to make the most of its capabilities. As Jadis puts it, 'We received the first KT150 tubes earlier this year [2014]. Having seen their qualities and

characteristics, we decided to give them a try. Enraptured by the sound quality of bass notes and the details associated with the obvious power, we decided to launch a new integrated amp.'

Fortunately Jadis was able to design and build new output transformers able to accommodate the KT150s, four of which work under a slightly fiddly removable cage in the I-50's 'engine room', and play to the strengths of the new valve. Autobias removes another aspect of valve amp fiddliness, and while the designers were at it, they gave the I-50 a remote control for volume setting, and a digital input.

Yes, just the one, but it's on a USB Type-B connection, ready to accept the input from a computer in best 'Macs and DACs' style, if only able to handle signals up to a limited 48kHz/16-bit. A simple rotary control – but one beautifully finished, in common with those for balance and volume – selects between the digital input and the four line-ins, marked for CD, Tuner and Aux 1 and 2, while the main power switch is a simple toggle.

Those three transformers, and the use of surgical stainless steel for the main chassis, mean the I-50 isn't light, at 32kg, and that and the mirror-polished finish both give the amp a sense of style with substance, although some care is needed in installation, not least to avoid fingermarks.

Two sets of speaker outputs are provided for each channel (though there are no markings to identify which is which), with the amp preconfigured for speakers of 4-8ohm, and adjustment available via internal jumper bars, as detailed in the brief manual.

### POLARITY INVERSION

It's worth noting that the I-50 inverts absolute phase between input and output, as I noticed when running-in/warming it up in concert with my surround system, the processor's front left/right preouts fed through one of the I-50 'aux' inputs. Of course, the centre speaker and the left/right were out of phase, remedied by reversing the speaker connections to the Jadis – and that's how I left them.

**RIGHT:** The pairs of KT150 output tubes are driven via a complement of two ECC83s and three ECC82s. The perspex block behind the blue electrolytics is the IR remote window





The Jadis slotted into my usual review system with minimal fuss – well, apart from that slight phase hiccup – and was soon delivering music very persuasively from both my Naim NDS/555PS network music player and my MacBook Air computer. The main speakers used for the review were my PMC OB1s, which proved well within the I-50's capabilities.

A slight lag between switch-on and being ready to play is usual with amps of this kind, but I'd also suggest you click the toggle into the 'go' position a short while before you want to settle down to listen, as the I-50 sounds a bit ragged from cold, only really filling out and settling down after about half an hour or so. Jadis suggests you leave it on, and switch off only when you're not going to be listening for a while, such as when you turn in for the night, which seems a sensible approach to getting the most from the amp.

*'The Jadis has the wherewithal to dispel valve amp myths'*

Mind you, if my listening experience is anything to go by, you may find yourself turning in rather later than you'd expected, as the Jadis proves a somewhat addictive listen. Initial impressions were all very valve-y: big, rich bass – check. Smooth, flowing midband – check. Sweet, delicate treble – check.

However, extended listening revealed that the bass was punchy and tight as well as rich and well extended, while that

midband was packing bags of detail, and for all its sweetness the treble was capable of conveying a huge amount of ambient information, and conjuring up a very real sense of a performance

taking place in a credible space.

In fact, this wasn't the 'sinking into a warm bath' listening experience of valve amplifier cliché, but something altogether more compelling and involving, that beautiful fluidity merely doing the job of

**ABOVE:** Jadis front panel layout plays it simple and stylish, although markings are hard to read on the polished metal – left to right: toggle for power, volume, balance and input selector

making the music easy to enjoy, the better to appreciate the way in which so much of the information on a recording was conveyed to the speakers.

### ALL IN ITS STRIDE

With all the 'of course valve amps don't do...' ideas coming to the fore, I chose to kick off my main listening sessions with some Springsteen from the classic period, opening up with *Greetings From Asbury Park, NJ* and progressing to *Born To Run* [both Columbia 96kHz/24-bit downloads]. We were already a long way from what is seen as the valve amp comfort zone of string quartets and jazz trios, but the Jadis took it all in its stride, from revelling in the stripped-down, spare, almost folk sound of Springsteen in his 1973 debut album through to thundering out the scale of 'The Boss' in all his pomp, almost unrecognisable just two years later.

The Jadis provided a fascinating insight into the changing of Springsteen's voice from the almost Dylanesque tone on 'Blinded By The Light' to the great barrel-chested roar of *Born To Run*'s 'She's The One', but was as adept with the multilayered, horn-laden epic vision as it was with the relatively simple instrumentation of that first album. Fast, able to drive hard and power out a rhythm section: surely this isn't what people think of when you mention valve amplifiers?

OK, I'm kidding: no-one ever said amplification 'à lampes' couldn't do 'le rock', but the Jadis certainly delivers music such as this with all the conviction you ➞

## GALLIC FASHION

Like Devialet, Jadis is a 'boutique'-type French audio brand. And its story is a familiar one in audio circles: an audio enthusiast building his own prototypes in an attempt to get closer to his favourite musical performances. Buoyed by acclaim for his designs, he goes into business to make and market the products. Here, that enthusiast was André Calmettes, and the company was founded in 1983, initially making products from his own plans, then building the expertise to develop ideas. A major part of the design here, as in any valve amplifier, is the output transformer, and Jadis makes its own at its factory in Villedubert, handwinding and coating with its own formulation of resin. It's all part of the hand-assembly and extensive testing involved in the assembly of Jadis products. This manufacturing is backed up by an R&D department working in valve electronics, but also digital audio and psychoacoustics – this playing a major role in the evaluation of designs and products in the in-house Jadis listening facilities.





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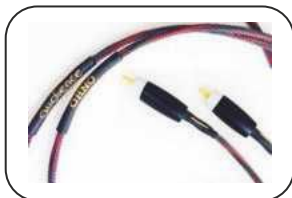
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The Absolute Sound, issue 246, Oct - '14



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## LAB REPORT

### JADIS I-50

Judging by the I-50's power output, our sample looks to have been configured with its 4ohm tap option. Ordinarily I test all tube amps via their 8ohm tap into 8ohm and 4ohm tap into 4ohm (where applicable) but the I-50 cannot be so easily adapted without disassembly. As supplied then, the I-50 mustered 2x35W/8ohm up to 3% THD and 2x39W/8ohm with a 5% limit and with 2x50W and 2x58W meeting Jadis's specification into 4ohm at 3% and 5% THD respectively. There's little or no headroom under dynamic conditions [see Graph 1, below] although the 75W/2ohm and 38W/1ohm (or 6.2A) is respectable enough for a 50W Class A tube amp even if we know far more is possible from pairs of KT150s [HFN Mar '14].

Distortion climbs steadily with output, from 0.2%/1W to 0.7%/10W and 5%/39W into 8ohm and 0.12%/1W to 0.48%/10W and 2.4% at its rated 50W/4ohm – the lower THD and higher power into 4ohm loads confirming the output transformer's 4ohm tap. Output impedance is far lower than with earlier generations of Jadis amps, realising a very consistent 0.27ohm from 20Hz-20kHz. The response, however, was markedly flatter on the right channel through our sample where it achieved -0.08dB/20kHz into 4ohm versus -1.4dB/20kHz via the left. Overall gain (+40.5dB), the 57-62dB channel separation (20Hz-20kHz) and the 83.7dB A-wtd S/N ratio (re. 0dBW) were all perfectly matched between channels, however. The 0.1dB channel balance (re. 0dBW) also demonstrates Jadis's use of a high quality volume pot. Readers may view a comprehensive QC Suite test report for the Jadis I-50 tube integrated amplifier by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



**ABOVE:** The USB and four RCA line-ins are clearly marked for source and sets of (bi-wire) 4mm speaker terminals marked for phase – but which is right and left?

could wish for, unless your idea of fun is an evening spent with your head in an old-style PA bass bin (of blessed memory now it's almost all flown arrays).

Yes, you'll get more absolute level and less happy neighbours with a stump-pulling solid state amp packing several times the I-50's nominal output, but you won't find many amplifiers quite as communicative as this one. I wouldn't choose it if I wanted to fill the house with music at party levels but for high-quality sit-up-and-listen sessions it has much to commend it.

#### WEIGHT AND TIMING

And what's more it does the traditional valve amp thing, too. With music from the Engegård Quartet's latest disc of works by Britten, Haydn, Schubert and contemporary composer Maja Solveig Kjelstrup Ratkje [2L, 2L-105], it shows its ability to deliver those beautifully textured string timbres, evoke the ambience of the recording venue, and yet still have the razor-sharp timing needed ensure the music is propelled forward in thrilling fashion.

It has just the weight and full-bodied sound required for the opening movement of Britten's String Quartet No 2, then immediately shows its speed and deft handling of the signal as the piece progresses.

Switch genres and feed it with some taut jazz – in the form of Magnus Öström's 2013 *Searching For Jupiter* disc [ACT Music ACT 9541-2] – and Daniel Karlsson's sonorous piano opening the album with 'The Moon (And The Air It Moves)' has delicious weight, then is joined by Öström's drums, kicking and pattering with just the right force and metronomic timing before the bass joins the fray and the electric guitar soars out of the mix.

The sound is just as lush, but rhythmically focused on the more reflective 'Mary Jane Doesn't Live Here Anymore', and the Jadis-driven system ends the album with a real flourish as it charges through the somewhat final-sounding 'At The End Of Eternity', the band going hell for leather, but the combination of a fine recording and an excellent amplifier making it simple to follow each instrumental line.

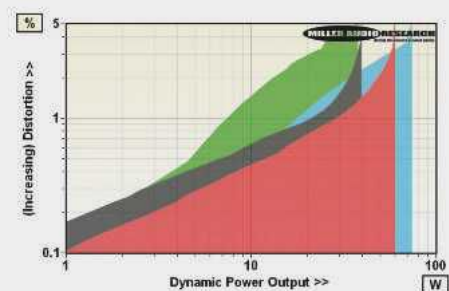
Whether you come to the idea of an unashamedly luxurious valve-powered integrated amplifier with some preconceptions or just curiosity, the Jadis I-50 has the wherewithal to dispel myths while at the same time opening up real possibilities. It has the power to drive real speakers to *real* levels, and do so with a sense of control and confidence that's hard to dispute. And it combines all that stereotypical tube amp limpidity with an ability to rock hard when required, complete with surging drums, clean, crisp cymbals and snarly guitars.

I think I may have just seen the light – or it could just be the 'amplification à lampes' coming on in my head? ☺

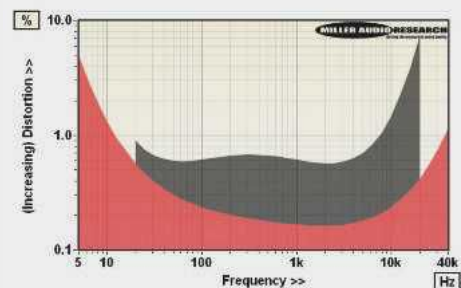
#### HI-FI NEWS VERDICT

There are elements of the stereotypical 'valve-amp sound' here, notably in the warmth of the overall presentation, but the Jadis defies some expectations with its agility and rendition of fine detail. The digital input, though limited, is a useful nod to the 21st century, and the I-50 proves both fuss-free in use – though the manual could be more informative – while capable of driving 'real world' speaker loads.

Sound Quality: 83%



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



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

#### HI-FI NEWS SPECIFICATIONS

Power output (<5% THD, 8/4ohm)	39W / 58W
Dynamic power (<5% THD, 8/4/2/1ohm)	40W / 60W / 75W / 38W
Output impedance (20Hz-20kHz)	0.283-0.265ohm
Frequency resp. (20Hz-20kHz/100kHz)	-0.12dB to -1.3dB / -12.9dB
Input sensitivity (for 0dBW/35W)	27mV / 170mV
A-wtd S/N ratio (re. 0dBW/50W)	83.7dB / 100.7dB
Distortion (20Hz-20kHz, 1 & 10W/8ohm)	0.56-0.16% / 0.65-7.4%
Power consumption (Idle/Rated o/p)	340W / 350W at 2x35W/8ohm
Dimensions (WHD) / Weight	500x220x330mm / 32kg

# Acoustic Signature TA-1000

Germany's Acoustic Signature expands its range of vinyl replay equipment with the introduction of the TA-1000 tonearm – a first for the turntable company

Review: **Adam Smith** Lab: **Paul Miller**

**D**espite vinyl's star being firmly in the ascendant and the choice of replay equipment growing continually, there are now rather fewer new tonearms being launched than turntables. So it's heartening to see a new, designed-from-scratch arm appear from a well-known name, in this case Acoustic Signature with its TA-1000. This is effectively a three-model range, as the design is available in 9in, 10in and 12in lengths, retailing at £999, £1099 and £1199 respectively. This puts the arm up against some stiff competition from the likes of SME, Rega and Audio Note.

## TUBE WITHIN A TUBE

Rather than being a simple single-walled carbon fibre tube, it actually has a second tube inside the first. The two are joined by three internal 'ribs'. Acoustic Signature claims that this achieves both high rigidity and low vibration, as the two tubes are thin and light and their construction is effectively self damping. (Certainly the tube responds with a pleasingly dull sound when lightly flicked!)

The armtube is terminated in a beautifully machined and polished end stub with an elongated slot that supports a cartridge mounting platform – these can often pay dividends in terms of vibrational behaviour compared to a conventional headshell, and make for a cleaner and more precise treble.

At the rear is a sizeable housing containing precision bearings, sourced from the Swedish manufacturer SKF, for both lateral and vertical movement. These are set and pre-loaded during production. And a neat feature of the TA-1000 is that it offers adjustable azimuth for optimum cartridge alignment. In the case of most one-piece straight arms where no adjustment is available, this would

require shims between the cartridge and headshell. But on the TA-1000, loosening of the three screws surrounding the arm tube in the bearing housing allows for a  $\pm 5^\circ$  adjustment. The mount is as solid as could be hoped for when these are re-tightened.

Internally, the arm is wired with a continuous length of Teflon-insulated 6N copper cable from cartridge tags to phono plugs. It is, however, also available with a 5-pin socket on the underside, for users who prefer to experiment with their own arm cables. Alternatively, pure silver wiring may be specified for an extra £250, but only with the 5-pin socket option. The arm's fitment pattern matches the original Rega type, and there's an SME mount

available as a £145 option.

The TA-1000 comes with an excellent two-piece location and alignment gauge which makes for easy installation and cartridge set-up.

Its supplied 115g counterweight gives a cartridge compatibility range of 4-22g [see Lab Report]. The weight has a brass finish, which is elegant, if perhaps slightly at odds with the bright silver finish of the rest of the arm's metal parts. However, you can

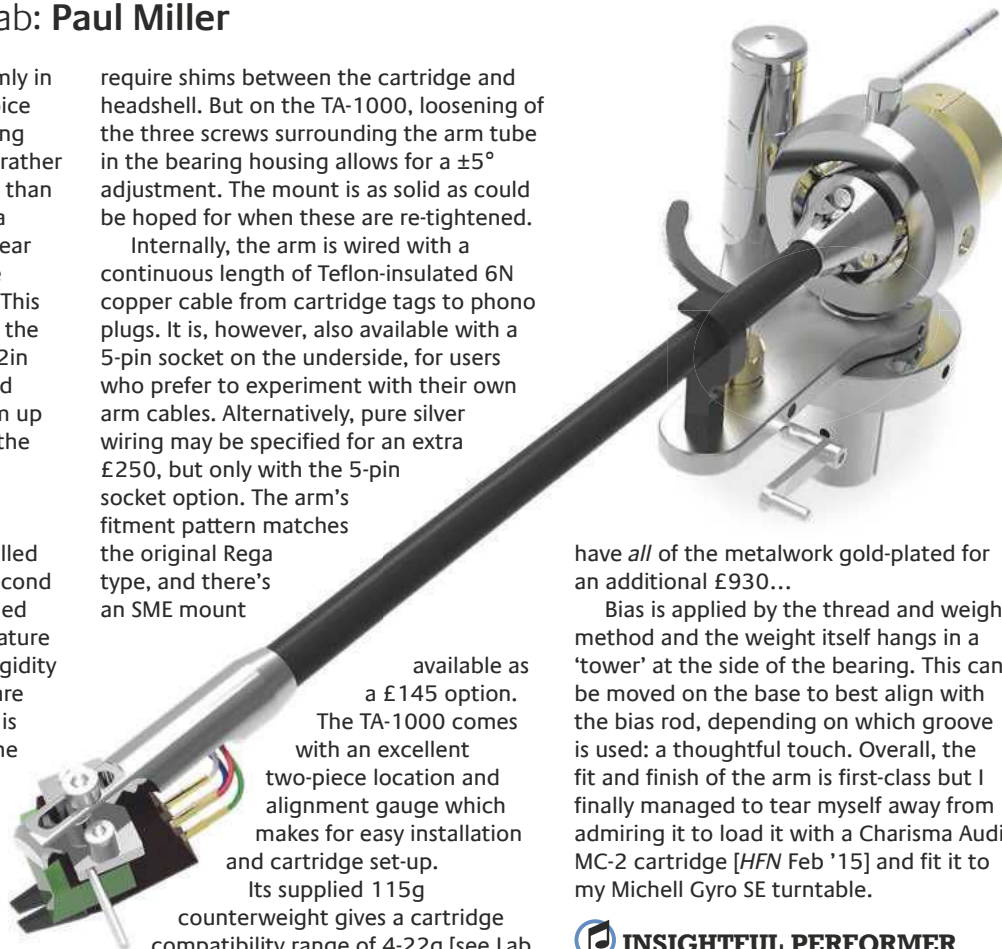
have *all* of the metalwork gold-plated for an additional £930...

Bias is applied by the thread and weight method and the weight itself hangs in a 'tower' at the side of the bearing. This can be moved on the base to best align with the bias rod, depending on which groove is used: a thoughtful touch. Overall, the fit and finish of the arm is first-class but I finally managed to tear myself away from admiring it to load it with a Charisma Audio MC-2 cartridge [*HFN* Feb '15] and fit it to my Michell Gyro SE turntable.



## INSIGHTFUL PERFORMER

I quickly realised that the TA-1000 is a product that needs to be taken very seriously indeed. It offers a sound that is pure and insightful, and its performance is



## TAKING UP ARMS

Since the company's inception in 1996, Acoustic Signature has always recommended high quality arm designs by other manufacturers, including SME and Rega. However, the launch of its own arm was prompted by the increasing scarcity of more affordable options that would match its turntables. The TA-1000 fills this role admirably but, at the Munich High End Show in 2014, Acoustic Signature also unveiled the prototype of an arm called the TA-9000. This will be manufactured using 'Stereolithographic Laser Sintering', providing two tubes separated by a complex internal structure, with movement courtesy of top quality ceramic bearings. The aim is to offer one of the most technologically advanced arms on the market, albeit at a price! It is rumoured the 9in version of the TA-9000 will cost around £14,000 when finally available.

**ABOVE:** The 'tower' beside the bearing housing encloses the bias weight, insulating it from air currents or accidental contact. This is movable for optimum bias thread positioning





blessed with a scale and grandeur relatively uncommon at this price level. Indeed, if I'd been told it retailed for double the amount that it does, I would have had no problem in accepting that.

Most notable about the arm's sound is the scale it gives musicians and vocalists, and the uncanny way in which they almost seem to hang between the loudspeakers. Shutting my eyes while playing 'New York Morning' from Elbow's *The Take Off And Landing Of Everything* [Fiction 3754769] I was left with a vivid image of singer Guy Garvey's face just hovering in the air. As the backing track came in, the Acoustic Signature proved well up to the task of perfectly ordering the instruments behind him. The result

was a completely encompassed performance on an impressive scale.

With the TA-1000 I unexpectedly found myself playing more classical music than I have with a review item for a long time. This was simply because the grand soundstaging offered up by the arm was so suited to large-scale orchestral material. Playing 'Dance Of The Reed Pipes' from Tchaikovsky's *Nutcracker* Suite, with the VPO under Karajan [Decca 417 274-1], showed this aspect in all its glory.

It genuinely seemed as if I could reach out and touch the violinists, whereas the percussion appeared to be about halfway down my garden! The whole performance was a joy which even improved when 'Waltz of the Flowers' followed.

A large part of the arm's sheer competence seemed to be as a result of its neutrality across treble and midband. A perfect example was Nanci Griffiths' 'You Made This Love A Tear Drop' [Storms, MCA MCG 6066]. I have long been a fan

**ABOVE:** The carbon fibre arm tube may be adjusted for azimuth by loosening three screws at the bearing end. There's a stylish 'starting handle' cueing lever

of Miss Griffiths but her voice has an undeniable stridency across the middle registers. It is not uncommon for a hi-fi system to pick up on this and make things edgy, but the TA-1000 never faltered. The song rang out cleanly and with passion.

#### LOW-END DETAIL

At the bottom end, the Acoustic Signature proved to be equally accomplished. Although it lacked the last ounce of punch that my regular SME 309 delivers, it never sounded soft or lightweight and it picked out low-end

detail within a recording expertly.

The drum strikes on 'You're Not The Rule...' from Helen Watson's 1987 *Blue Slipper* debut LP [EMI SCX 6710] came barrelling from my loudspeakers in an impressively snappy manner, and the synthesiser notes that held the track together were well-rounded and vivid. ☺

#### HI-FI NEWS VERDICT

The new Acoustic Signature TA-1000 deserves to be a huge success for the company. Well designed and beautifully built, its sound is a stark reminder of just how good vinyl can be – cartridge and turntable notwithstanding, of course! The performance to price ratio is more than competitive with its peers in the £1000 price bracket, but if this is its entry-level model, I can't wait to hear the flagship!

Sound Quality: 83%



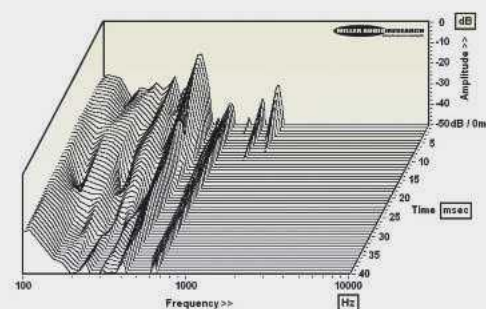
'The TA-1000 is so well suited to large orchestral works'

## LAB REPORT

### ACOUSTIC SIGNATURE TA-1000

The machining and finish of the TA-1000 is perfectly in keeping with the very high quality of Acoustic Signature's partnering decks. We tested the shortest (9in) version of the arm which is also available in 10in and 12in guises, extending the effective length from 237mm to 318mm and reducing the offset angle from 22° to 17.3°, 9in to 12in respectively. Both the thread-and-weight bias system and gold-finished counterweight are uncalibrated but the quality of the pre-loaded gimbal bearings is unquestionable – no play was detected on test in the lab while friction proved less than 10mg in both planes.

The carbon main tube is actually composed of two concentric tubes, bonded internally, terminated into an alloy bush at the bearings and into the alloy sleeve of the headshell at the business end. The latter pushes the arm's effective mass up from an estimated 9g (pure carbon) to 12g but this still accommodates MCs up to 20g in weight and down to 8cu in compliance. The arm's resonant modes are also very well resolved with 'soft' bending/flexing modes at 180Hz and 280Hz and a higher-Q torsional mode occurring at a very high 400Hz, the latter quickly damped but not uncommon with carbon tubes. Readers can view a QC Suite report for the Acoustic Signature TA-1000 tonearm by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



**ABOVE:** Cumulative resonant decay spectrum, illustrating various bearing housing, pillar and arm vibration modes spanning 100Hz-10kHz over 40msec

### HI-FI NEWS SPECIFICATIONS

Bearing / bias type	Gimbal / thread and weight
Effective mass (vertical/lateral) / length	12g/12g / 237mm
Offset angle / overhang	22 degrees / 15mm
Friction (vertical/lateral)	<10mg / <10mg
Downforce accuracy (at 2g)	uncalibrated
Cartridge weight/compliance range	4-22g / 8-20cu
Mounting Type / total weight	Rega / 895g

# Musical Fidelity MX-HPA

Claiming 'ultimate' performance, Musical Fidelity joins the balanced brigade with this slick and compact headphone amplifier – the first model in a new 'MX' range

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

Anyone who listens seriously on headphones at home must eventually discover the limitations of a computer headphone output, or, if they are still using one, an old-style hi-fi integrated with headphone amp built in. So the boom in headphone listening has brought a big wave of dedicated headphone amplifiers. Musical Fidelity has already come up with more than one solution in this field, but its most ambitious model yet is the still-affordable £599 MX-HPA reviewed here.

In fact the MX-HPA is the first model in a new series. MF's slogan for the MX range is 'High-end in sound, small footprint', and the MX-HPA is certainly a lot smaller and slimmer than the well-known M1-HPA or its recent successor, the M1-HPAP.

At the same time, this 'ultra performance headphone amp' naturally aims a lot higher than the budget V90-HPA [*HFN* Jan '14]. According to Musical Fidelity, the MX-HPA is significantly more powerful than its budget sibling even though its '1.8W/8ohm' specification is not directly comparable with the 32ohm rating often quoted by competitors.

## FULLY BALANCED OPERATION

Power is only a small part of the story, of course, but even though the little V90-HPA's output will be more than enough in practice, experience suggests that more power capability does make for better sound. But now we come to the MX-HPA's main special feature, which is fully-balanced operation.

Most domestic audio equipment uses unbalanced or 'single-ended' connections between units, typically using RCA phonos, which mean that one of the two conductors carrying the audio signal is connected to the chassis or 'ground'.

In balanced working, the two signal connections are both independent

of the chassis ground. Using a three-pin connector for each channel allows for a separate screen around the two conductors in the cable, and this is connected to ground.

Balanced operation was long-established in the pro world before it was taken up in high-end audio, because it allows the use of very long cables without interference or loss. Balanced pre- and power amplifiers have been commonplace for decades now, but more recently there have been moves to adopt a balanced connection for domestic headphones.

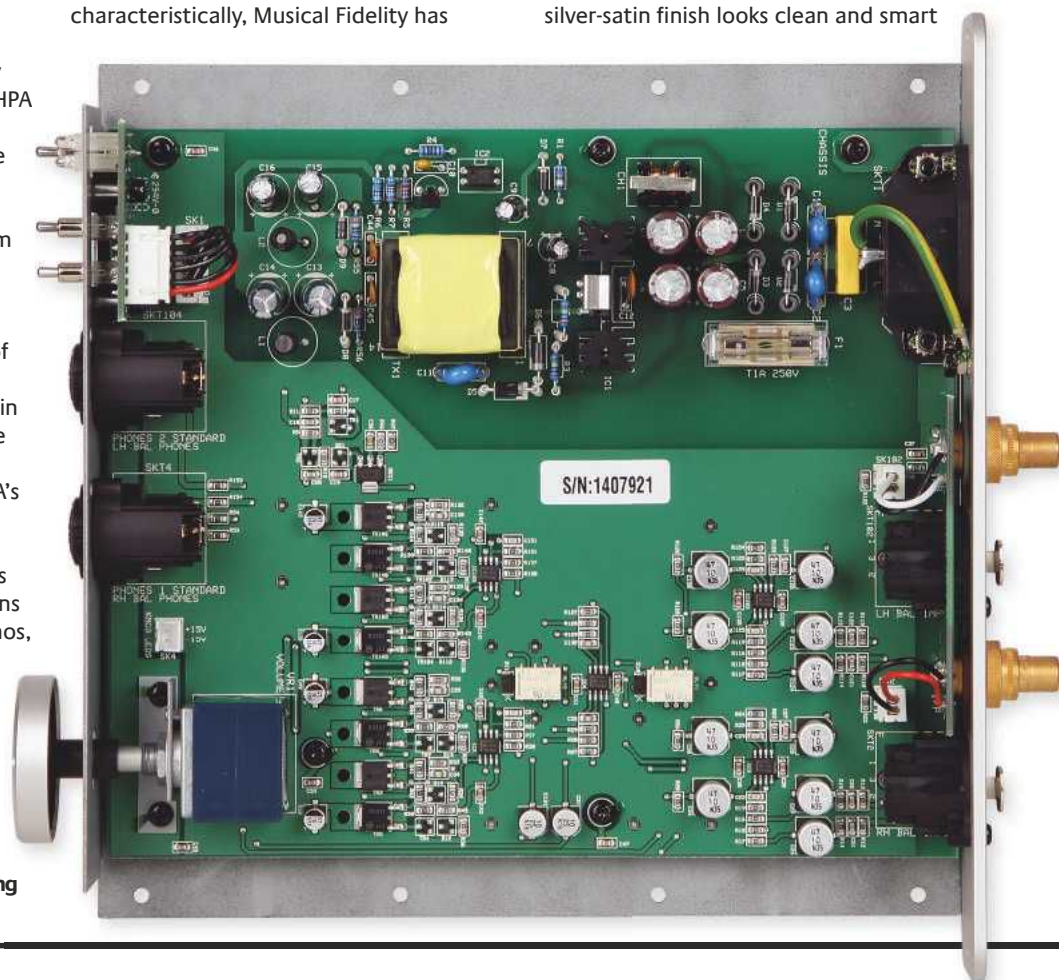
It seems that from a technical point of view, the benefits may not be clear-cut, as KH explained in his review of the Auralic Taurus MkII [*HFN* Jan '15]. But characteristically, Musical Fidelity has

spotted the trend and fearlessly acted upon it. Unfortunately, perhaps, the twin-XLR option provided by the MX-HPA isn't the only way of doing it [see boxout].

However, Musical Fidelity boss Antony Michaelson has mentioned that there may be another product soon featuring the alternative 4-pin balanced connection. (While Musical Fidelity will soon be releasing its own balanced headphones, the new MF200s are not equipped with balanced cables.)

## MX'S CLEAN STYLING

You can't fault the fit and finish of the MX-HPA, as it gives every appearance of solid build and high-quality construction. That eye-catching crystalline-textured silver-satin finish looks clean and smart



**RIGHT:** Driven via a compact, low-noise switchmode PSU, the heart of the MX-HPA is a fully balanced Class A preamplifier offering an overall gain of x8 or x15



and doesn't seem susceptible to finger-marking. As a styling feature, a sort of double facet in the front panel emphasises the large volume knob.

Even so, the fascia is dominated as much by the two headphone output sockets, bigger than the usual 1/4in (6.35mm) headphone jack. These two sockets have a dual functionality because each of them can accept either a standard 1/4in jack plug, or a 3-pin XLR.

For balanced operation, if you have a pair of headphones equipped with separate 3-pin XLR connectors for the left and right channel, you will use both sockets for one pair of headphones. More usually, though, when using the ordinary (unbalanced) 1/4in connection, these same two sockets provide stereo outputs for two pairs of headphones.

There's no need to switch between balanced and unbalanced output operation, as the sockets will make the appropriate connection depending on which plug you insert.

Next to those big sockets are three neat little toggle switches. One of these is a gain setting switch, providing a gain boost

if required when using higher-impedance headphones. This operates on both output sockets, so although the MX-HPA will cater for two listeners at once, it doesn't provide independent control of gain setting.

As the MX-HPA caters for balanced inputs too, the back panel carries a pair of three-pin XLR sockets for L/R channels, as well as the usual RCA phono sockets for unbalanced sources. Another of the small toggle switches on the front selects

balanced or unbalanced input mode.

For this review Musical Fidelity kindly loaned a pair of its MF-100 headphones, and while I feel these are great value for

money, I did most of my listening with the truly excellent Sennheiser HD 650s. These have been on the market unchanged for many years now, but they are still a reference in their price category.



## ORGANIC PRESENTATION

With the HD 650s, the sound via the MX-HPA was enveloping and also full of textured detail. On a well-produced album, you would hear instruments and voices growing organically out of the ambience. For me, it was this aspect that really set the

'There's a sense of ease which makes the music totally absorbing'

**ABOVE:** A reassuringly 'analogue' volume control governs the output from two 'combo' XLR/6.35mm headphone sockets. Gain and RCA/XLR inputs are switched via toggles

MX-HPA such a big cut above the couple of lower-cost headphone amplifiers I initially compared it with. I also felt that with the MX-HPA the Sennheisers gave a feeling of effortless bass power when the recording called for it, and offered more sheer bass extension than I would have expected.

If you wanted to relax with lush orchestration and romantic vocals, the MX-HPA could really deliver. When I put on 'Say It Over And Over Again' from Diane Panton's *Red* [Inakustik INAK 9129 CD], the whole package was put over beautifully. The singer was close-up and intimate, complete with her delicate Stacey Kent-like vibrato and endearingly nasal nuances.

Patricia Barber's *The Cole Porter Mix* [Blue Note 50999 5 01468 2 6] includes one of the songs covered by Panton: 'You're The Top', although her version could hardly be more different. On Barber's own song 'Snow', which starts just with voice and piano, her voice is presented naked and free of any artifice, and I could only marvel at the subtlety and mastery of harmony and dynamics in her deceptively simple piano accompaniment. Listening to the whole album with the MX-HPA brought a fresh appreciation of Barber's individuality and the rapport she has with her tight-knit group.

With a beautifully-produced album like Eric Bibb's *Get Onboard* [Telarc CD-83675], the MX-HPA could give a truly natural, satisfying sound, with a deep and richly-populated soundstage around the head. As usual, Bibb creates different instrumental colours for each song, starting with the combination of spooky gospel choir and grungy guitar on 'Spirit I Am.' On every track you would appreciate the little extras that help tell the story in an appealing way, from the distant slide guitar on 'Promised Land' to the muted harmonica, electric piano, clarinet and banjo that sneak in ➔

## A BALANCED MARKET?

If you've yet to hear a pair of headphones using balanced wiring, don't worry as you're in the majority. Almost all headphones still use the standard (unbalanced) 1/4in stereo jack connector, with an adapter to fit the mini-jack socket on most computer and portable devices. But since the US specialist company Headroom launched its Blockhead balanced headphone amplifier back in 2001, other specialists have followed suit, also offering to rewire existing 'phones with two three-pin XLR connectors. But despite their enthusiasm, there are few commercially-available headphones using this connection format. You can buy a balanced headphone amplifier and headphones from Oppo, for example, but this uses the simpler option of a single 4-pin Neutrik connector to give the necessary separated conductors for the left and right channels. Sennheiser also went for a 4-pin balanced connector on its HDVD 800 headphone amplifier, and has offered suitable balanced cables for its upper-range models. Essentially, there's still no industry standard for balanced headphone connections.



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sounds at the  
show"?

**IF IT'S THE HEART AND SOUL of music you're searching for – not just hifi bells and whistles – these speakers will bring tears to your eyes.**

They'll do all the technical things, of course, but with panache and timing that bring 'presence' and involvement that you may never have experienced before.

One key to the performance of the Vivace and Chiara loudspeakers is the unprecedented care taken to limit damage to the music signal from vibration and radio frequency interference (RFI).

Yes, it's not just electronics, speakers also suffer the effects as detail and timing information are destroyed by the interaction between the signal and vibration and RFI/EMI.

Loudspeakers vibrate air of course, but that vibration travels everywhere via cables.

Particular care is taken with the crossover in both speakers, using technology developed by UK company Vertex AQ. Vibration is dissipated into material with thousands of pathways, while Stealth shielding developed for military aircraft and ships protects against RFI/EMI.

A second key feature are cabinets built from Tankwood, a composite so dense that it blunts diamond tools in Kaiser Acoustics' hi-tech factory near Munich.

Formed from highly-compressed beech ply and resin, Tankwood has inherently excellent damping properties but also is perfect for musicality, natural tone richness and authentic timbral colour.

*Rear view of the Vivace, showing the passive mid/bass driver (top) and the additional bass unit. Finish of this particular pair is high gloss white with an exotic wood veneer front baffle. Almost any wood or paint finish is possible.*

**Don't think of the Chiara as a stand-mount speaker.**

Vivace and Chiara loudspeakers both produce a scale, power and depth of sound out of all proportion to their physical size but the Chiara always takes listeners by surprise.

Often it's the bass capability that astonishes, until its other strengths – agility, clarity, sparkling detail, separation, soundstage depth and width – come into focus.

Chiara's invisible secret is the substantial vibration absorption built into the integral stand, draining energy from drive units, crossover and the cabinet itself.

*Those labyrinths are the major reason the speaker offers power and scale more like a floor-stander. Absorbing the huge energy inside the cabinet during intense music passages allows it to control timing and phase accuracy, key to that stable imaging.*

The result is stop-you-in-your-tracks presence and realism, a jaw-dropping re-creation of the original performance. Even playing music that's not your usual choice the effect is riveting.

A third feature of both speakers is an extra drive unit on the back, passively driven by the main mid-bass front drive unit – see the picture below.

Working *with* and controlling the room is the concept, rather than fighting it and setting up difficult modes. Human hearing needs *two milliseconds* to separate a noise from a musical tone, after which the room's ambient sound becomes crucial.

Read much more under 'Loudspeakers' on our web site, including several major reviews, eg 'Best of the Best' in hifi+ magazine for the Vivace.

**Customers say** we make some of the best sounds at shows and in our studio they have ever heard, so you know we can do the same in your home. Our advice takes account of your best components and guides you where change is needed, in stages you can afford. Let us advise.

You avoid expensive mistakes, enjoy music and save money in the long run.

**Just listen and you'll know**

CD: Aurender, Bel Canto, dCS, Gamut, Vertex AQ DAC. Vinyl: Graham, Spiral Groove, Transfiguration.

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

Loudspeakers: Avalon, Gamut, Kawero! – Vivace & Chiara, NEAT, Totem. Cables: Chord Co., DNM, Nordost, Siltech, Tellurium, Vertex AQ.

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



*Finish of this Vivace is high gloss Burgundy red with a carbon fibre baffle.*



*Chiara in another finish option.*



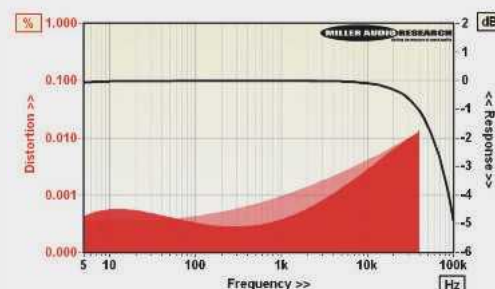
## MUSICAL FIDELITY MX-HPA

We may have uncovered some 'over-specification' in the power output of Musical Fidelity's lower-cost V90-HPA [*HFN* Jan '14] but the fully-balanced MX-HPA tested here realises a far more realistic – and capable – technical performance. There are two gain settings, notionally +18dB and +24dB, that equate to +7.7dB and +13.7dB respectively when driven balanced XLR in/ single-ended 6.35mm out. The maximum voltage output is 9.3V, available for the highest impedance 'phones, while the maximum power output into our standard 25ohm load (representative of the 'average' headphone) is a sharply-defined 1.22W [see Graph 1, below]. Incidentally, there is no appreciable variation in maximum power output, S/N or output impedance between the low and high gain settings.

Output impedance is moderate at 3.5-4ohm (20Hz-20kHz), equivalent to a loss of about 1dB into 25ohm and still high enough to cause response variations with some low impedance 'phones, but the A-wtd S/N ratio remains extremely wide at 99dB (re. 0dBV). The default response is deeply extended into the subsonic (-0.1dB/5Hz) and very gently, but sensibly, rolled-off to -0.3dB/20kHz and -4.9dB/100kHz. Channel balance is within 0.2dB while separation declines with frequency from 93dB/20Hz to 66dB/1kHz and 39dB/20kHz. Distortion is fabulously low and only slightly affected by loading, increasing from 0.0002%/10kohm to 0.0009%/25ohm at 1kHz (both at 1V output) – significantly lower than achievable by any current headphones, of course [see Graph 2, below]. Readers may view a comprehensive QC Suite test report for Musical Fidelity's MX-HPA headphone preamp by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



ABOVE: Continuous power output versus distortion up to 1% THD into 25ohm 'headphone' load



ABOVE: Frequency response (black) from 5Hz-100kHz into 25ohm and distortion versus frequency (red, 1V; shaded, 40mW) from 5Hz-40kHz

## HI-FI NEWS SPECIFICATIONS

Maximum output (re. 1% THD into 47kohm)	9.3V
Max. power output (re. 1% THD into 25ohm)	1215mW
Output impedance (20Hz-20kHz)	3.58-4.05ohm
Maximum gain	+13.7dB (High gain mode)
A-wtd S/N ratio (re. 0dBV)	98.6dB
Frequency response (20Hz-20kHz/25ohm)	+0.00dB to -0.33dB
Distortion (20Hz-20kHz, re. 40mW)	0.00035-0.0065%
Power consumption	5W (<1W standby)
Dimensions (WHD) / Weight	220x53x240mm / 2.2kg



ABOVE: This is an analogue-only preamp so there are just two line-level inputs available – these on RCA (singled-ended) and XLR (balanced) connections

to build up Bibb's mythical band in 'New Beale Street Blues'.

Moving on to orchestral music, the MX-HPA could present big, sweeping sounds without losing inner detail and texture. Playing the 2003 LSO/Haitink recording of Brahms' Symphony No 1 [LSO Live LSO0045], I found myself irresistibly carried along as the first movement unfolded at its inexorably measured pace, set out at first by the insistent timpani, which possessed their full dramatic weight.

There was a really admirable clarity in the instrumental timbres of strings and woodwinds too. In the magical third movement, the clarinet, and then the other wind instruments which take up the theme, were beautifully poised against the strings and there was a sense of ease about the sound which made the music totally absorbing.

With Mitsuko Uchida's Debussy *Études* [Philips 422 412-2] the sound of her piano was precise and convincing, with a comfortable image spreading above my head and the torrents of notes sometimes dazzling but always clean and clear. The low registers were weighty and solid, while the ambience of the Snape Maltings was felt as much as heard until a pause after a loud passage would let you clearly hear the echoes coming back.

I don't think you could accuse the MX-HPA of being over-warm or soft around the edges, but with the well-balanced Sennheiser HD 650s it would often bring out the warmth and tenderness in the music. A great example was Georgie Fame's *Lost In A Lover's Dream* [Three Line Whip TLW009], a gentle, jazzy album recorded in Slovenia with just two musicians. He gets perfect support from Primož Grašič's lush, full guitar and Mario Mavrin's solid, spot-on electric bass lines, which showed that the MX-HPA could really get the HD 650s to go deep.

With this simple line-up, Fame's voice is totally exposed, especially

on headphones, and on the MX-HPA you could appreciate every detail, every breath sound, and above all, realise what a commanding, musical performer he is.

## CATCHING EVERY DETAIL

Many 1950s jazz classics are recorded with a very left-right kind of stereo picture, and of course this actually suits headphone listening quite well. With *Art Pepper Meets The Rhythm Section* [Contemporary 0025218633826], I was impressed by the way the combination captured the beauty of Pepper's alto sax sound, full and gutsy in the lower register, smooth and almost creamy in the high notes – and once you started obsessing about the detail you could tune in to what remained just a very slight reverberation and an occasional slight sense of ringing from the microphone.

While Pepper is placed to the left, the famous rhythm team are grouped on the right. But pianist, bassist and drummer all clearly inhabited their own spaces, with Garland's piano farther out to the left than Chambers's full-bodied bass, and Jones's always snappy drums placed firmly at the rear three-quarter position. His cymbal sound was just great, and so, in fact, was the whole thing. ☺

## HI-FI NEWS VERDICT

Competitors in this price range include amps with built-in DACs, including Musical Fidelity's own. But the compact MX-HPA sounds refined, engaging, silky-smooth but not soft or over-warm, and with a notably fine bass. Even if the balanced option is an attempt at future-proofing rather than a useful option for now, the MX-HPA really does provide great sound for the money and is heartily recommended.

Sound Quality: 83%



# NAD Masters M12/M22

The latest arrivals in NAD's M-series are a modular digital preamp and very slimline 250W power amp. Are they too small and light to perform, or NAD's masterstroke?

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

**A**s the maker of one of the most celebrated budget amplifiers of all time – the 3020, which first appeared at the end of the '70s offering a taste of audiophilia for a very reasonable £80 and shifting something in the region of 500,000 units in three years – it's hardly surprising that a lot of the action in the NAD range occurs at the entry-level.

The latest version of that classic, for example, is the very different-looking D 3020 [*HFN* Aug '14], launched to celebrate the company's 40th anniversary. However, the Canadian-owned company has an upmarket string to its bow, in the form of its Masters Series, designed to take on the big names of high-end audio as the 3020 tackled the integrated amp *status quo* of the time. The most recent arrivals in this range are an all-new preamplifier, the £3299 M12, and a 250W per channel stereo power amp, the £2699 M22.

## OPTIONAL EXTRAS

Both draw heavily on developments elsewhere in the NAD mainstream range, and previous generations of Masters Series products – for example in the use of digital amplification and the adoption of the company's Modular Design Construction, in which features can be added to the product by the insertion of 'cards' delivering specific functionality [see inside shot]. The M12 preamp can be fitted with a card supporting the multiroom/wireless functionality of NAD stablemate Bluesound and another with HDMI audio capability and video passthrough.

Both the M12 and the M22 are beautifully constructed and finished, with fascia clutter kept to a minimum: the M12 has a clear, sharp colour touchscreen display for all its functionality, plus a large volume control, but beyond that the two boxes have no more than a logo edge-lit to indicate on/standby, and a touch-sensitive

on/off switch mounted in the centre of the fascia surround.

That's neat, but it did lead to my switching the preamp off once or twice when navigating my way around the touchscreen's set-up menus. And there's plenty of flexibility in those menus: trims can be set for each input, or fixed level set and adjusted (say, for use with an AV processor), while inputs can be renamed, tone controls set and speaker options explored (eg, with/without subwoofer) and features such as display level, automatic power off, etc, selected.

As standard, the M12 preamplifier comes with hard-wired socketry for optical and coaxial digital output, balanced and single-ended preouts, outputs for two subwoofers, control connections on 12V trigger in/out, infrared sensor input and

an RS232 socket, plus three MDC cards already installed. This trio encompasses phono (adjustable between MC and MM) plus line-ins on RCA phonos and XLRs; a digital module with two optical inputs, two coaxial and an AES/EBU input on a three-pin XLR; and USB and computer inputs on Type-A and Type-B sockets respectively,

with another Type-A input below the volume control on the fascia.

## BLUOS MODULE

Adding the BluOS module (an extra £399) means the preamp gains wireless and

wired networking, able to stream content at up to 192kHz/24-bit, aptX Bluetooth, and access internet radio using the Tuneln platform and streaming services including Qobuz, Spotify and Tidal. And it has two extra USB sockets (though one of these is occupied by the little Wi-Fi 'dongle')

*'It's dramatic and dynamic well beyond its modest dimensions'*



**RIGHT:** NAD's modular architecture sees optional HDMI, Bluetooth, Ethernet and Wi-Fi input cards loaded into its expansion bays (top right). Analogue inputs are processed digitally





supplied with the upgrade kit should you choose to use the wireless route).

The module can easily be fitted by the customer. Opening the box you find a clear instruction leaflet, the MDC module, a Bluetooth antenna and the Wi-Fi dongle, plus an extension lead should you need it in order to get a clear wireless signal. The M12 requires just two Philips-head screws to be undone to release the MDC blanking plate from the rear of the preamp, and then the BluOS module slides into a guide channel to ensure it engages the contacts within, and the screws are then replaced.

As standard, the amplifier can handle up to 192kHz/24-bit via its more conventional digital inputs, and it uses NAD's Direct Digital processing to ensure the integrity of even 24-bit signals is maintained despite the digital processing in the signal path (for

all those gain adjustment, input trim and tone control options).

The M22 power amplifier has both balanced and single-ended inputs, and a single pair of substantial combination terminals for each channel's speaker output, plus a 12V trigger input to allow it to be switched on and off remotely by the M12. The healthy claimed output and slimline dimensions suggest this is one of NAD's DirectDigital designs [see *HFN* Jun '10], but it isn't. Instead it uses Ncore Class D technology from Dutch company Hypex to create a hybrid digital amp, designed to give, says NAD, 'massive analogue emotion' [see PM's boxout below].



#### VIVID PRESENTATION

For all its capability and flexibility, this is a very simple amplifier system to set up

**ABOVE:** Both the M12 and M22 have a notable lack of any physical controls beyond touch-sensitive on/standby 'buttons': settings on the preamp are made using the touchscreen display

and use, and I had it up and running in pretty short order, then gave it a few days' use before settling down for any serious listening. As usual, the main comparative source was my Naim NDS/555PS network player and the principal speakers were well-used and totally familiar PMC OB1s.

Whether used with the internal Bluesound streaming board or external sources, the NAD manages to sound dramatic and dynamic beyond its modest dimensions, as an opening burst of Yes's 'Roundabout' from the Rhino 96kHz/24-bit download of *Fragile* makes clear. It also has a directness of communication, betraying no sense of the amount of digital processing through which the signal has passed on its way from source to speakers.

This is about as far as you can get from a simple 'switch, gain and output' amplifier, and yet it unravels the complexities of the track while still shaking the room with bass, punching the music along, while at the same time showing it's able to give a fresh, intimate, close-focused view of the acoustic guitar and voice when required.

Stay in the same area with Gov't Mule's live take on 'Shine On You Crazy Diamond (Pts 1-5)', from *Dark Side Of The Mule* [Evil Teen 11218] and the NADs' vivid presentation is again showcased, both in the way the contribution of the whole band, and not just the lead guitar, are

### TIME FOR AN NCORE

The M22 power amp doesn't use the company's DirectDigital technology [*HFN* Jun '10]. Instead, Bjørn Erik Edvardsen, the company's Director of Advanced Development, was sufficiently impressed by the Hypex UcD Class D technology employed in its D 3020 integrated [*HFN* Aug '14] that he turned to the latest Ncore generation for the M22 (confusingly referred to as 'nCore' by NAD). Ten years ago, Hypex's original UcD amplifier overcame many of the technical issues that hampered traditional Class D designs of the day. Its compact single-ended architecture offered reduced levels of interference, lower midband distortion and – importantly – a frequency response that was largely independent of speaker load (many of today's Class Ds still have a response optimised for ~6ohm but 'brighten' into higher impedances or droop into lower loads). The latest Ncore module employs a faster comparator circuit, a more muscular control loop and improved FET output stage and boasts even lower distortion, better load tolerance and a far lower output impedance [see Lab Report, p61]. PM

# Guildford Audio HI-FI SHOW

Sat 18th & Sun 19th, April 2015

## SHOW LOCATION

Best Western Moat House  
Mill Lane, Sindlesham  
Wokingham, Berkshire  
RG41 5DG.

## SHOW TIMES

Saturday, 18th April  
9am -- 5pm  
Sunday, 19th April  
9am -- 4pm

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throughout the show to  
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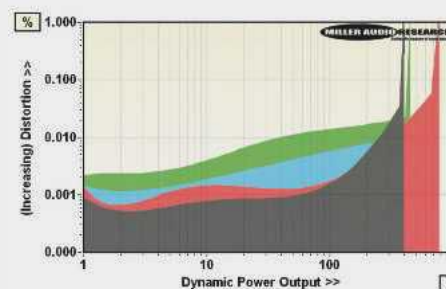
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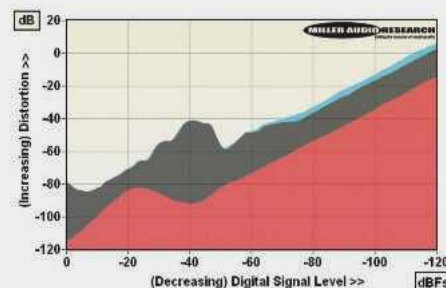
## NAD MASTERS M12/M22

The heart of the M12 is digital, so analogue inputs are sampled at a user-defined 48kHz-192kHz. HF distortion is slightly lower with 48kHz sampling (0.005% vs. 0.008%/20kHz at 192kHz sampling) and the S/N ratio fractionally wider (98dB vs. 97dB re. 0dBV) but the bandwidth is necessarily more extended at 192kHz (-0.2dB/21kHz vs. -0.04dB/21kHz and -5dB/85kHz). As a DAC, the M12 offers a substantive 116dB A-wtd S/N ratio (re. 0dBFs at '0.0dB' volume) and a very healthy 4.7V output through a 91ohm source impedance, though this increases above 5kHz to 156ohm/20kHz. Distortion also increases quite sharply at HF, from a mere 0.00017% through bass and midrange to 0.011% at 20kHz. The trend of distortion versus digital level is also very far from the 'diagonal line' we expect [see Graph 2, below]. The response with digital inputs reaches -1.2dB/45kHz with 96kHz media and -4dB/80kHz with 192kHz files, all the above test results proving consistent between USB and S/PDIF (including the 270psec, principally low-rate, jitter).

The partnering M22 power amp clocks in at just 9kg but is no 'lightweight'. Its 250W specification is bested to the tune of 295W/8ohm and 360W/4ohm with dynamic outputs of 400W/8ohm and 780W/4ohm [and some slight current limiting to 750W/450W into lower 2/1ohm loads - see Graph 1]. The 82dB A-wtd S/N (re. 0dBW) is typical but the load-independent response (-0.1dB/20kHz from 8-1ohm) is very impressive for this class of amp as is the spectacularly low 0.005ohm output impedance. THD is as low as 0.0004% midband. Readers may view extensive QC Suite test reports for the NAD M12 DAC/preamp and M22 power amp by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads. Maximum current is 34.8A



ABOVE: THD vs digital level over a 120dB range via line out (S/PDIF 1kHz, red & 20kHz, black; USB 20kHz, blue)

## HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	295W / 360W
Dynamic power (<1% THD, 8/4/2/1ohm)	400W / 780W / 750W / 450W
Output imp. (20Hz-20kHz, M12/M22)	91-150ohm/0.005-0.014ohm
Freq. resp. (20Hz-90kHz, M12 Dig/M22)	+0.0 to -11.2dB/+0.06 to -2.0dB
Input sensitivity (for 0dBW/250W)	101mV / 1630mV (balanced)
A-wtd S/N ratio (M12 Digital/M22)	115.8dB (0dBfs) / 82.2dB (0dBW)
Distortion (20Hz-20kHz, M12 Dig/M22)	0.00017-0.011% / 0.0004-0.041%
Power consumption (Idle/Rated o/p)	31W / 570W (M12, 29W)
Dimensions (WHD, M12/M22)	435x133x383/435x103x379mm



ABOVE: The exact configuration of the M12's rear panel depends on the Modular Design Construction modules fitted: line/phono and digital/USB connections are standard, while Bluesound and HDMI modules are available as options

presented, and the sheer sense of presence and fun conveyed. This gig has pretty stunning quality, with skilful mixing bringing out every element of the piece while keeping that live feel, and listening to the NADs delivering it at a little more than sensible levels, it's not hard to be carried along by the atmosphere.

With the intimacy of Billie Holiday's *From The Original Decca Masters* set [MCA 254 558-2] the NAD combination shows just how delicately it can bring out the expression in a voice. 'God Bless The Child', a recording dating from the 1940s, sounds fresh, clean and is presented with beautiful insight into the singer's phrasing and intonation. That's what the directness of this combination is all about.

## HOUSE TRAINED

Feed it with something darker and more electronic, such as Ólafur Arnalds' music for the TV series *Broadchurch* [Mercury Classics 4811485], and the claustrophobic, menacing atmosphere is almost tangible through the M12/M22, so well do they handle everything from the droning bass and stabbing percussion to the almost Glass-like melodic lines drifting above them. It's a superb recording, and all the more disturbing for being played on a high-quality amplifier such as this.

If the NADs have a failing, it's that they're not too kind to recordings showing their age, or low-bitrate radio streams via the Tunesl platform, the clean, clear treble heard making clear any splashiness or rolling-off of ambient information.

Or maybe that's just a side effect of how good they sound when working with higher-quality material, fostering that realisation that they can sound really solid and involving when given the chance.

In absolute terms, the M12/M22 package is perhaps a shade sweeter than I'd like in the treble - there were just a few occasions when I found myself hankering for a smidge more sting and attack to make the music really break free from the speakers - for example with Lynyrd Skynyrd's anthemic 'That Ain't My America' [God & Guns, Roadrunner RR 7859-5]. And with Gustav Dudamel's Wagner programme, recorded for his own label with the Simón Bolívar Orchestra [digital-only release], impressively vibrant and weighty though the sound may be, just a little more brass blare wouldn't have gone amiss to really raise the hairs on the back of the neck.

House-trained high-end? That's just about the best way to describe this pre/power combination: it's simple to operate, thanks to a well-sorted touchscreen interface, remote control and apps (for the Bluesound section). It's flexible, capable of a sound at turns thunderous and delicate, it drives and controls speakers extremely well and is totally fuss-free in use. In all, a pretty compelling package. ☺

## HI-FI NEWS VERDICT

Simple to use, well-behaved and with a refined, powerful sound even when pushed hard, the M12/M22 combination is designed for real-world use, not the tweaking brigade. The M12 preamp's flexibility is especially impressive, accommodating a host of sources, while the optional BluOS module adds even more capability with streaming, network playback, Bluetooth and internet radio.

Sound Quality: 80%





# Crystal Cable Arabesque Minissimo

Crystal Cable offers the benefits of its asymmetrical cabinet shaping in a less extravagant design

Review: **Ken Kessler** Lab: **Keith Howard**

**D**erived from the dearer Arabesque Mini, the £9998-per-pair Minissimo is Crystal Cable's most populist take yet on its highly original speaker shape. First appearing in glass in the big Arabesques, then in metal in the Mini, the shape has been applied to the more affordable Minissimo thanks to fresh thinking on cabinet materials.

As seen in the original floorstanding Arabesque, the idea was to create a speaker with 'continuously curved walls'. Crystal Cable soon discovered that it wasn't possible with pure glass – one can only imagine what it would have cost to produce drawn single-piece glass enclosures – so the company used a faceted construction made up of carefully fitted glass panels or sections.

As it was always the company's intention to apply the Arabesque shape to less expensive models, it soon learned that the shape was inherently time-consuming and complex to construct. Even the Mini, with its enclosure formed of milled aluminium, costs nearly £5000 more with stands; the price of the Minissimo includes integral pedestals, which are fixed at the factory – making these small monitors for standmount use only.

The Minissimo departs completely from its siblings' multi-part construction. This charming little beauty is actually milled from a single piece of 'metal loaded polymer material', using a fully automated process. What you then acquire is a true monocoque enclosure, noteworthy for its sublime finish.

True, there are £59-per-pair injection-moulded plastic pieces of junk out there with similarly seamless surfaces, but the Minissimo is a non-resonant, robust work of art that oozes luxury. Even the three-

legged integral pedestal is a carefully-devised stand, with the cylindrical supports arranged to follow the profile in three diameters, to create a further visual treat.

Add to that a choice of colours using automotive paint – the review pair was in a fetching Solar Orange, but you can opt for Aquamarine Blue or Pearl White – and you have aesthetics that are hard to fault. Aside from exposed drive units, which some might find too audiophile-ish compared to a grille, these are cute as a button.

## EXPLOITING NEW TECHNIQUES

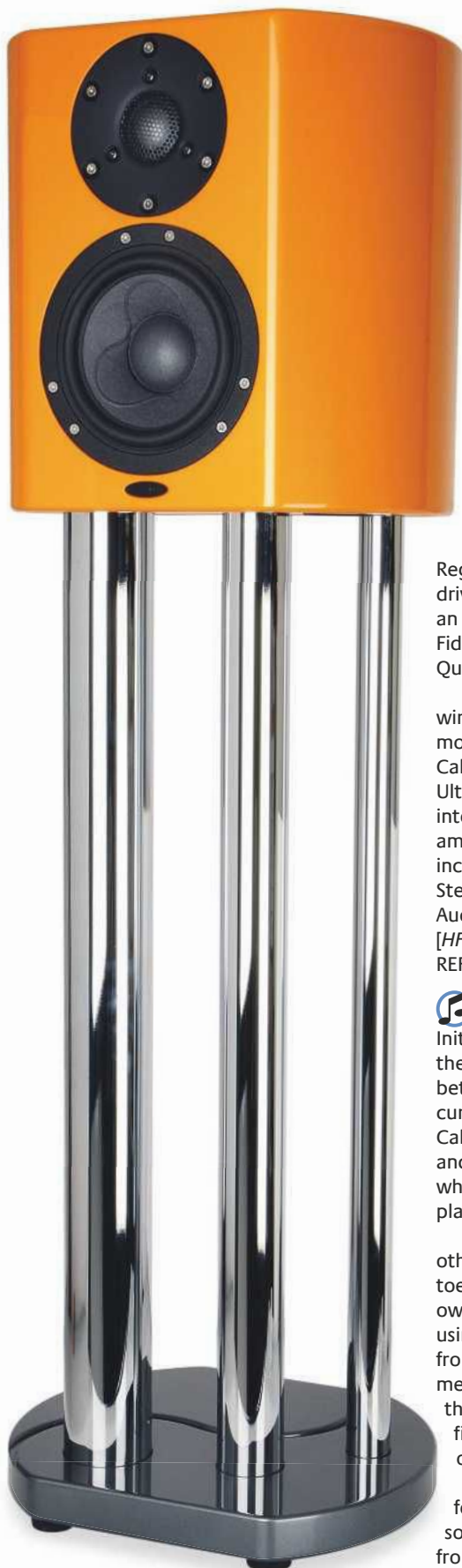
But back to the technology. Crystal Cable also found that, in addition to simplifying the construction, the new material and manufacturing methodology allowed it to exercise even greater control over the curvature of the walls as well as their thickness. This, in turn, allowed the designer to optimise the structure's resonant behaviour and to determine the internal volume with greater precision.

Crystal Cable fits this enclosure with the same 25mm tweeter and 150mm woofer used in the Arabesque Mini, addressed by a new type of crossover dubbed 'Natural Science'. Aside from the rather vague description of 'a new topology that offers non-reactive electrical characteristics along with significantly improved phase linearity and rhythmic articulation, more realistic harmonic and spatial reproduction', I have no idea what they've actually done – not even the crossover point.

What I can tell you is that this speaker-on-a-stand occupies a volume

**RIGHT:** Machined-from-solid cabinet has seamless surfaces and a flawless finish. The loudspeaker uses the same two drive units as Crystal Cable's costlier Arabesque Mini





## THE ARABESQUE CURVE

Crystal Cable's Arabesque speakers' curves give its enclosures a distinctive cross-section like an apostrophe. In the company's own words, 'The innovative cabinet shape with its non-parallel surfaces and critical venting eliminated the intermodulation distortion and reflected internal energy that muddled and smeared the musical performance of conventional designs.' Non-parallel surfaces are nothing new; Crystal Cable's take on it is simply another spin, but a successful one. From see-through, all-glass enclosures in the original floorstanding Arabesques, Glass Master and Absolute, to the smaller Mini with cabinet construction formed of milled aluminium plates, the Minissimo is a direct descendant with the same drivers used in the Mini. It enjoys the same asymmetrical form, and the same user's choice of whether to use the apostrophe's 'hook' on the inside or the outside. What it adds to the Crystal canon is something the least expensive model ought not to be: it's the prettiest of them all!

of 960x300x250mm (hwd). It is nominally a 7ohm load, but it measured as less sensitive than its factory spec [see Lab Report, p65].

Regardless, the speaker seemed easy to drive, delivering lush sounds with even an inexpensive amplifier like the Musical Fidelity M1PWR [HFN May '12], fed by the Quad PA-One as preamp [HFN Feb '15]

As the Minissimo is (naturally) wired internally with monocrystal Crystal Cable, I used Crystal Ultra speaker cable and interconnects. Other amplifiers used here included the D'Agostino Stereo [HFN Aug '12] and Audio Research REF 75 [HFN Nov '12] fed by the Audio Research REF 5SE preamplifier.



### A QUARTET OF STRENGTHS

Initial listening to the Minissimo involved the determining of which way sounded better, *ie*, choosing to have the apostrophe curve on the outside or the inside. Crystal Cable does not label the speakers 'left' and 'right', nor does room size determine which way is better. But guard against placing them too far apart.

One yields a deeper soundstage, the other a wider soundstage, while judicious toe-in can establish a compromise. The owner's manual talks you through all this, using drawings that show the speakers from overhead so you know what they mean by having the curve on the inside or the outside. In close quarters, I used them firing forward, with the 'curve' (or 'hook') on the inside.

What didn't matter at all was concern for the reflex port as it fires downward, so moving them closer or further from boundaries produced consistent,

predictable bass support. (A version with a rear-mounted port is said to be in the works that'll enable the Minissimo to be positioned without the integral pedestal.)

Considering that I may be the only American of my generation who is not a slaving Deadhead, I found the SACD of the Grateful Dead's *American Beauty* [Mobile Fidelity UDSACD 2138] inescapably involving and even comforting. 'Sugar

Magnolia' and 'Truckin'' are overly familiar to me despite my lack of interest in the band, but I was delighted to hear four specific strengths of the Minissimo highlighted by this

superbly realised edition.

Stage width was the first element to dazzle me, once I stopped futzing around with positioning. It was almost deliriously broad, reminding me of the Denon DL-103 MC cartridge, a wall-to-wall experience that placed the musicians across the room in an array free of 'holes' between the players. Which led me instantly to the second virtue of the speaker: seamless.

Usually, this applies to consistency across tonal or textural spectra, dynamic contrasts, or the frequency range from lowest to highest. It is freedom from jarring discrepancies. With the Minissimo, especially noticeable during the Dead's lighter, more acoustic/rustic moments, it was evident in airiness and texture of unimpeachable uniformity.

But more intriguing was seamlessness as applied to imagery. This meant working in tandem with the broad soundstage. The best way I can describe it is to liken it to 3D movies. The problem that 3D visuals have is a heightened depth that doesn't mirror reality: it's more of a special effect. With ➤

'Stage width was the first element to dazzle me – it was deliriously broad'

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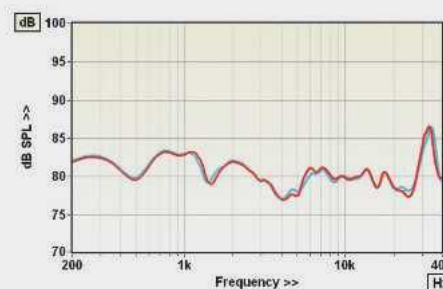


## LAB REPORT

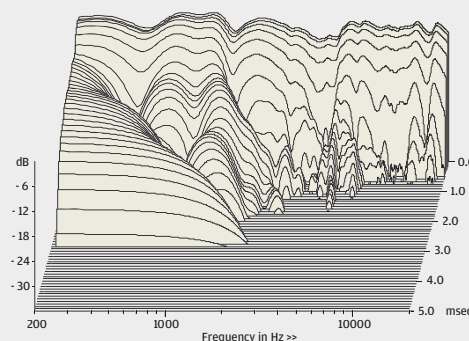
### CRYSTAL ARABESQUE MINISSIMO

Crystal Cable's product literature carries limited specs for the Minissimo, but this does include a 7ohm minimum impedance, <0.3% THD and a sensitivity of 86dB. The latter is a trifle over-optimistic: our pink noise measurement recorded a figure fully 5dB lower at 81.0dB, which is much more in keeping with a cabinet this diminutive. Crystal Cable could have extracted more by lowering the impedance but our recorded minimum of 7.2ohm is on the high side for a modern design, ensuring that the Minissimo is unusually easy to drive. Impedance phase angles are high but the EPDR (equivalent peak dissipation resistance) still never falls below a high 3.6ohm, about double that typical of the ubiquitous floorstanding competition.

Forward frequency response [Graph 1, below], measured on the axis of the Scanspeak beryllium dome tweeter, evinces a generally declining trend from bass to treble, suggesting that the perceived tonal balance will be on the 'polite' side. Response errors are nonetheless modest at  $\pm 3.2$ dB for both of the review pair (200Hz to 20kHz), and matching error over the same frequency range is fine at  $\pm 1.0$ dB, although it would have been even tighter but for narrow-band disparities at 1.5kHz and 5kHz. Diffraction-corrected nearfield measurement showed the bass extension to be 43Hz (-6dB re. 200Hz) – a good result for so compact a speaker – while the tweeter breakup mode at about 33kHz ensures that ultrasonic output is maintained to above 40kHz. The cumulative spectral decay waterfall [Graph 2] evinces fast energy decay at treble frequencies but with hints of resonance around the two frequencies where the pair matching error is greatest. KH



ABOVE: The Minissimo's response suggests a 'polite' treble but has good bass extension for the size



ABOVE: Fast decay, especially through the treble, and only two low-level resonances at 1.5kHz and 5kHz

### HI-FI NEWS SPECIFICATIONS

<b>Sensitivity</b> (SPL/1m/2.83Vrms – Mean/IEC/Music)	80.1dB/81.0dB/80.7dB
<b>Impedance modulus min/max</b> (20Hz–20kHz)	7.2ohm @ 47Hz 74ohm @ 86Hz
<b>Impedance phase min/max</b> (20Hz–20kHz)	-61° @ 96Hz 55° @ 23Hz
<b>Pair matching</b> (200Hz–20kHz)	$\pm 1.0$ dB
<b>LF/HF extension</b> (-6dB ref 200Hz/10kHz)	43Hz / >40kHz/>40kHz
<b>THD 100Hz/1kHz/10kHz</b> (for 90dB SPL/1m)	1.4% / 0.2% / 0.2%
<b>Dimensions</b> (HWD, inc. stand)	960x300x250mm

**LEFT:** Thanks to a downward-firing port, the Minissimo enjoys great siting options, irrespective of proximity to walls, while the superb WBT silver terminals accept spades, bananas or bare wire

that I could have sworn I was hearing open-reel tape. Throughout, their voices meshed with a silky blending of an angelic cast.

### DRIFTING INTO LOVE

Then there was the fourth strength: exquisite retrieval of detail. There was nothing hygienic about this abundance of information, as everything was kept in proportion. But so clear and clean was the playback that subtleties were always easily discernible.

But some might find the Minissimo too nice, too easy-on-the-ears. This speaker is the antithesis of the lock-the-listener-in-the-hot-seat approach beloved of the high end. As much as I was concentrating with the intensity required when reviewing a product, I was able to drift off, unafraid of the martinet demands of a typical high-end overkill situation. Which was just what I needed while listening to the dreaminess of Love's *Forever Changes* [Mobile Fidelity UDSACD 2131], as ethereal as anything produced in 1967.

We are not short of sublime, small two-ways with big price tags. But the Minissimos combine so many virtues – sweet sound, ease of use, gorgeous looks, a diminutive presence – that it's impossible not to smile when you see and hear them. My only wish, then? I'm old-fashioned, so can you please gimme a grille? ☺

### HI-FI NEWS VERDICT

Refreshing in so many ways, especially its unusual form, the Arabesque Minissimo surprised this listener with its friendly sound and ease-of-use. Too many high-end products tax and torment the user. This just says, 'Let's play some music'. Easy to drive, a no-brainer joy to set up, it will also satisfy detail-focused listeners who cannot resist interminable tweaking. Straight out of the box, it's a triumph.

Sound Quality: 85%



sound, seamlessness should also manifest itself as a constancy that places each player with authenticity.

Bass was the third reward proffered by the Minissimos. Listening to the entire 12CD collection in *Simon & Garfunkel: The Complete Albums Collection* [Columbia Legacy 88750 09062], I was struck by the sheer naturalness of the bass on every track. OK, so this was beautifully remastered but, damn, the bongos stage-left on 'Patterns' were so visceral, so vivid, that I looked up more than once in one of those moments of confusion between reality and reproduction.

At around 1m 44s in, there's a wash of cymbal sound from stage right to centre, a swelling that swept in with such utter smoothness

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# Audience Au24 SE

'Gold standard' says Audience, but while there's none of the precious metal itself in its Au24 SE this cable eschews bulk to prove that less is more. Review & Lab: **Paul Miller**

**T**here's much more to Audience's loudspeaker cable than meets the eye, although its Au24 SE model is already one of the more attractive and unimposing designs on the high-end scene. In fact, the sylphlike build of its cable goes directly to the heart of the company's two key design philosophies.

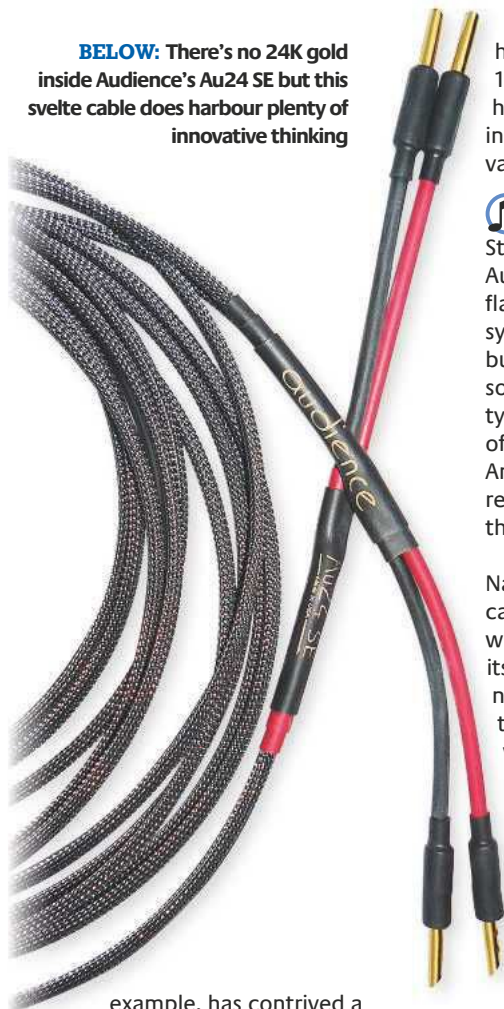
Audience claims (and not without some foundation – see [www.youtube.com/watch?v=VkJqfiOVVY&feature=youtu.be](http://www.youtube.com/watch?v=VkJqfiOVVY&feature=youtu.be)) that reducing eddy currents within a cable will necessarily improve signal propagation, the former also influenced by the thickness (the mass) of the conductors themselves. Part of Audience's juggling act is realised in reducing the conductor size without unduly impacting on its resistance, a trade-off amounting to 85mohm/m or a power loss of 0.092dB/m for the Au25 SE. Audience specifies very fine strands of superior OCC (Ohno Continuous Casting) copper, but the overall cross-sectional area of the conductor is evidently quite small.

## TRANSMISSION LINE

If you were to stretch to a 5m stereo set (a not inconsiderable £2750) this would amount to a loop resistance of 0.425ohm, which is sufficient to cause some exaggeration of the amp/speaker system response in line with swings in the speaker's impedance. Any 'change' in sound will also depend on the output impedance of the amplifier, the effect necessarily less obvious with many tube amps but arguably more so with designs like the NAD M22 [see p58] or Devialet 800s used in my listening tests.

Audience also subscribes to the idea that aspects of transmission line theory – normally applied to the propagation of very high frequency/RF signals – extend down to the audioband and, by way of

**BELOW:** There's no 24K gold inside Audience's Au24 SE but this svelte cable does harbour plenty of innovative thinking



example, has contrived a geometry that achieves a notional 15ohm characteristic impedance. Other cable companies have argued similarly in the past, achieving a low characteristic impedance by paralleling multiple 50ohm coaxial lines. Capacitance also typically rises as a result so Audience, in another carefully tuned trade-off, has opted for a single and extremely densely-packed coaxial geometry for the Au24 SE using a hard polypropylene dielectric and polyethylene sleeve. Capacitance is still

higher than average at 595pF/m (a full 1.8nF for the £2090, 3m set reviewed here) but at least the associated inductance is proportionally if not vanishingly low at just 0.41µH/m.

## AN AUDIENCE WITH...

Straight out of the blocks, Audience's Au24 SE moves with grace rather than a flat-out sprint. In my Devialet/B&W 802D system it encouraged a particularly relaxed but still very insightful and finely detailed sound. The brightest of brass instruments typically sound silky-smooth, the roughest of rock recordings coated in a rich honey. And yet modest lengths of Au25 SE do not render the music in so civilised a fashion that it fails to stir the blood.

Take Troyka's recent release on the Naim Label, *Ornithophobia* [CD210], as a case in point. This is a powerful recording with occasionally fierce percussion but its somewhat dystopian subject matter never grates thanks to the Au24 SE's trick of maintaining all the musical bite while simultaneously lancing any poison. Bass is robust and well-rounded too, if perhaps not so taut as achieved with the Devialets coupled with a far thicker cable. Not that I especially noticed any lack of grip or drive, for the system possessed an almost liquid ease and fluidity, the Au25 SE ensuring the sound was serene without lacking authority.

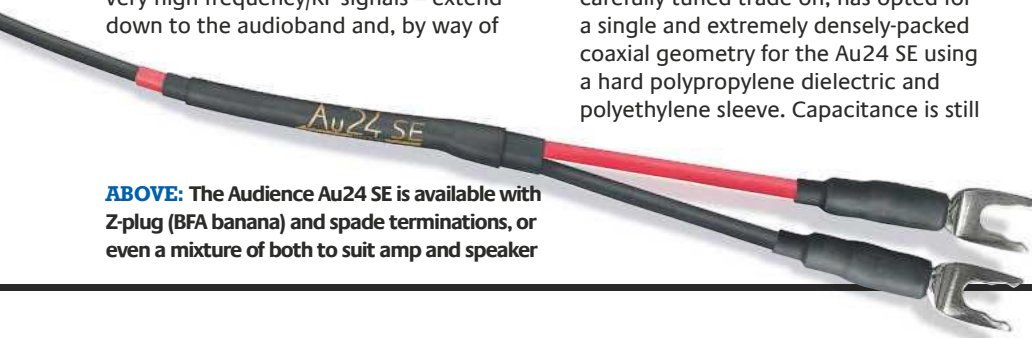
## HI-FI NEWS VERDICT

Audiophiles who judge high-end speaker cable by its girth or weight in noble metals may balk at the Au24 SE's seemingly under-nourished frame. But there is method in Audience's sparing application of OCC copper strands (in my view, the finest type of this conductor) and in the unusual choice of a tight coaxial geometry. The result is a particularly smooth-sounding cable, arguably better suited to shorter runs, but still supremely compelling.

Sound Quality: 85%



**ABOVE:** The Audience Au24 SE is available with Z-plug (BFA banana) and spade terminations, or even a mixture of both to suit amp and speaker





# Marantz HD-DAC1

This little box is retro-styled after legacy Marantz components, but it's designed to cope with all of today's digital demands to satisfy either desktop or hi-fi system users

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

**H**e may be one of the most persuasive presenters in the hi-fi business, but Marantz Brand Ambassador Ken Ishiwata is also a pretty good judge of character when it comes to the appeal of his company's products. So it was no surprise that he spotted me spending slightly longer in front of one product at a recent Marantz showcase, and immediately said 'Ah, I thought you'd like that one.'

It's not hard to see why: the company's first dedicated desktop DAC/headphone amplifier, the HD-DAC1 is not only ambitious, selling as it does for £679, but also dripping with classic Marantz design cues, from the 'porthole' display and wood-effect side-cheeks to the size, which is reminiscent of the Music Link products of the late 1980s and early '90s.

## MINIATURE REPLICANT

Like those still-celebrated products – I have a preamp and a pair of monoblocks, still going strong almost a quarter of a century later – the HD-DAC1 is around half the width of conventional hi-fi components at just 250mm wide, and looks every bit like a miniature replica of classic Marantz amplifiers of the past.

And feels it, too: those side-cheeks may be wood-effect rather than solid timber, but they're beautifully finished in deep gloss, perfectly complementing the main casework, which is substantially built from metal, the fascia being a solid chunk of aluminium, and it's underpinned with a vibration-reducing double-layer base.

The HD-DAC1 is available in high-quality black or 'silvergold' (as Marantz now calls what once would probably have been described as 'champagne', although this latest version is somewhat lighter in tone and classier than the old yellowish glitz), and to these eyes the side panels set off either finish equally well.

**RIGHT:** The interior the HD-DAC1 looks more like a full-blown amp: multiple PCBs, a heavily shielded transformer and high-quality motorised potentiometer provides for volume control

So, it looks like a Marantz, it feels like a Marantz and it has that almost intangible desirability only possible with a product seemingly carefully thought-through and then engineered and built with a degree of pride. But what's the HD-DAC1 all about? And why spend £679 on it when the market currently seems awash with rather less expensive DAC/headphone amps?

Well, like other recent arrivals in the 'head-fi' arena, such as the costlier Oppo HA-1 [*HFN* Sep '14], the HD-DAC1 is designed to sit on the desk for close-up listening while at the computer, or fit into the hi-fi rack as an adjunct to, or in lieu of, a conventional hi-fi amplifier.

Such applications demand of it a number of traits: it needs to handle a wide range of digital formats, from the most data-reduced MP3 all the way up to the realms of DSD, while it requires sufficient amplifier muscle to drive even recalcitrant headphones. And of course it

should integrate well with existing audio systems. That last point suggests perhaps the only failing of the HD-DAC1, in that it's not too well set up for use as a headphone amplifier to connect with an amp lacking such a facility.

The only analogue input is on a 3.5mm stereo mini-jack, and it would have been good to see a couple of decent quality phono sockets in its place, which the unit uses for its choice of fixed or variable level audio outputs.

## HIGH-RES OPTIONS

So, the Marantz is more about *digital* audio, and on that front comes fully-loaded: there are two optical and one coaxial digital inputs, plus a USB Type-B for asynchronous connection to a computer and, on the fascia, a USB Type-A to support memory devices, smartphones and tablets.

All the inputs to the rear can handle content at up to 192kHz/24-bit, while the





USB-B also allows the HD-DAC1 to accept DSD2.8 and DSD5.6 from a computer running suitable player software.

Headphone output is via a 1/4in (6.35mm) socket on the front, with the volume control, which also adjusts the rear-panel 'variable' outputs, supplemented by a three-position gain adjustment to accommodate low to high impedance phones. Marantz gives no specific information on the low/mid/high gain positions, beyond saying that the DAC/amp has an output of 800mW into 32ohm [see Lab Report, p71], and 'can even drive audiophile high-impedance headphones of up to 600ohm with complete ease'.

At the heart of the HD-DAC1's digital section is the CS4398 DAC from Cirrus Logic, coupled with a dual clock for accurate handling of a wide range of sample rates. Particular attention has been paid to the USB-B input, which is isolated to prevent the ingress of noise from a

connected computer. On the amplifier side, the Marantz uses the company's well-known HDAMs (Hyper-Dynamic Amplifier Modules) in place of simpler op-amp ICs, in its latest HDAM-SA2 version as found in its disc players, network audio players and associated amplifiers.

Control is via a supplied remote handset, which also allows the HD-DAC1 to 'drive a connected' iOS smartphone or tablet's music playback, and there's also an external

remote control input to allow a Marantz amplifier to control the DAC/amp via its own handset.

### SOUNDS 'VERY MARANTZ'

Summing up the sound of the HD-DAC1 is pretty simple: it's very Marantz. And that's a good thing if you like the company's even-handed sonic signature, combining as it does an extended, but controlled bass, an informative midband and a treble with just the right mix of smoothness and detail.


*'West Side Story was delivered with a true full-blooded weight'*

**ABOVE:** Either side of the signature Marantz 'porthole' display, smooth-acting controls look after input selection (left) and volume. The 'setup' button accesses the HD-DAC1's menus

I listened to the Marantz in a number of configurations, fed from my Apple MacBook Air and Mac mini computers, for which no drivers are required (Marantz supplies drivers for Windows users), hooked up with Chord USB Silver Plus Digital cable and running Audirvana Plus.

As a headphone amplifier I used it to drive models including the B&O H6, Focal Spirit Pro, Oppo's PM-1 [HFN Jul '14] and PM-2 [HFN Feb '15]. As a DAC, the Marantz saw duty between my computers and my usual Naim Supernait, while I also used it in preamp mode into both the NAD M22 power amp [see p58] and that pair of Marantz Music Link MA-22 monoblocks I mentioned earlier, which not surprisingly provide not only a good visual match for the HD-DAC but also a fine sonic pairing.

First out of the traps was some very vintage Bowie, in the form of his eponymous album of 1967, available as part of *The Deram Anthology 1966-68* [Deram 8447842], complete with its shades of Anthony Newley and ambitious production values. It's not all 'The Laughing Gnome', and is packed with precursors of later Bowie, not to mention a big, impressive sound imbued with lush orchestrations, and whether with the highly analytical Focals or the decidedly wonderful Oppo PM-1s, the Marantz delivers a richly-detailed soundscape.

That distinctive voice is front and centre, and the theatrical arrangements are given excellent weight and insight, the jaunty, almost carnival-like backing of 'The Little Bombardier' juxtaposed with its surprisingly topical subject matter to rather disturbing effect. Yes, the album's a 

## D+M'S PORTFOLIO

For a company with a huge – and still growing – range of headphones, Denon/ Marantz parent company the D+M Group [see [www.dmglobal.com](http://www.dmglobal.com)] was a relatively late boarder of the headphone amp bandwagon. That's not to say the company's brands have historically neglected headphone users: Marantz designers have paid particular attention to the quality of the headphone outputs they include in its amplifiers, just as the company persisted with decent phono stages even when it seemed the rest of the affordable audio world was going line-only. However, the past year or so has seen a rapid deployment of a range of headphone options across the two brands: as well as this Marantz DAC/amp, aimed not to break the bank, sister company Denon has launched both a desktop device, the DA-300USB [HFN Oct '14], and the portable DA-10. All three are designed to support all current PCM-based high-resolution files up to 192kHz/24-bit, as well as DSD up to 5.6MHz, and each fills its own niche in an increasingly busy market.





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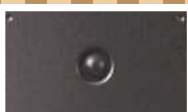
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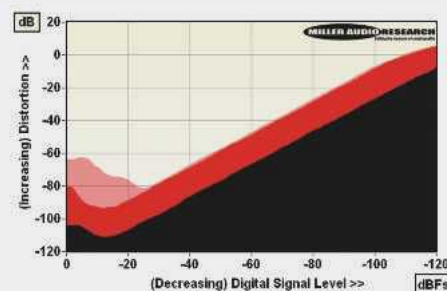
## LAB REPORT

### MARANTZ HD-DAC1

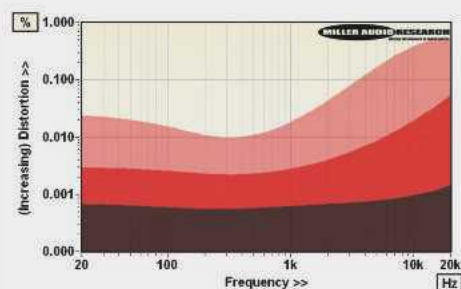
While all its digital inputs are processed through the same CS4398 DAC and subsequent analogue stage, the technical performance of the HD-DAC1's rear RCA outputs remains 'cleaner' than via the dedicated headphone amp. Sure enough, the headphone stage will raise a full 1.38W/25ohm (well within Marantz's 0.8W/32ohm spec.) with a peak level 0dBfs digital input [see Graph 1], just as the 12ohm source impedance is far lower than the RCA's 100ohm. But 12ohm is still sufficiently high to modify the response of low impedance 'phones (representing a 3dB loss into our 25ohm load). Incidentally, neither its source impedance nor power output is substantially influenced by choice of low, mid or high gain setting.

Response is also affected by loading, proving remarkably flat via the RCAs ( $\pm 0.02$ dB from 20Hz-20kHz) but with a  $-0.9$ dB/20Hz to  $-2.5$ dB/10Hz bass roll-off at 40mW/25ohm via the front 6.35mm socket. Distortion also increases with loading, the low 0.0006-0.0014% achieved at peak output (or just 0.0002-0.0003% at  $-10$ dBfs, 20Hz-20kHz) via S/PDIF and USB ins/RCA outs [black trace, Graph 2] increasing to 0.0095%/1kHz and a full 0.5%/20kHz at 40mW/25ohm via the headphone output [red traces, Graph 2]. The latter will likely prove more or less obvious depending on the impedance of the phones – very low impedance types are not especially suitable here.

The A-wtd S/N is also far wider via the RCAs: 109dB re. 0dBfs/2.36V versus 83.3dB re. 40mW (or 1V)/25ohm. Jitter is also lower in pure 'DAC mode' at  $<10$ psec. Readers are invited to download comprehensive QC Suite test reports for Marantz's HD-DAC1 USB DAC/headphone amplifier by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'download' button. PM



ABOVE: THD vs. digital signal level at 1kHz (black = RCA out; red = headphone unloaded; shaded red = loaded where 0dBfs = 1.4W,  $-10$ dBfs = 436mW and  $-63$ dBfs = 1mW)



ABOVE: THD vs. frequency from 20Hz-20kHz (black, RCA out; solid red, 1V unloaded; shaded red, 10mW into 25ohm load)

### HI-FI NEWS SPECIFICATIONS

Maximum output (re. 0dBfs into 47kohm)	8.5V
Max. power output (re. 0dBfs into 25ohm)	1380mW
Output Impedance (20Hz-20kHz)	12.0-12.3ohm
A-wtd S/N ratio (re. 0dBfs)	83.3dB (108dB via RCA outs)
Distortion (20Hz-20kHz, re. 10mW)	0.009–0.52%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	$-0.9$ to $-0.5/-4.7$ dB/ $-18.5$ dB
Digital jitter (unloaded/loaded at 25ohm)	250psec / 265psec
Power consumption (unload)	16W (2W standby)
Dimensions (WHD) / Weight	250x90x270mm / 5kg



ABOVE: As well as the USB Type-B for asynchronous connection to a computer, the Marantz has both optical and coaxial S/PDIF digital inputs plus an analogue in via a miniature jack. Separate fixed and variable RCA outputs are provided

period-piece, but listening to it with the insight which the Marantz HD-DAC1 and a pair of good headphones can bring, it's surprising how contemporary it sounds.

### EASY-GOING PRESENTATION

Coming bang up to date with Mark Ronson's *Uptown Special* [RCA 505628], the Marantz turns on the power with this 2015 recording, its ability with a dense mix beyond doubt: it has plenty of weight – though it can't quite match the rather more expensive Oppo HA-1 DAC/headphone amp in this respect – along with fine control and drive, with not a hint of smear or overhang down there.

But best of all, it manages to combine that listen-in hi-fi-ness with an easygoing manner that makes music highly enjoyable. Whether you listen intently or simply let the music wash over you, it's equally enjoyable.

That's just as attractive with a high-quality orchestral recording, such as the recent San Francisco Symphony release of Bernstein's *West Side Story* [96kHz/24-bit from downloadsnow.net], which the Marantz delivers with full-blooded weight combined with glorious brass timbres and similarly well-defined voices. And it's the same with a high-quality DSD recording of smaller musical forces, such as The Dena Piano Duo's *Hommage À Grieg* set on Norway's 2L label [2L-094].

The interplay between the two musicians in the Brahms *Haydn Variations* via the Marantz and the upmarket Oppo headphones is placed persuasively in the big, reverberant recorded acoustic – yes, the Oppo headphone amplifier does give just a little more space for the music to breathe, but the focus and percussive impact of the playing through the Marantz is still thrilling.

Even more impressive is that the 'line' outputs of the HD-DAC1 are far from a matter of box-ticking, and

to that end it's worth noting that the Marantz engineers decided not to offer a balanced option simply because they thought this would have meant compromises elsewhere, so chose instead to optimise the single-ended outputs.

Whether used as a DAC into conventional amplification or fulfilling preamp duties via its quarter-century-old stablemates, it delivers the same balance as that heard via headphones. In other words, it's a sound with much to enjoy on the hi-fi level, but above all uses its abilities to ensure that the listener is drawn into the music being played, and the performance being given – and yes, as in the very best Marantz-driven systems, there is a very real sense of 'performance' about the way this little box presents whatever it's fed.

Yes, a 'proper' analogue input would have been good, and there'll be those who'll bemoan the lack of balanced outputs, but what Marantz has come up with here is a remarkably classy and cost-effective solution for the 'Macs and DACs and cans' brigade, while at the same time offering some extra options for those looking to build a high-performance minimalist system. ☺

### HI-FI NEWS VERDICT

Word is that Marantz has been working on the HD-DAC1 for a good while, pushing the production budget with selected audio components, and it's paid off in the finished product. Not only does it look gorgeous with its combination of thick metal casework and retro styling cues, it also does the business on the sonic front, used as a headphone amp and especially as a DAC, or a 'digital preamp'.

Sound Quality: 83%



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# Classical Companion

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

## Otto Klemperer *The music of Beethoven*

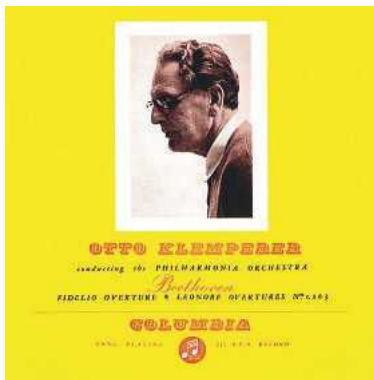
The German conductor's personal struggles with adversity suggest a parallel with the great composer himself, says **Christopher Breunig**

When the Royal Festival Hall was opened in 1951, as part of the Festival of Britain, the first two concerts given there by the Philharmonia Orchestra were conducted by Otto Klemperer. He wasn't the management's first choice and there was much criticism when he rejected the *Enigma Variations* (which he had conducted in New York in 1935) in favour of Mozart's 'Jupiter' Symphony. His first appearance with the orchestra, in 1948 – Bach, Beethoven and Stravinsky – had received poor notices although their *Eroica* attracted the attention of both EMI and the BBC. In fact, Klemperer did not record for the British company until the end of 1954.

This was partly because he had a postwar recording contract with Vox, working with the Vienna

→ 1955 LP sleeve for Klemperer's first Beethoven recordings for EMI: *Fidelio* and the three *Leonore* overtures

← One of several pen and ink life drawings of Otto Klemperer made by Milein Cosman



Symphony Orchestra (this yielded an exceptional *Missa Solemnis* in 1952 – see boxout), but he then discovered that a Mendelssohn LP had been issued bearing his name but completed by another conductor.

Signing a contract with EMI was a turning point in his career: aged 69 he had appeared in Amsterdam looking 'no longer fully alive' and with a reputation for being extremely difficult to work with (which we now know was because he was a manic depressive), but up to 1971, when he was 87, he was making records for the company as the NPO's principal conductor.

Even so, his relationship with the Philharmonia's Walter Legge was never one of great friendship and Klemperer was not unreasonably enraged at the way in which Legge suspended the orchestra in 1964.

In spite of various debilitating illnesses (a brain tumour was diagnosed in 1939 and he suffered serious burns in 1958), Klemperer remained an imposing figure. Consequently, he attracted sculptors and artists to portray him at various stages – a bust by Epstein, the

famous Dülberg woodcuts, drawings by Milein Cosman (as here), Feliks Topolski and Richard Ziegler. Many of these are reproduced in *Klemperer On Music* [Toccata Press, 1986].

### TAKING UP THE BATON

He would come on stage carrying a heavy stick, give a peremptory nod to the audience and sit to conduct. He also remained seemingly indifferent to the final applause. As you can see from documentary films, his gestures were minimal and after a long period of conducting with no stick he took up a baton in 1967 – a decision made during the sessions for Mahler's Symphony No 9.

### 'Critics found the later stereo Beethoven LPs less satisfying'

Although we associate him mainly with the Austro-German repertoire, Klemperer's interests were far wider. In prewar Berlin he was

conducting 20th-century works that would become proscribed, eg, at the Kroll Opera (closed in 1927 it became, ironically, seat of the Reichstag parliament), and when he had given his last London concert [see boxout] he still had ambitious recording plans including Bach's *St John Passion*, the Verdi *Requiem* and Mozart's *Entführung aus dem Serail* (a 1973 project he ultimately felt too weak to undertake).

EMI hoped that he might manage some shorter pieces, including a remake of the *Grosse Fuge* strings arrangement (Klemperer had first done this in 1956) but that did not take place. Klemperer was, of course, the supreme Beethoven interpreter of the 1950s-1960s – with Karajan his 'antitype' just as we'd had the wayward Furtwängler and the harshly driven Toscanini before them. An Amsterdam critic



THE COSMAN KELLER ART AND MUSIC TRUST

wrote 'this was not *our* [ie, Willem Mengelberg's] Beethoven but it was Beethoven's Beethoven' – a phrase echoed by John Amis in 1954.

Klemperer recorded most of Beethoven's orchestral music for EMI, starting in 1954 with the *Leonore* overtures. (This you can download free as a 96kHz/24-bit FLAC made from the LP, at <http://pristineclassics.blogspot.co.uk>.) But there were certain exclusions: the Triple Concerto; the two *Romances* with violin; the *Prometheus* ballet music and that from *The Ruins Of Athens* (memorably taken up by Beecham). We did have excerpts from *Egmont*, with Birgit Nilsson.

It was the odd-numbered Symphonies 3, 5 and 7, completed over six days between Oct-Dec '55, which excited reviewers and collectors. No 7 had a parallel stereo version, first released on tape (the more satisfying mono you can now hear on Naxos). Although



PHOTO: EMI RECORDS

Walter Legge was sceptical about twin-channel sound he knew he needed stereo replacements *and* a completion of the symphony cycle.

### INCONSISTENT TEMPI

However, critics found the later stereo LPs less satisfying. The writer/audio retailer Thomas Heinitz speculated that, with age, musicians often become unaware of the *actual* pace at which they are conducting.

But now we have a multiplicity of Klemperer performances to compare: Archipel has live examples from his Los Angeles period and the postwar Concertgebouw, which you can find online at The Classical Shop, and latterly ICA Classics has transferred material from Klemperer's time with the Köln Orchestra. There's also an Audite set [21.408, five discs] compiled

→ The live recording of the Ninth Symphony, which introduced the Philharmonia Chorus in 1957

← Klemperer recording with Daniel Barenboim in March 1967



from RIAS Berlin tapes, 1950-58. All of these show a variability in Klemperer's timings *not* age-related: for example, with Symphony 3(ii) – 14m 38s/16m 52s [EMI studio 1955 then '59]; 14m 04s/17m 02s [live, Copenhagen '57; Stockholm '58].

In fact, this last example, in lovely stereo sound [Medici Masters MM037-2], also makes one suspicious of Philharmonia leader Hugh Bean's claim that 'Klemperer was never interested in sound'. Just listen to the beautiful soft string playing at the start of the *Marcia funèbre* and the Schubertian warmth of the opening movement!

The Nov '58 release of the Ninth Symphony was a major event: Legge had brought together a new Chorus,

trained by Bayreuth's Wilhelm Pitz, and Klemperer's monumental account, with all scherzo repeats taken and a not-too-slow *Adagio*, carried a unique stamp. However, Klemperer always thought of the concert performance rather than the record as the true goal (preparations were often simultaneous) and 40 years later Testament issued a live recording from Nov '57, not made by BBC engineers but an EMI team [SBT 1177] which effectively eclipses the studio version.

Listening to it again I can only find the descriptive word 'conduit', rather as Stravinsky said of writing his *Rite Of Spring*. Here we had, indeed, 'Beethoven's Beethoven', clear and without any ego. ☺

## ESSENTIAL RECORDINGS

### Symphonies 1 and 8; Grosse Fuge (arr.)

Testament SBT 1405

The BBC recorded Klemperer's Philharmonia Beethoven cycles in mono only (alas). This disc adds a live account of the *Grosse Fuge* transcription from 1966 – the Philharmonia then renamed the NPO.

### Missa Solemnis; Symphonies 5 and 6

Classics Online MP3 (from Vox CDX2-5527)

Klemperer's very fine 1952 *Missa Solemnis* (later recut on a single LP) was digitally remastered in pseudo-stereo – a complete mess and with a gap in the Credo at the LP turnover point! Characterful VSO winds in the two symphonies. (The EMI *Missa Solemnis* is on 5675462 and it's also in a Warner box set.)

### Symphonies, overtures, etc

EMI 4042752 (ten discs)

The Philharmonia stereo cycle 1-9 and the earlier Nos 3, 5, 7 (the last two are also on Naxos 8.111248, No 7 in mono) with seven overtures, two in alternative recordings.

### Fidelio

Testament SBT2 1328 (two discs)

The 1961 Covent Garden live relay is preferable to the admired studio version [EMI 9667032].

### The Last Concert

Testament SBT2 1425

The RFH programme from 26th Sept '71, with the King Stephen overture and Piano Concerto No 4 with Israeli Daniel Adni making a debut.



# Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

## The Replacements *All Shook Down*

The band's final album crowned a career that was a resounding commercial failure. Yet the critics loved it. **Steve Sutherland** reassesses the LP, now on 180g vinyl

Eddie Argos and I have very little in common. Eddie's got a fine head of black hair. I don't have any hair at all. Eddie's got a pretty ace rock 'n' roll band called Art Brut. I don't have a band – ace, rock 'n' roll or otherwise. Eddie's got a little brother who he warns, in one of his very best songs, to, 'Stay off the crack!' I don't have a little brother.

Eddie sometimes lives in Germany and claims to want to write a song more popular than 'Happy Birthday'. I don't live in Germany and I can't write songs for toffee. But Eddie and I do share one shocking misdemeanour – we both came shamefully late to an appreciation of a band called The Replacements.

### DISASTER AREA

Me? I've kept pretty quiet about it up until now, but Eddie fessed up back in 1992. He even wrote a song about it, which appeared on a terrific album called *Art Brut vs Satan*, which was excellently produced

by none other than The Pixies' Frank Black. The song was called, self-evidently enough, 'The Replacements'. And in it Eddie wails, somewhat disappointed with himself: 'How have I only just found out about The Replacements? Some of them are nearly as old as my parents!'

The Replacements were a terrific band from Minneapolis, Minnesota who split up acrimoniously in 1991. I'd be a liar if I said I wasn't aware of them during their brief tenure troubling the remote outskirts of the US charts. A few of my pals at *Melody Maker* were big into the band and raved about how they were the most messed-up, unpredictable, mostly drunk, hearts-on-their-sleeve disaster area since, well, The Faces. I guess that just didn't sit too well with my major preoccupations at the time – Goth (for the cool factor) and

### 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...



*'Given an opportunity to advance their career, they'd find a way to sabotage it'*

New Romantic (for the fun). Truth is, I just couldn't get what all the fuss was about.

Now, though, I'm giddy about them and that's why I'm here recommending, if you haven't already, that you acquaint yourself with The Replacements as soon as you can.

The band were a right mish-mash. Paul Westerberg was the raw-throated singer and principal songwriter, a man with a

life's down payment on melodic melancholy. Bob Stinson was the mental guitarist who couldn't keep his chemicals in check, got sacked and eventually

died aged 35. The bassist was his younger brother, Tommy, who was 13 when the band changed their name from Dog Breath and got underway. The drummer was their buddy Chris Mars.

The Replacements knew their rock history inside out and were especially prone to emulating characters who are best described as heroic losers. Alex Chilton, for example. Chilton was the leader of the wondrous and critically-lauded Big Star who, for all his incredible talent, barely sold a record in his life – a fact which he turned into some sort of perverse badge of honour. The Replacements had a great song called 'Alex Chilton' which, of course, was, like, uh-oh.

### STRAIGHT FOR THE KICKS

Unlike their Minneapolis contemporaries Hüsker Dü, they hadn't turned their back on past glories to seek a new path to expression (in Hüsker's case, speedcore). On the contrary they rocked out in the footprints of their predecessors (The Stones, The Who, even Zeppelin) but excised all the star trip bull and went straight for the kicks.

There was only one thing guaranteed about The Replacements, and that's given any opportunity to advance their career, they would find some way to sabotage it.



TWIN/TONE RECORDS



The Replacements (l-r): Chris Mars, Bob Stinson, Paul Westerberg and Tommy Stinson. The band play their first UK gig in 24 years at the London Roundhouse on June the 2nd





➔ Priced £18.99, the 180g reissue of The Replacements *All Shook Down* is available from [www.banquetrecords.com](http://www.banquetrecords.com)

They'd get too drunk to stand on stage, deliberately play badly, perform a set full of awful covers instead of their own songs at prestigious venues before important industry people. Then, next gig, they'd be resplendent. Some said they were punk rock. But some said they were cowards, running scared of the expectations their excellence would heap upon them.

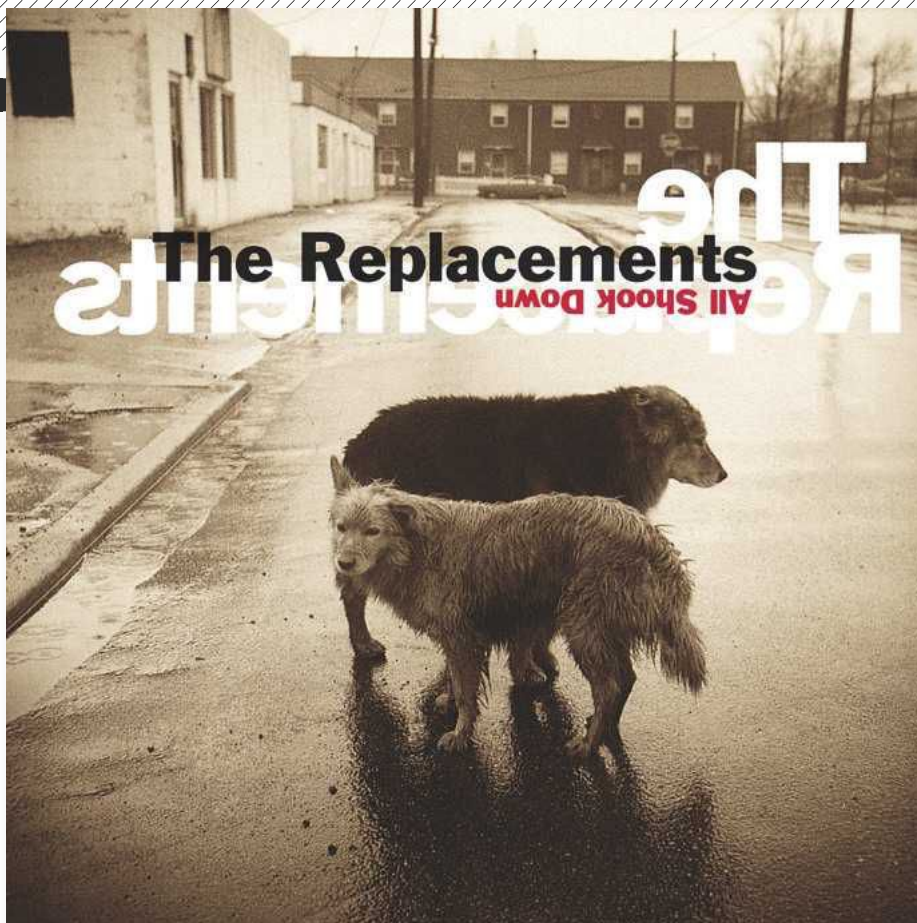
Whatever, by the time they got to the album we're here to talk about they were just about done for. It's called *All Shook Down* which is, I guess, some sort of black self-aware joke involving Elvis' 'All Shook Up'. Recorded in 1990, it was actually meant to be singer Paul Westerberg's first solo album, but it didn't work out that way.

## MAJOR PRESSURES

The band had originally been mollycoddled by local label Twin/Tone, which was founded just so they could record. The indie label was totally cool with The 'Mats' every perverse swerve and hiccup along the way. But the wearying effect of their lack of record sales got the better of them and, after three evolving albums – the full-on punky *Sorry Ma, Forgot To Take Out The Trash*, the more considered *Hootenanny*, and the one 'Mats fans revere above all others, *Let It Be* – they signed to Warner Brothers subsidiary Sire in 1984.

The deal came with all the pecuniary pressures such a major pact implies. And Sire, having had little chart action with a trio of albums – *Tim*, *Please To Meet Me* and *Don't Tell A Soul* – were more keen to pursue success under a band name at least some people knew rather than release product by a singer with no recognition whatsoever. So *All Shook Down* was catalogued as a Replacements LP when it was really all about Westerberg with the others playing minor bit parts.

It's just about the only dishonest thing they ever did – the exception that proved the rule of Eddie Argos's lament, 'So many



bands are just putting it on. Why can't they be the same as their songs?' A singer-songwriter-y record looking back over the band's chaotic career (if you could call it that), it's a million miles from the mad thrash of *Sorry Ma* but it's a testament to the true spirit in Westerberg's craft that it's still nigh-on brilliant.

Mostly it's played by Westerberg and guests including John Cale, ex of The Velvet Underground, who sold few records but influenced thousands of bands, and Terry Reid, the hoary old English wailer famous for turning down the chance to front Led Zeppelin and Deep Purple and hence down in the annals as another heroic loser. And the songs are faithful to that theme.

The raunchy opener, 'Merry Go Round', celebrates a put-upon outsider ('Hush was the first word you were taught'), 'One Wink At A Time' details the escapades of a wilful misfit ('Baggage claim is this way/So watch her walk down that way/In a hurry to put an end to this day'), and 'Nobody' finds the singer at an old girlfriend's wedding, another missed opportunity.

## BAND DISINTEGRATION

'Bent Out Of Shape' is self-explanatory, the tremulous acoustic ballad 'Sadly Beautiful' would have made a fitting title track, and 'Someone Take The Wheel' evocatively illustrates the band's disintegration, the early line 'I don't know where we're

going...' collapsing into, 'I don't care where we're going...' by the end.

The album ends, perfectly enough, with 'The Last', a jazzy sign-off deliberately comparable with the way The Beatles knowingly bowed out with 'The End'.

After pursuing a so-so solo career for 21 years, watching The 'Mats legend grow and grow, Westerberg took the bait in 2012 and got back together with Tommy Stinson, gigging again as The Replacements. There may even be a new album in the pipeline.

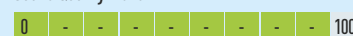
Wonder what Eddie thinks of that? ☺

## RE-RELEASE VERDICT

Yet another worthy pressing from the Music On Vinyl label, this reissue comes as a single 180g vinyl LP with a replica of the original insert, both housed in a 3mm card sleeve. Pressed at the old CBS Haarlem plant in the Netherlands, our copy had no needle weave or inner-groove distortion.

None of the radio-friendly production values have been lost here either. Drums possess the perfect amount of punch, guitars and bass complement the vocals well and the slower, more acoustic, tracks even boast a tubey sweetness. HFN

Sound Quality: 90%



# DOORS



# L.A. WOMAN

## The Doors *L.A. Woman*

The band's sixth studio album, and the last to be recorded with Jim Morrison, is their most popular and most critically acclaimed work. Yet the original producer quit the mixing desk in frustration after just one week, leaving his engineer to turn the project around...

Words: **Johnny Black**



As 1970 drew to a close, The Doors were widely considered a spent force. Their previous album, *Morrison Hotel*, had been patchy, and frontman Jim Morrison's embarrassingly public descent into drink and drug-fuelled confusion had recently climaxed in a performance at The Warehouse, New Orleans. Here he'd slumped to the floor, battered the stage with his microphone until the wood splintered, then sat down and refused to participate in the rest of the show. Clearly, Morrison was not fit for live performing.

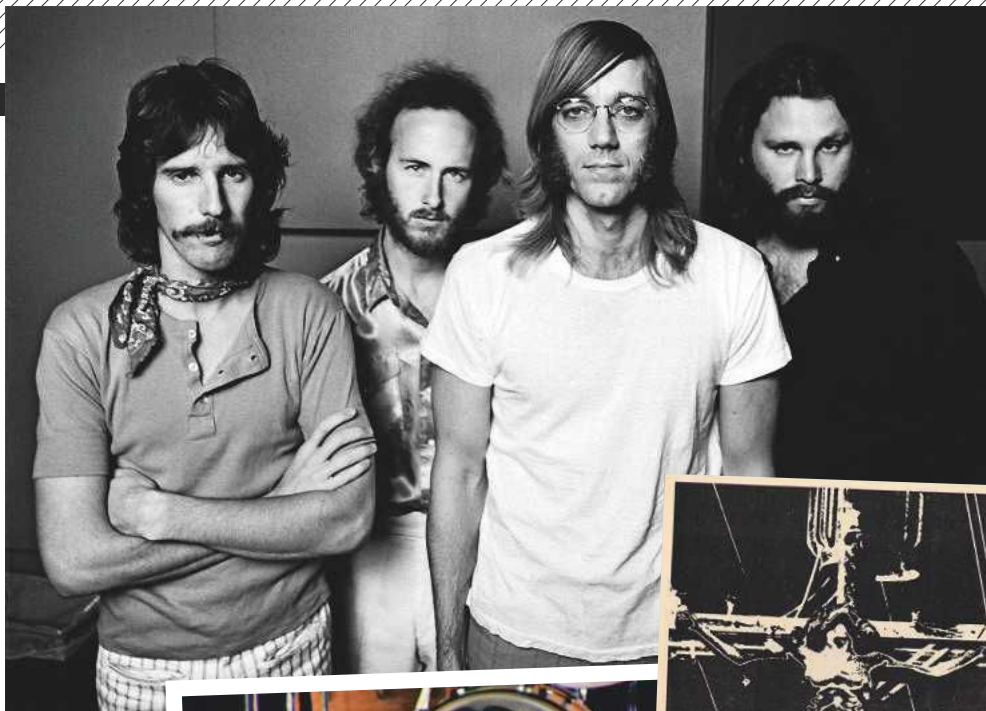
However, the band were the biggest act on Elektra Records so, inevitably, sessions for another album had been scheduled.

### PLAN FLOUNDERS

Naturally, The Doors' first attempt to create a sixth album was made with producer Paul Rothchild who had helmed the previous five.

This plan, however, quickly floundered because Rothchild and the band were no longer *simpatico*. 'The Doors' career had been going downhill for sometime,' Rothchild later explained. 'Jim was really not interested after about the third album. He wanted to do other things. He wanted to write. He wanted to be an actor. Being lead singer of The Doors was really not his idea of a good time. It became very difficult to get him involved with the records.'

Rothchild felt that they had only two worthwhile songs ready to record, 'L.A. Woman' and 'Riders On The Storm', but, 'I couldn't get them to play either of them decently. It was like watching an 80-year-old



↑ The Doors (l-r): John Densmore, Robbie Krieger, Ray Manzarek and Jim Morrison

→ Live at the Hollywood Bowl in 1968

→ Print ad from 1971 with the 'Electric Woman' artwork used on the LP's inner sleeve

← 'Riders On The Storm' single from 1971



man trying to run the marathon. There was simply nothing there. There was no energy.'

Nevertheless, Rothchild agreed to go into Sunset Sound Studios with the band. After one frustrating week, he threw in the towel.

That very night, The Doors met with Rothchild's engineer Bruce Botnick in a local Chinese restaurant, and told him they wanted to work with him. One of Botnick's first suggestions was to bring in rhythm

guitarist Mark Benno, thus freeing up guitarist Robby Krieger for more adventurous lead parts, plus former Elvis Presley bassist Jerry Scheff to relieve Ray Manzarek of the chore of having to play bass on his keyboard.

Nor were those Botnick's only helpful contributions.

'I think it was Bruce who had the idea of doing it at our rehearsal space rather than having to be under the gun of

a big-money recording studio,' remembers Krieger.

Despite the initial dramas with Rothchild, Elektra's owner Jac Holzman seems to have been fairly sanguine about the prospects for the album. 'I trusted the band, and I trusted Botnick,' he later declared,

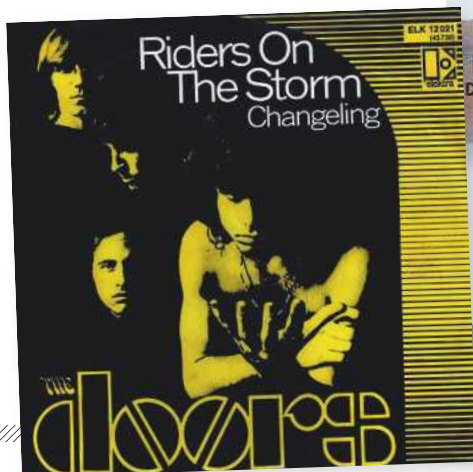
'who I knew had done a lot of the important production work on the Love album *Forever Changes*. I thought The Doors would

be in good hands. But that doesn't mean I wouldn't have rubbed a rabbit's foot if I'd had one.'

### SPITTING BLOOD

Krieger, who spent more time around Morrison, could see reasons for anxiety. 'I remember him coughing and spitting up blood, probably from smoking too many cigarettes. But in my mind, Jim was indestructible. I thought he'd be drinking a fifth of whiskey a day →

'Being lead singer of The Doors was really not his idea of a good time'





## VINYL ICONS

### PRODUCTION NOTES

The studio in which The Doors recorded *L.A. Woman* was unusually basic, essentially just a rehearsal space. It was located in their office building, The Doors Workshop (on the corner of La Cienega and Santa Monica Boulevards), where a clubhouse atmosphere prevailed and there was a pinball machine. 'It was a place where they could come and go with zero pressure,' observed their manager Bill Siddons.

The room was not large – about 20ft by 12ft – but it had to accommodate six musicians, a large drum kit, two guitars, a piano, a Hammond B3 organ, a Fender Rhodes, a Wurlitzer, a Farfisa, various amps, an eight-track tape machine (borrowed from Sunset Sound studios) and, of course, that pinball table. 'It was tight,' noted producer Bruce Botnick. 'It was like sardines.'

According to guitarist Robby Krieger, 'Bruce wanted to make it as natural and comfortable as possible for us, and that really worked. We knew the sound of that place from rehearsing in it all the time.'

They moved into The Workshop during late December 1970 and the bulk of recording was completed by mid-January 1971, with post-production lasting into mid-February.

One feature of the album is the diverse range of guitar sounds achieved by Krieger, but for the most part, he used only two instruments. 'It was pretty much my (Gibson) SG. For slide I used my Les Paul Black Beauty. I had a Maestro Fuzztone pedal, but other than that... let me think... Oh, used a 12-string [a Gibson ES-335] on a couple of songs, like "Love Her Madly" and "Texas Radio".'

To amplify those guitars, he used Fender Twin Reverbs. 'In those days, the Twins had JBL speakers, and you could get a really clear sound out of them. If you played really loud, though, they would break up really nice. So you could have the best of both worlds.'

One quirk of the rehearsal room *modus operandi* was that Jim Morrison took a liking to the bathroom. Krieger reveals that, 'On the song "L.A. Woman", Jim was singing right along as we were playing. He loved to sing in the bathroom because it had a nice echo – but he could look out and see us.'



until he was 90 years old. Guess I misjudged that...'

Although The Doors were known as a rock band with psychedelic leanings and other eclectic influences, when they started work on *L.A. Woman*, they were looking back to their earliest influences.

'Jim was really into the blues at that point in time,' explained Robbie Krieger later. 'And the blues pretty much set the tone for the whole album.'

### COCKTAIL MUSIC

The first track the group recorded was 'The Changeling', an enigmatic mid-paced rocker, prominently featuring Manzarek's Hammond C3 organ. Though said to be a tribute to James Brown, it is more generally

assumed to be about Morrison's frequent changes of character.

This track is followed by the ultra-commercial 'Love Her Madly'. Written by Krieger, it was famously dismissed by Rothchild as 'cocktail music', but nevertheless gave them a Top 20 hit. Composed on a 12-string Gibson ES-335 guitar, it refers to the numerous

times Krieger's girlfriend, Lynn, had threatened to leave him.

'Every time we had an argument,' he revealed, 'she used to get pi\*\*ed off and go out the door, and she'd slam the door so loud the house would shake.'

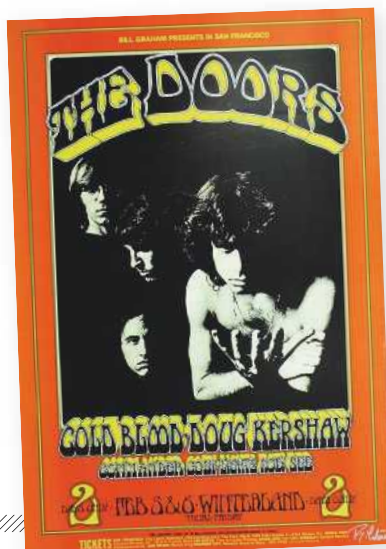
The album's three bluesiest tracks, 'Been Down So Long', 'Cars Hiss By My Window' and 'Crawling King Snake' were all laid down in one day. The first features a raw Krieger slide guitar solo executed on his Les Paul Black Beauty.

Morrison's inspiration for the song's first two lines probably come from Richard Farina's 1966 book *Been Down So Long It Looks Like Up To Me*, but blues purists will know that, back in 1928, Furry Lewis used an almost identical phrase in his song 'I Will Turn Your Money Green'.

### STARTLING OUTRO

Next up is a more innovative blues, 'The Cars Hiss By My Window', with a dark, sinister ambience and a startling outro in which Morrison utilises a wordless vocal to imitate

“There's a whisper on 'Riders On The Storm' – the last thing Jim ever did”



➤ Promo shot from 1967, believed to have been taken by the band's first official photographer Bobby Klein (l-r): Morrison, Densmore, Manzarek, Krieger

➤ Concert poster by Randy Tuten advertises appearances by the band over two nights in February 1970 at the Winterland Ballroom in San Francisco



← The band pictured in 1968 during a photo shoot for their third studio album, *Waiting For The Sun* (l-r): Krieger, Morrison, Manzarek and Densmore

← Elektra promo shot of the group taken in late 1966, the year the band signed to the label (far left), and the band live on stage in 1968 during their European tour



↓ The Robby Krieger song 'Love Her Madly' was the first single to be released from the album, in March 1971. It was one of the band's biggest hits, reaching No 11 on the Billboard 100

the sounds of both a guitar and a harmonica being played.

The album's title track follows, maintaining the sinister nocturnal feel. 'I've always considered this the quintessential Doors song,' says Krieger. 'It's just magical to me, and the way it came about was fantastic. We just started playing and Jim started coming up with those words, and it just poured forth.'

Krieger also remembers how, 'On some of the songs, when Jim didn't know what to sing, he would look in his poetry books and get ideas from that. This time, he came up with that stuff about LA and an LA woman.' In the song's coda, Morrison repeats the phrase 'Mr Mojo Risin', which is an anagram of 'Jim Morrison'.

If the album has a low point, it comes with the next two tracks. The almost throwaway 'L'America' and the pseudo-intellectual 'Hyacinth

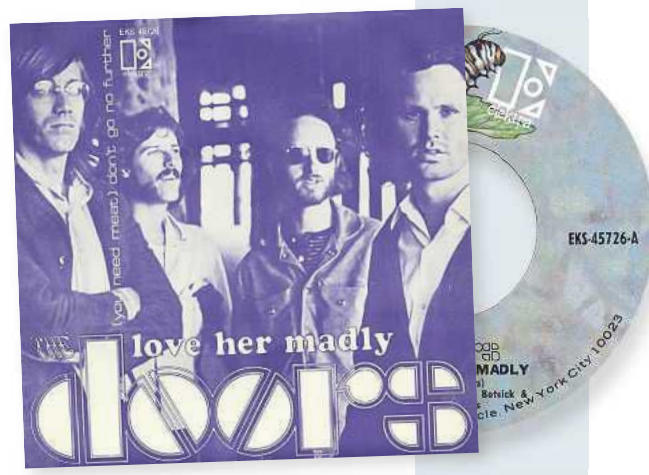
House'. Both superficially sound deep and feature some fine playing, but on repeated listenings it's fair to say that Morrison's lyrics come across more like sixth-form poetry than smart rock.

### BLASTING BLUES

The band is back on home turf with their inspired interpretation of John Lee Hooker's 'Crawling King Snake', punctuated by Krieger's ingeniously orgasmic guitar spurts, before the proceedings take another leap up with 'The Wasp (Texas Radio And The Big Beat)', a threatening Morrison poem-song said to be based on his teenage memories of hearing Mexican radio stations blasting blues across the border into Texas.

It's hard to think of any other album which closes as atmospherically as *L.A. Woman* does with 'Riders On The Storm'. Recalling its origins, Manzarek said, 'Robbie

was jamming on his guitar, playing (the old country hit) "Ghost Riders In The Sky", and Jim says, "Hey, I got some lyrics for that." And what he had was "Riders On the Storm". I had to adapt it so we weren't playing the old Vaughn Monroe ☞





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# Alternate Format Discography



➔ Robbie Krieger (left) and Ray Manzarek pictured in 1971

song, put a little jazz in there. After we'd done the song, Bruce said, "Oh, I get it, rain on the desert, and thunder," so we then added those sound effects.'

The song's already spooky atmosphere was enhanced by one final touch. 'There's a whisper voice on "Riders On The Storm", if you listen closely, a whispered overdub that Jim adds beneath his vocal,' revealed Manzarek. 'That's the last thing he ever did. An ephemeral, whispered overdub.'

## SO FAR GONE

Drummer John Densmore feels that *L.A. Woman*, 'got us back to our roots. We'd started out in a garage in Venice, California, and we finished up in a rehearsal studio – making *L.A. Woman* quickly, spontaneously, going for the feel.'

Robbie Krieger agrees, stating, 'We figured we were already screwed, so we were having fun again. We were so far gone that it was like our first album.'

Immediately after the sessions, Morrison left to live with his girlfriend Pamela Courson in Paris, not even waiting for the playback arranged for Elektra's owner, Holzman. Released in April 1971, the album restored the band's credibility with the music critics, peaking at No 9 in the US, No 28 in the UK, and going gold in two months.

*Rolling Stone* critic Robert Meltzer declared, 'This is The Doors' greatest album and the best album so far this year. A landmark worthy of dancing in the streets.'

Just three months later, on July the 3rd, 1971, Morrison died of what was first reported as a heart attack in his bath in Paris, although subsequent reports suggest that an accidental overdose of heroin was the more likely cause. ☹



There have been around 160 versions of this classic album over the years. Bear with me while I try to boil them down to a precious few of the most interesting, essential and covetable ones.

## ORIGINAL VINYL LP (1971)

The initial US and UK vinyl editions [EKS-75011/K 42090] were issued in a burgundy sleeve with rounded corners and embossed text. The front featured a cut-out window made with clear acetate on which the band photo was printed in black half-tone.

The disc itself came in a yellow rounded-corner liner bearing an image of Morrison crucified on a telegraph pole. When inserted, this provided background colour to the sleeve window image. Most later sleeves attempted, none too successfully, to emulate this effect, with no cut-out window and squared-off corners.

Pressed at Columbia's plant in Terre Haute, Indiana, the vinyl also boasted, as was expected of the Elektra label in those days, impeccable sound quality.

## CASSETTE & TAPE (1971)

Accompanying the LP was a cassette version of the album [TC-55011] with, inevitably, much simplified artwork. A third, much harder-to-find release on tape was a US-only reel-to-reel 3 $\frac{3}{4}$ ips edition [M 5011], which once again featured less lavish artwork.

## UNOFFICIAL RELEASE (1971)

A bootleg version of the LP was also issued in Taiwan in 1971, on the First Record label [FL-2916].

Whether this was prompted by the popularity of The Doors among US soldiers serving in Vietnam is not a matter of record, but the label catered for the 35,000 GIs then stationed in the country, pressing LPs in batches of 500.

## FIRST CD VERSION (1984)

West Germany waded in with the first CD version of the album [EKS-75011-2], a decent-enough disc if lacking some of the depth and punch of the original vinyl.

A US CD [also EKS-75011-2] followed the same year with the colours used for the West German disc (red CD face with grey lines) reversed. The US release apparently included a four-page booklet, though having never encountered it, I can't confirm.

## REMASTERED CD (1988)

Again, this first appeared in Europe [975 011-2], despite having been remastered at Digital Magnetics in Hollywood by Bruce Botnick, The Doors and Paul Rothchild.

Collectors might enjoy the six-panel fold-out booklet, while audiophiles should appreciate a considerable improvement in sound over the 1984 version.



## 24K GOLD PLATED (1992)

This came via DCC Compact Classics [GZS-1034], an offshoot of the Dunhill label. It was mastered by the estimable Steve Hoffman, who later started Audio Fidelity.

Manzarek and Krieger both expressed enthusiasm for this release, which was unquestionably the top of the range up to that time, with particularly dynamic-sounding vocals and drums.

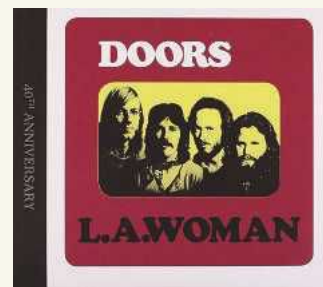
## THIRD RE-MASTER (1999)

This one [7559-75011-2], first issued in Europe, was re-mastered from the original two-track master tapes to 96kHz/24-bit digital by Bruce Botnick and Bernie Grundman at Bernie Grundman Mastering, Hollywood.

## 5.1 SURROUND REMIX [2000]

Another Grundman Mastering project [7559-62612-9], this release was produced and mixed by

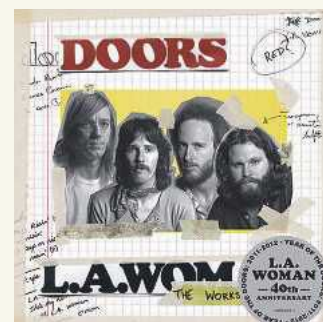
Botnick from the original analogue eight-track 1in master tapes using a Soundtrack DPC-II digital console at 96kHz/24-bit resolution. For those curious, the software package used was Sonic Solutions HD. This disc offers DVD and DVD-Audio formats.



## 40TH ANNIVERSARY 2CD (2011)

This memorable Rhino edition [812279755-1], mixed and mastered at Botnick's UnitEye Studio in Ojai, California, was the first to expand the content of the album by including alternate remixed versions and unreleased tracks, including 'She Smells So Nice' and 'Rock Me'.

As part of the 40th Anniversary celebration Rhino also released *L.A. Woman: The Workshop Sessions* [8122-79755-7], which was a double LP featuring the previously unreleased material from the CD collection on three sides of vinyl [pictured below]. The fourth side boasted a laser etching of the 1971 LP's 'Electric Woman' artwork.



## SACD HYBRID (2013)

The latest iteration on the theme of *L.A. Woman* comes via Chad Kassem's Kansas-based Analogue Productions label [CAPP 75011 SA]. The SACD is derived from the original, multi-track, 15ips analogue master tapes created by Botnick for the 5.1 surround sound mix, while the audio CD features the original 1971 stereo mix. Call me sentimental but, on balance, I'd still go with Steve Hoffman's 24k Gold Plated edition from 1992.

# Ryman Auditorium, *Nashville*

Beginning life as a chapel, by the early 1940s it was home to the *Grand Old Opry* – the radio show that would make country music famous. **Steve Sutherland** takes you to the heart of the live music experience at The Ryman Auditorium in Nashville, Tennessee

It might be another 50 years until the phrase gets coined but on the 10th of December 1925, George D Hay is punk rock to the bone. George is a DJ, known as 'The Judge', recently recruited from Chicago by the Nashville-based National Life & Accident Insurance Company's radio station WSM. The WSM stands for We Shield Millions.

George's thing is old timey country music and he'd kicked off his stint back in November by showcasing a phenomenal local fiddler, 77-year-old Uncle Tommy Thompson, who claimed he knew over a thousand tunes and could 'fiddle the bugs off a tater vine'.

Sadly, Tommy's penchant for slugging a jug of whiskey to 'lubricate' his playing arm before every show would soon see him dropped from the network.

## GRAND OLD OPRY

George's hour-long Saturday *Radio Barn Dance* was hosted on the fifth floor of the NL&A Building on the corner of 7th and Union Street.

It followed NBC's *Music Appreciation Hour*, a slot dedicated to celebrating opera and all things classical hosted by Dr Walter Damrosch, a highbrow fellow who'd gained himself quite a reputation as the Director of the New York Symphony Orchestra and a gifted conductor, mainly focused on Gershwin and Wagner.



➔ The Ryman Auditorium, located at 116 5th Avenue North in Nashville, today seats 2360

➔ Original poster advertises an appearance at the *Grand Old Opry* by the 'Father of Bluegrass', Bill Monroe



The good Dr's show was basically a pretty pompous weekly lecture which served to reinforce the idea that the classics were an art form appreciated only by a bourgeois audience, a status to which the common populace were made to feel they should truly aspire. It was an attitude which bugged the hell out of George.

Anyway, on this particular December evening, the Dr tops

off his show with the statement that there 'is no place for realism in the classics', which inspires George to pick up on the theme and announce that his show will be, 'nothing but realism. It will be,' he declares, somewhat over-excited by now, 'down to earth for the earthy.'

'For the last hour,' he continues, getting mighty het up, 'we've been listening to music taken largely from Grand Opera. From now on we will present the *Grand Ole Opry*!' And with that, and Afro-American harmonica wizard Deford Bailey blasting through his railroad lament

'Pan American Blues' live in the studio, a national institution is born.

The *Grand Ole Opry* took off like a farmhouse on fire and featured stunning live performances on a weekly basis by such down-home talents as mandolin king Bill Monroe and his Kentucky Bluegrass Boys, Amos & Gale Binkley's Dixie Clodhoppers from Cheatham City, and Uncle Dave Macon, the 'Dixie Dewdrop', whose vaudevillian

Fruit Jar Drinkers featured ace fiddler Sid Harkreader.

Pretty soon the studio couldn't accommodate the crowds that were turning up

to witness the live shows so WSM built a larger studio. And when that, too, proved way too small for the burgeoning audience, they moved the show to the Hillsboro Theatre, then the Dixie Tabernacle, then the Memorial Auditorium. And even when they levied a 25 cent entry fee to keep the crowds down, the folks still flocked in every Saturday.

So in June 1943, they packed their banjos once again and settled

'Cash smashed in all the stage lights with his microphone'





the whole shebang into the Ryman Auditorium at 116 5th Avenue North, which seated nearly 2500 patrons church pew style.

The Ryman had its own story to tell. It was built in 1892 by local architect Hugh Cathcart Thompson for Thomas Green Ryman, a river boat captain and saloon owner who had rocked up with his pals to heckle a revivalist preacher in May 1885 only to discover himself converted from his wicked ways.

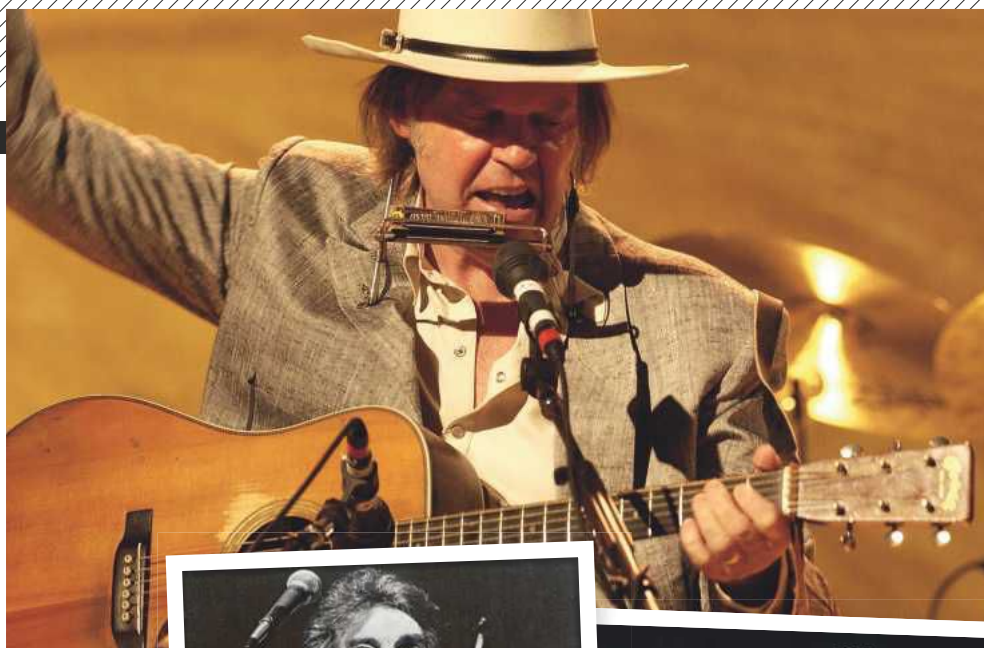
The preacher was Samuel Porter Jones, a lapsed Methodist drunk from Alabama whose boozy carousing had ruined his career as a lawyer until a promise to abstain, to his dying father, saw him turn touring preacher. Sam was a man of the people and had a winning way with words. 'I always did despise theology and botany,' he'd say, 'but I do love religion and flowers.'

## WEEKLY SHOWS

Thomas Ryman was so moved by Sam's spirit that he built him the Union Gospel Tabernacle as a base for his preaching and the venue was renamed the Ryman on his death.

Home to the *Opry* for the next 29 years, the Ryman became the epicentre of American country music, hosting weekly shows which were broadcast nationally on the NBC radio network until 1956 and on ABC TV monthly from October '55 til February '56.

Over the many years, just about anybody who was anybody in C&W played the Ryman, the venue

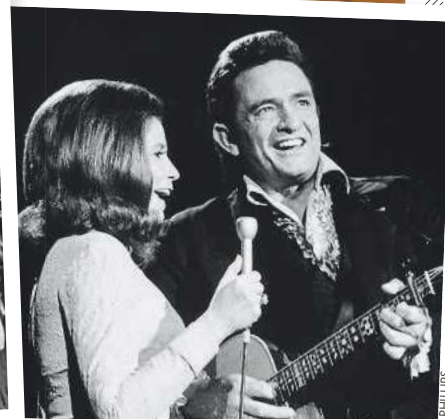


↑ Neil Young appeared in 1971 on the *Johnny Cash Show* then returned in 2005 for his *Heart Of Gold* documentary

→ Cajun fiddler Doug Kershaw

→ June and Johnny Cash on the Cash show in 1969

← The movies *Elvis* and *Coalminer's Daughter*



christened the 'mother church of country music'. Johnny Cash ran a TV show from there from June 1969 until March '71. Bob Dylan guested on his first show, performing 'I Threw It All Away'. Joni Mitchell was also on that show, as was ace cajun fiddler Doug Kershaw.

Cash had made his *Opry* debut at the Ryman on the 7th of July 1956, performing with Luther Perkins on guitar and Marshall Grant on bass. 'I Walk The Line' was his biggie at the time. After the gig he bumped into June Carter backstage and decided there and then he would marry her. And he did – 12 years later.

Cash, who was a legendary bad boy, got monumentally wasted before one *Opry* performance in 1965 and smashed in all the stage lights with his microphone, occasioning a Ryman ban. This was later lifted and he was welcomed back to do the TV.

Guests on his show included Merle Haggard, Dusty Springfield, Ray Charles, Linda Ronstadt, Carl Perkins, Tammy

Wynette, Neil Diamond, James Taylor, Neil Young, Glen Campbell, Creedence Clearwater Revival, Roy Orbison and Eric Clapton. Awesome stuff indeed.

## ON LOCATION

Neil Young returned to the Ryman in 2005 to record his *Heart Of Gold* documentary while the venue was also used as a location in John Carpenter's 1978 *Elvis* movie, the 1980 Loretta Lynn biopic *Coalminer's Daughter*, 1985's Patsy Cline celebration *Sweet Dreams*, Clint Eastwood's 1982 C&W romp *Honkytonk Man* and probably the best film about country music ever made, Robert Altman's 1975 masterpiece *Nashville*.

Of the other musical giants that graced the Ryman stage, among the most infamous is Elvis Presley who appeared only once, early in his career, on the 2nd of October 1954. His hip-swivelling take on 'Blue Moon Of Kentucky' went down like a lead balloon with the conservative congregation and Jim Denny, the manager of the *Opry*, advised the young wannabe star ↻

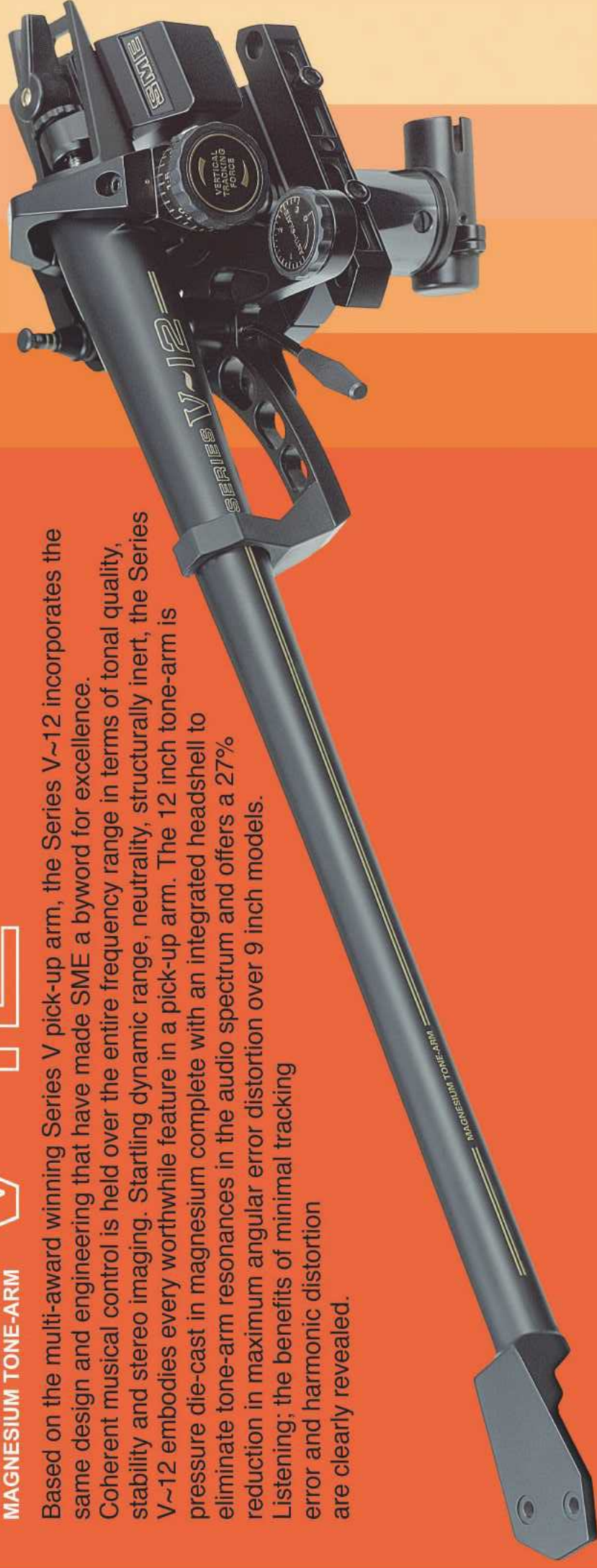




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## CLASSIC VENUES



LEGACY RECORDINGS

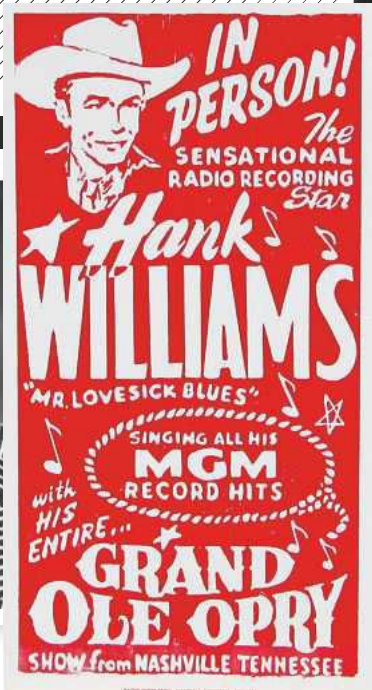
to stick to his day job in Memphis, driving trucks. Elvis held a grudge and signed for the *Opry*'s main rival, the Louisiana Hayride, for whom, in all, he performed 52 ecstatic Saturday nights.

### BOOZE HOUND

Country legend Hank Williams also had his *Opry* run-ins. He first failed an *Opry* audition in September 1946 and, even with his career on the up, his reputation as an unreliable booze hound dissuaded the conservative *Opry* from inviting him to play until the 11th of June 1949 when he finally took to the stage with his massive hit, 'Lovesick Blues'.

Hank was called back for a record six encores, the management having to implore the crowd to quit hollering so other acts could take their turn.

The bottle and all sorts of other bad chemicals got the better of him, though, and Hank was banned from the Ryman on 11th August 1952. He



took a grim cocktail of drugs on the 1st of January '53 and died in the back of a car on the way to a gig in Ohio. He was 29 years old and never made peace with the *Opry*.

The Byrds also incurred the wrath of the *Opry* when they appeared at the Ryman on the 15th of March 1968. Recently turned on to C&W by new member Gram Parsons, the folk rockers had come to Nashville to record their groundbreaking

*Sweetheart Of The Rodeo* LP, but the country crowd mocked their long hippie hair and the powers that be bristled when the band cheekily swapped out

their agreed cover version of Merle Haggard's 'Life In Prison' for Gram's own 'Hickory Wind'. WSM DJ Ralph Emery then belittled the band in an on-air interview, which led to Gram writing the classic anti-bigot anthem 'Drugstore Truck Drivin' Man'.

### 'DJ Ralph Emery belittled The Byrds in an on-air interview'



Another naughty boy who notably got his rocks off at the *Opry* was that old hell raiser Jerry Lee Lewis who, on the 20th of January 1973, agreed to play by the rules and behave himself only to ride roughshod over the whole fandango by doing 'Chantilly Lace', Ray Charles' 'What I'd Say' and a whole bunch of other decidedly non-country rock 'n' roll stuff.

When asked only to play country, he'd apparently muttered: 'What country?' and then proceeded to address the audience thus:

'Let me tell ya something about Jerry Lee Lewis ladies and gentlemen. I am a rock 'n' rollin', country & western, rhythm and blues-singing motherf\*\*\*er!'

There was, incidentally, a no cussing rule in operation at the venue and his set, scheduled for eight minutes, lasted 40. The crowd got up off their arses, lapped him up and screamed out for more.

### A NEW VENUE

The Ryman's stint as the home of the *Opry* came to an end in 1974 when the operation moved to the 4000-seater, specially built Opry House, part of the Opryland Theme Park with its own hotel on the outskirts of town. Tradition was honoured with a large circle, cut from the Ryman stage, slotted into the new one so every future lead singer could literally tread the same boards as Johnny and Elvis.

The *Opry* briefly returned to the Ryman in May 2010 when the Cumberland River burst its banks and flooded out the official Opry House.

Bands still play at the Ryman Auditorium to this day, no doubt keeping it down to earth for the earthy. ☺

➡ Hank Williams

poses for this MGM publicity still in the late '40s while (centre) an original *Opry* poster hails him as 'Mr Lovesick Blues'

➡ It was in 1954

that a teenage Elvis made his only appearance at the Ryman. Rockabilly and body gyrations did not go down well with the country music audience

➡ The Grand Old Opry House outside Nashville where the *Opry* moved in 1974

➡ Jerry Lee Lewis caught on camera in the early '80s



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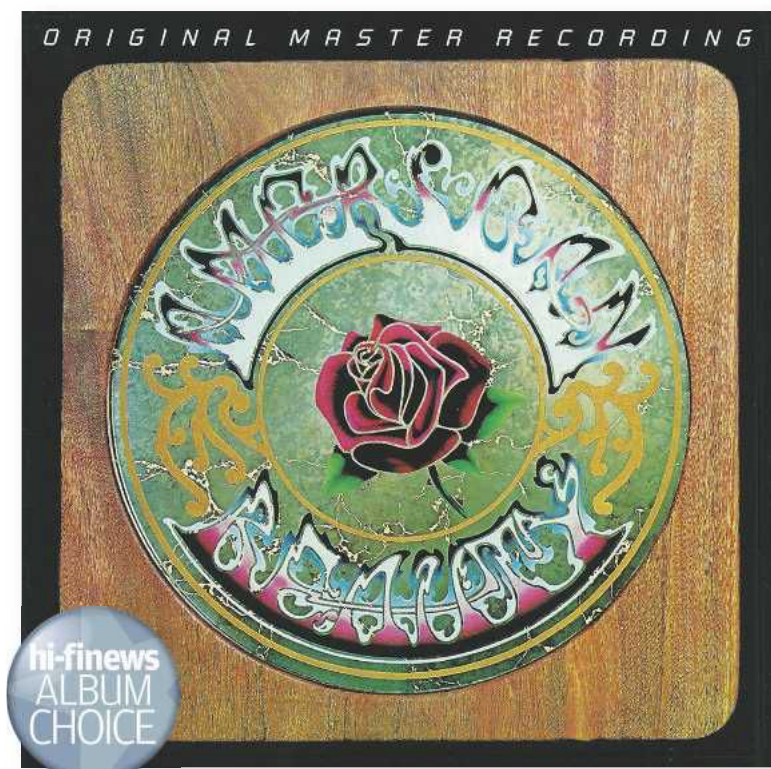
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## ALBUM REVIEWS: VINYL



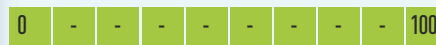
### THE GRATEFUL DEAD

American Beauty

Mobile Fidelity MFSL2-429 (two 45rpm LPs)

This is a giant American 'hero' band I just don't get. However, this is one of their more accessible, post-too-much-acid releases and one that I have no doubt was a key element in reviving roots music, foreshadowing alt. country and other genres of a more musical bent. What's undeniable is musicianship of an order that leaves one breathless. From the plaintive to the easy-going, this 1970 follow-up to the equally-accessible *Workingman's Dead*, the album is a feast of country-style pickin' to embarrass any Mumford. Also out on SACD, this 45rpm version has sonic value to dazzle audiophiles and Deadheads. (Footnote to the above: I worshipped the New Riders Of The Purple Sage. Go figure.) **KK**

Sound Quality: 92%



### BILLY JOEL

Glass Houses

Mobile Fidelity MFSL 2-385 (two 45rpm LPs)

In January 2013, I gave the SACD of this 90%, because it deserved it. It was Joel's 1980 smash hit, with the superb 'You May Be Right' and 'It's Still Rock and Roll To Me' as standouts. Clearly a product of the era, with crystalline sonics and production values that favoured a sparkly sound anticipating digital, it works because of a mix of bombast and finesse – pure Joel, so to speak. Transferred to two slabs of vinyl spinning at 45rpm, it's a shade more natural-sounding, but no less visceral. The snap of the SACD is preserved, but there's a hint more air and the vocals are warmer. The SACD is still divine, but this is worth an extra point. Not just for fans. **KK**

Sound Quality: 91%



### OTIS SPANN

Walking The Blues

Pure Pleasure CJS 9025 (180g vinyl)

Aaah, my all-time favourite blues pianist, and what is arguably his finest LP, from 1960. This is primarily solo piano with Spann's vocals, though a few tracks feature Robert Jr Lockwood on bass and St Louis Jimmy on vocals on four tracks. While the material penned by Spann and St Louis Jimmy is classic – the title track, 'Evil Ways', 'Going Down Slow' and similar compositions of that calibre – the magic is in the sound: this is one of the most life-like blues piano recordings I have heard this century. It rings and chimes, with air around the performers, Spann brought back to life and performing for you privately, in your listening room. Spann? The Man. **KK**

Sound Quality: 91%



### VARIOUS ARTISTS

The Birth of Funk

History of Soul HS02 (mono; 180g vinyl)

A new label to me, History of Soul is mining deep into the R&B archives with the drive and hunger of a Northern Soul fan who craves street-cred. This LP is filled with semi-obscure material from both well-known and all-but-forgotten R&B giants, the 15 tracks adhering to the 'birth of funk' premise: music typically 50-60 years old and predominantly of a New Orleans cast. James Brown is present with the scorching 'I've Got Money', alongside Bill Doggett, Billy Stewart, Earl King and Huey 'Piano' Smith, plus lesser-known practitioners like Eddie Bo and Porgy & the Polka Dots. All tracks possess a massive funk component. You'll forget that it's all monophonic... **KK**

Sound Quality: 87%



## AUDIOPHILE: DIGITAL



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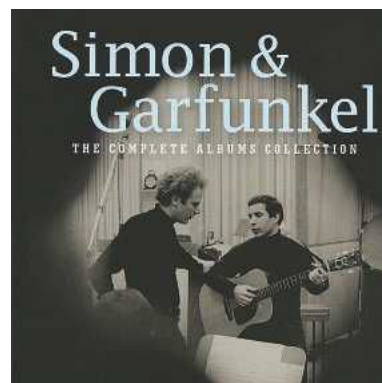
BLU-RAY



VINYL



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### JERSEY BOYS

Jersey Boys Motion Picture

Warner Bros 5000189760 (Blu-ray)

Ordinarily, feature films don't figure here, but this retelling of The Four Seasons' story, closely following the Broadway smash, is one of the most enjoyable biopics I've seen. It doesn't hurt that the music is interwoven in pop history, the group producing a phenomenal number of hits including 'Rag Doll', 'Dawn', 'Walk Like A Man', 'Sherry' and too many others to list. Clint Eastwood – a dab hand at this, having directed music biopics before – captures the full flavour of the stage show, adding a frisson of drama in keeping with the music biz's gangster element. A total joy if you love harmonies to-die-for and know all the words to 'Oh, What A Night'. **KK**

Sound Quality: 89%



### LOVE

Forever Changes

Mobile Fidelity UDSACD2131 (stereo SACD)

Adjudged to be this band's masterpiece (although I'm partial to its predecessor, *Da Capo*, also issued as a MoFi SACD), this 1967 release has had rock scribes, especially in the UK, slobbering for decades. It was never a commercial hit, always a hipster cult success, but it easily deserved to be as huge as any other primal Summer of Love/proto-psychedelic milestones. Indeed, it looms large in lists of all-time best albums. Both intense and ethereal, *Forever Changes* is druggie, mystical and everything else that was daft about hippiedom, but the music is gorgeous. Among its treasures are two of Love's greatest moments, 'Andmoreagain' and 'Alone Again Or'. **KK**

Sound Quality: 90%



### SIMON & GARFUNKEL

The Complete Albums Collection

Columbia Legacy 88750 09062 (12 discs)

This pricey set is a must-own if you want the (almost) complete canon of this phenomenal duo. Along with The Everly Brothers, they're one of the greatest duos in pop history, responsible for more classics than you can name. 'Bridge Over Troubled Water' is enough to seal their status. This contains the five studio albums, *The Graduate* soundtrack, the hits album and four live sets, one a double. Alas, the 13 bonus tracks from *The Complete Columbia Recordings 1964-1970* aren't included; they'd have made a dandy bonus CD. The mono versions would be nice, too, but that's all by-the-bye: the remastered sound of the studio albums is truly wonderful. **KK**

Sound Quality: 90%



### THE MONKEES

The Monkees

Rhino R2-543027 (three discs)

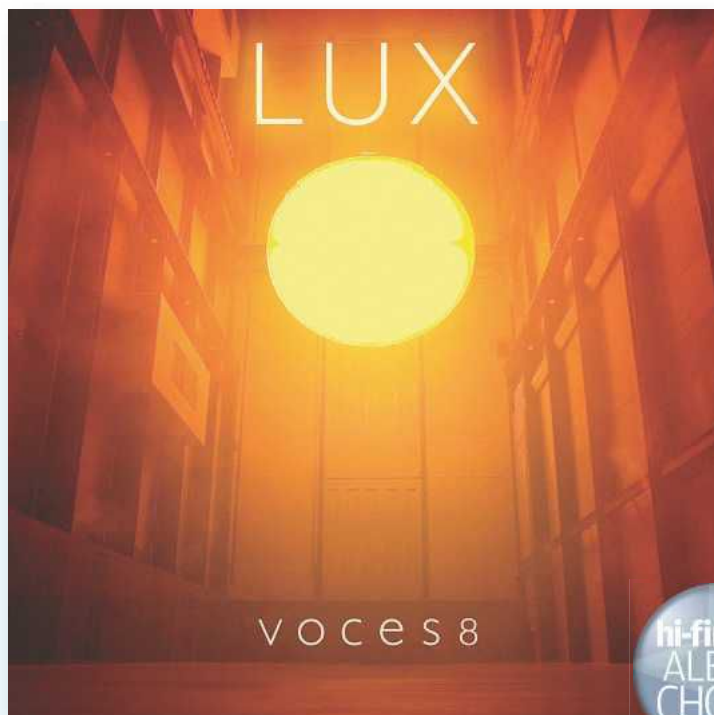
Rhino's 'Super Deluxe' reissues suggest that The Monkees created more unreleased material in five years than many bands yield in 50. Their debut finally receives the treatment, a 7in singles size box holding a CD of the original album in mono and stereo, plus mono TV mixes and promos, a second CD of session tracks, and a third with the *David Jones* solo in both mono and stereo, as well as singles, demos and ultra-rare tracks from Mike Nesmith as 'Michael Blessing'. If you don't 'get' The Monkees and think of them as prefabricated crap, instead of sublime pop, note that John Lennon never missed an episode. Songs from the best writers of the era, performed with the best studio musicians? An utter delight. **KK**

Sound Quality: 92%



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### LUX

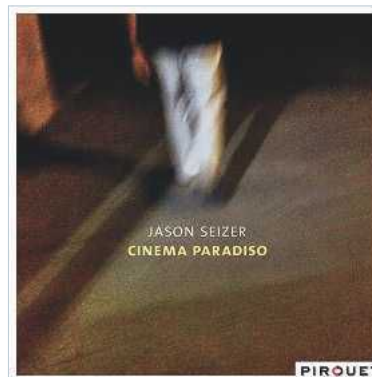
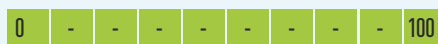
Voces8 (96kHz/24-bit; FLAC)

[www.hiresaudio.com](http://www.hiresaudio.com); Decca Classics 478 8053

With Oliafur Eliasson's 2003 installation from Tate Modern as cover (and texts white on orange – hard to read!) this vocal collection of arrangements covers a wide time-span, like their Signum album *Choral Tapestry*. Their second Decca programme, on the theme of a comforting warmth that music can bring, introduces one or two instrumental 'guests' – cello, saxophone, water-tuned glasses – and spans from Tallis and Allegri (*Miserere Mei*) to contemporary writers in the

pop field: 'Teardrop' from Massive Attack's *Mezzanine* and Ben Folds' 'The Luckiest' from a Richard Curtis film soundtrack – an item I found intrusive. Voces8 (two sopranos, counter-tenors and tenors, baritone and bass) were recorded in helpful acoustics at Dore Abbey, in Herefordshire, and more intimately, a Highgate, London, church. Hard to fault, though arguably best for 'dipping into'. **CB**

Sound Quality: 95%



### JASON SEIZER

Cinema Paradiso (96kHz/24-bit; FLAC)

[www.hiresaudio.com](http://www.hiresaudio.com); Pirouet Records PIT3080

Coming to this one hot on the heels of the Craig Armstrong set (see far right, p93), it might be tempting to think 'Not another album of film music', but though German-born saxophonist Jason Seizer has created an album drawing on music from some celebrated movies, he combines with his band – Pablo Held on piano, Matthias Pichler on bass and drummer Fabian Arends – to come up with a set that's both smooth of sound and perfect for a little late-night listening. Not surprisingly Seizer's breathy sax is to the fore, underpinned by delicate playing from his fellow musicians, with plenty of brushwork and cymbals in the percussion department, a rich, warm bass and every touch of the piano crystal-clear. It's not the most challenging jazz album you've ever heard, but the musicianship is beyond question, and the recorded sound serves the performers well. **AE**

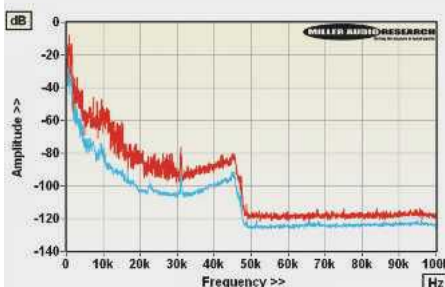
Sound Quality: 85%



### OUR PROMISE

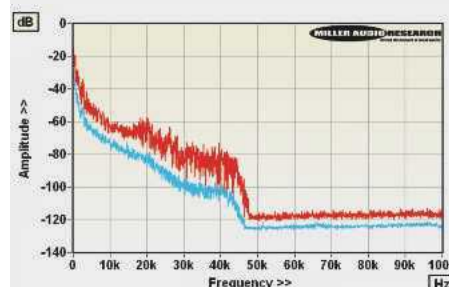
Following our Investigation feature [*HFN*, Jun '11] where we examined the claimed quality of high-resolution downloads, *Hi-Fi News & Record Review* is now measuring the true sample rate and bit-depth of the HD music downloads reviewed on these pages. These unique reviews will be a regular source of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

### LAB REPORT



Cleanly recorded (aside from a signal at 31kHz) and with excellent dynamic range (the rise in ultrasonic noise is from the original – not an artefact of upsampling), this 96kHz file perfectly illustrates the 30kHz extension of a soprano voice. **PM**

### LAB REPORT



Digitally recorded and mastered, this 96kHz rendering offers very low levels of white noise (hiss). Nevertheless the excess of ultrasonic energy from sax and percussion suggests some downstream limiting or distortion. **PM**



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## PINK FLOYD

Endless River (96kHz/24-bit; FLAC)\*

[www.hifiresaudio.com](http://www.hifiresaudio.com); Warner Music Group/Columbia

This is either the long-awaited 15th and final album from Pink Floyd, or a collection of edit-suite sweepings lashed together with some new material and, given the variable sound-quality on offer here, the latter description isn't without justification. Based on recordings for *The Division Bell* in 1993/4 (and already rejected for release back in 1994 as *The Big Spliff*), it's intended as both a tribute to Richard Wright and what Dave Gilmour calls 'a 21st-century Pink Floyd album', and while it has delighted Floyd fanatics, it adds little to the collection of the casual listener. In fact, it's more a case of 'spot the source' if you're familiar with the back catalogue, and comparing this 96kHz/24-bit version with the standard CD-quality release, there's not much gained, and arguably the slightly rag-bag nature of the content is more obviously revealed. *AE*

Sound Quality: 70%



## MARAIS

Six Suites for Oboe; Christopher Palameta, et al (44.1kHz/24-bit; FLAC)

[www.hifiresaudio.com](http://www.hifiresaudio.com); Audax ADX13702

Born in Paris in 1656, Marin Marais studied the viol under Sainte Colombe and worked under Lully in the court orchestra. He wrote over 800 pieces for viol, many in suite form and the Canadian oboist has transcribed six of those here. (The baroque oboe was first heard in a work by Lully a year after Marais was born and it quickly became very much in demand in France.) The suites are typically in seven-movement form – Prélude, Courante, Sarabande, Menuet, etc – with a few concluding Giges having descriptive titles: 'La Chicane', 'La Badine', 'La Petite'. Palameta is set forward of accompanying continuo instruments – theorbo, harpsichord, bass viol and baroque guitar – in a shallow soundstage. His playing is clean, expert but for my taste somewhat too earnest. Sample before buying, to see if the music engages your interest. *CB*

Sound Quality: 65%



## CRAIG ARMSTRONG

It's Nearly Tomorrow (96kHz/24-bit; WAV/FLAC/ALAC)\*

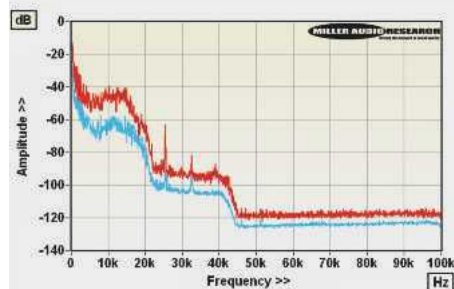
[www.naimlabel.com](http://www.naimlabel.com); BMG/Chrysalis 538013154

This solo outing from award-winning composer Craig Armstrong was started when he was in Australia working on the music for the recent Baz Luhrmann remake of *The Great Gatsby*. Take all that on board, and you'll probably have an inkling of what to expect from the generous 17 tracks that are on offer here, 11 of which are instrumental – it sounds pretty much like film music, the songs having a distinct air of being rolled out to underpin the end titles of a movie. The sound has good instrumental definition given the big, lush arrangements of most of the tracks here, but there's nothing to trouble even fairly modest systems, let alone stretch anything designed for high-resolution playback. Armstrong says 'I see it as quite a romantic album', so it's one to sit back and let wash over you. Whether you'll want a second play is another matter. *AE*

Sound Quality: 75%

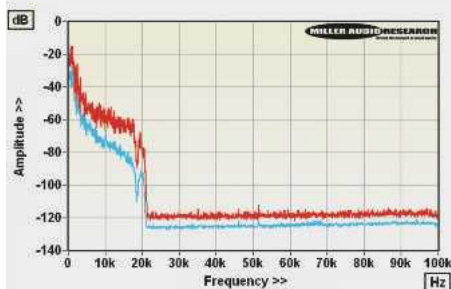


### LAB REPORT



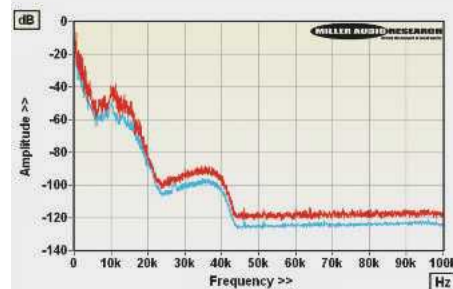
Tracks 19-21 are upsamples of 44.1kHz material while the remainder, in addition to betraying various spurious [see Graph], are 96kHz encodes of mixed content including archive analogue tape and digital recordings made at 48kHz. PM

### LAB REPORT



The harmonic reach of this baroque oboe is clearly >20kHz, beyond the bandwidth of this 44.1kHz rendering prepared for release on CD. Interestingly, the feed from the microphone looks to have a notch filter at 18.6kHz [see Graph]. PM

### LAB REPORT



Another download that'll light the 96kHz LED but which is evidently an upsample from 44.1kHz. Tracks 3, 4 and 12 are direct upsamples while the remainder [see Graph] show excess ultrasonic noise almost as if downsampled from SACD. PM



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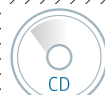
**North West** - Brian & Trevors 0161 766 4837. **East** - Analogue Seduction 01733 350878 / LW Audio 01284 716415.

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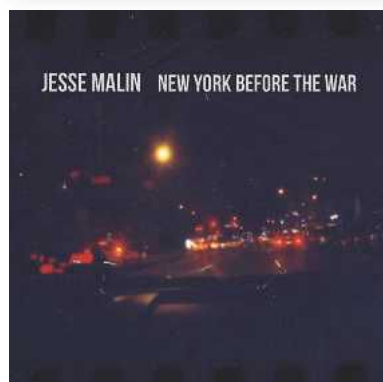
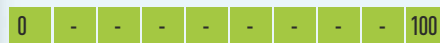
### EMMA LOUISE

Vs Head Vs Heart

Emma Louise Records HENCASDGA1

You may know singer-songwriter Emma Louise best from the Wankelnut remix 'My Head Is A Jungle' which recently did well in the charts, or from her original version of the same track, entitled 'Jungle', which appeared in a recent Black Opium perfume ad on the telly. Either way, you should have noticed that this 23-year-old Australian who learned her craft busking in the streets of Brisbane, and honed it making tunes on her bedroom computer, is remarkably talented. Check her use of found vocal samples on 'Atlas Eyes', or her minimalist synth-lines on '17 Hours', and it's impossible not to conclude that anyone who ever loved St Etienne or Everything But The Girl or Lights will soon fall under her spell. Don't wait: get it now! *JBk*

Sound Quality: 93%



### JESSE MALIN

New York Before The War

One Little Indian TPLP1262

It makes sense that Malin's name tends to get mentioned alongside company that includes Bruce Springsteen, Ryan Adams and Gogol Bordello, because his style encompasses elements of good old-fangled rock penmanship with a more contemporary citizen-of-the-world perspective. Opener 'The Dreamers' is a disappointingly plodding piano-ballad, but once he gets into his uptempo stride things really perk up. His quirky rhyme of 'Ohio' with 'denial' in the angular 'She Don't Love Me Now', The Cars-like riff of 'Deathstar' and Peter Buck's Byrdsy guitar jangle in 'I Would Do It For You' are just two of the many delights on offer here. *JBk*

Sound Quality: 90%



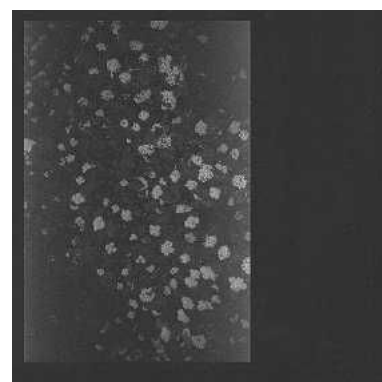
### OF MONTREAL

Aureate Gloom

Polyvinyl Records PRC-290

Of Montreal – one of the few Athens, Georgia, bands to make a lasting impact in the wake of REM – are in superstar form on their 13th album. It blasts into life with the Bolan-channeling stomp of 'Bassem Sabry', named for the brilliant Egyptian journalist who died last year, then going a bit more Bowie on 'Last Rites At The Jane Hotel' before sounding rather more like themselves on the beautifully-constructed 'Empyrean Abattoir'. Yes, despite influences worn high on their sleeves, Kevin Barnes' psychedelic-glam quintet definitely boasts its own sonic identity, snotty and angry, hyper-intellectual and loadsafun. An acquired taste but well worth acquiring. *JBk*

Sound Quality: 88%



### MOTORAMA

Poverty

Talities Records TAL 082

Rostov-On-Don in Southern Russia is not internationally renowned for rock bands, but the electro-pop quintet Motorama might be about to change all that. From the opening moments of 'Corona', they'll sweep you into a warm, fuzzy trance reminiscent of New Order before introducing strong overtones of Kraftwerk in 'Dispersed Energy'. This is their third album, and it marks a significant progression beyond the rock-oriented material which they displayed on their 2010 debut. Airin Marchenko's richly melodic bass lines, Alexander Norets' subtle synth textures, and Vladislav Parshin's atmospherically twinkling guitars/mesmeric vocals make this one a priority listen. *JBk*

Sound Quality: 89%



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Paul Miller, Hi-Fi News, March 2015

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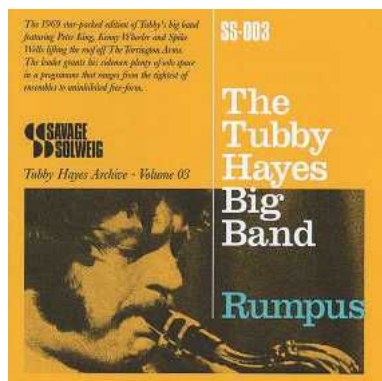
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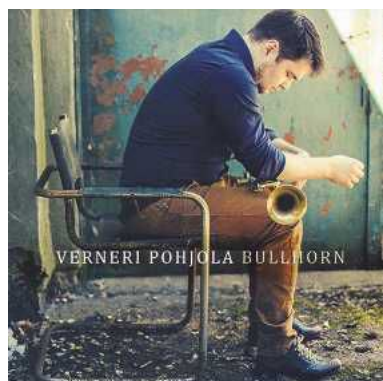


### THE TUBBY HAYES BIG BAND Rumpus

Savage Solveig SS-003 (mono)

A third release from the label that's devoted to unissued recordings of the late British jazz great, culled from Hayes' own personal tape archive and superbly documented by Simon Spillelt. The first two covered quartet and quintet dates from 1967 and 1964 respectively but this time it's Hayes's 1969 big band, live and in full flight with breathtaking ensemble playing. As for solos, along with the leader's tenor there's the slippery alto sax of Peter King, the trumpets of Kenny Wheeler and Ian Hamer and the guitar of Louis Stewart, all propelled by dynamic drummer Spike Wells. Mono sound is better than you'd expect and the music makes this an exciting disc. *SH*

Sound Quality: 80%



### VERNERI POHJOLA Bullhorn

Edition Records EDN1056

While fostering home-grown talent, pianist Dave Stapleton's Edition label also brings us great artists from abroad, and *Bullhorn* is the first fruit of a three-album deal that the Finnish trumpeter signed in February last year. Pohjola's quartet is still built around his compatriots, pianist Aki Rissanen and bassist Antti Lotjonen, who featured on his two previous albums for the ACT label, but now has Teppo Makynen on drums. Pohjola's originals are melodic, stimulating and cliché-free, building to effective climaxes often with the robust help of tenor saxophonist Jussi Kannaste, not to mention younger brother Ilmari Pohjola on trombone. A great label debut. *SH*

Sound Quality: 85%



### JOCHEN RUECKERT We Make The Rules

Whirlwind Recordings WR4658

Drummer Jochen Rueckert left his native Germany for New York in 1995. Since then he's played with Pat Metheny, John Abercrombie, *et al*, while also working with punk and rock bands and electronic music. He formed his own quartet in 2009, recording *Somewhere, Meeting Nobody* in 2011 for the Pirouet label. Since then the sweet-toned, agile and inventive Lage Lund has replaced Brad Shepik on guitar. But as before, the superb bassist is Matt Penman, who teams immaculately with Rueckert throughout, and the dominant melodic voice is another long-time star of the NY scene, the admirable tenor saxophonist Mark Turner. A winning combination. *SH*

Sound Quality: 85%



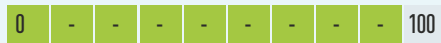
### KENNY WHEELER

Songs For Quintet

ECM 470 4653

With a close-knit group of long-term colleagues, this Dec '13 session at Abbey Road would be the celebrated trumpeter's last recording and in fact his last performance. Saxophonist Stan Sulzmann had first worked with Wheeler in the 1970s, guitarist John Parricelli in the '90s. A few years later, bassist Chris Laurence could be heard alongside Sulzmann and Parricelli on Wheeler's *Dream Sequence* album, while drummer Martin France became a member of Laurence's own quartet. All the players support their leader ably and fondly, and stretch out too, giving new shape to some of Wheeler's favourite compositions. Rolling down a familiar sunny road, they give us an album with a very special atmosphere. *SH*

Sound Quality: 90%



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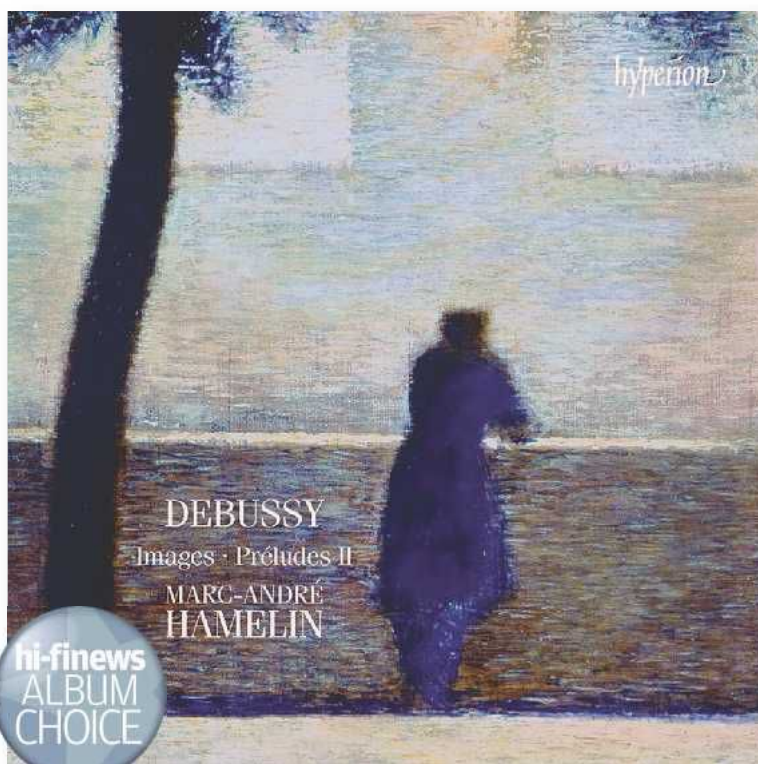
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VINYL



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## DEBUSSY

Images 1 and 2; Préludes Book 2  
Marc-André Hamelin

Hyperion CDA CKD450 (downloads up to 96kHz/24-bit resolution)

The opening 'Reflets dans l'eau' sets the tone for some remarkably fluent piano-playing (it's well worth paying extra for the 96kHz/24-bit option of these 2011-12 Henry Wood Hall recordings). But it's the thoughtfulness of Hamelin's Debussy which impresses more – the technique comes as no surprise. In the second book of *Préludes* I particularly enjoyed 'General Lavine – eccentric' and 'La Puerto del Vino'. Even so, I think there's greater depth (and no lesser pianistic control) in Arrau's *Images* and *Préludes* [Philips] – the way in which he integrated the middle section of 'Mouvement', for instance. And the aloof Michelangeli [DG] remains altogether peerless in this music. **CB**

Sound Quality: 85%



## JS BACH

Partitas 1-6  
Igor Levit

Sony Classical 88843036822 (two discs)

Levit's post-Christmas London recital prompted the *Guardian* critic to suggest he was a young pianist 'who has everything'. But is this second Sony set on a par with his late Beethoven debut? His view of the six keyboard *Partitas* is certainly individual, with one or two unexpectedly slow tempi. Every note seems to have been pondered and given due – or more than due – weight. And that's perhaps a problem: there's a consistent intensity (not loudness) about Levit's projection, that sent me in search of Argerich's wonderful C-minor Partita [DG] and the two discs by Richard Goode [Nonesuch], fluid and airborne. **CB**

Sound Quality: 75%



## BEETHOVEN

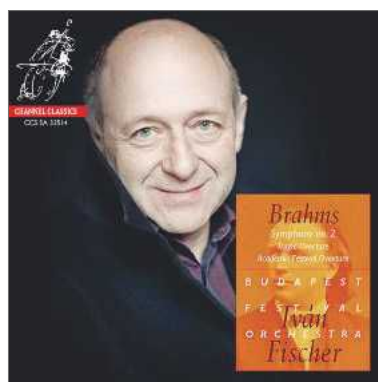
Triple Concerto

Rudolf Serkin, Jaime Laredo, Leslie Parnas,  
Marlboro Festival Orchestra/Alexander Schneider

Speakers Corner Columbia MS 6564

When issued here in Sept '64, this New York Columbia studio recording, produced by Thomas Frost two year earlier, was reviewed as 'defining the very nature of the work'. It's certainly a 'corrective' to the sumptuous Karajan/EMI version with Russian soloists, also available on 180g vinyl (from Hi-Q) – leaner, more rapt in the second movement. The balance sets the three wide-spaced soloists against an orchestral 'backing', but you quickly become used to that. And while Serkin's name is in a bolder font on the sleeve, he's very much on equal footing with his expressive string partners. **CB**

Sound Quality: 80%



## BRAHMS

Symphony 2; Tragic Overture;  
Academic Festival Overture  
Budapest Festival Orchestra/Iván Fischer

Channel Classics CCS SA 33514 (SACD hybrid)

Fischer conducts a sober, even sombre account of Brahms' sunniest symphony – tempi reminded me of Karl Böhm's fine Berlin/DG recording from 1956, although Iván Fischer includes the first-movement repeat, with its intriguing lead-back material. The *Academic Festival Overture*, too, is spacious and rather solemn, except in the passage for bassoons. I thought it was a bit wide of the mark at first, but repeated hearings simply expose more and more to savour. I suggest (if you lack an SACD player) getting one of the high-res options direct from Channel Classics. **CB**

Sound Quality: 80%



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HIGH RES AUDIO

WHAT Hi-Fi AWARDS 2014  
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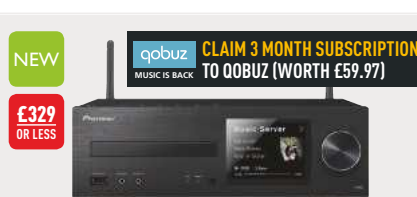
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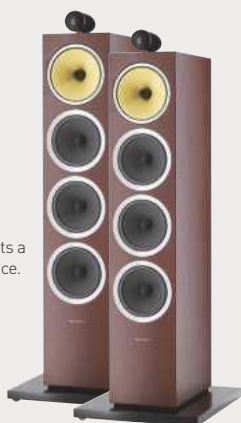
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**WHAT HI-FI? AWARDS 2014**  
Best speakers  
Home Cinema  
Bowers & Wilkins 685 S2

Price excludes stands



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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

# Hi-fi's new dawn?

A tide of high-res music downloads and ubiquity of portable, connected devices is creating the perfect environment for 'DSP loudspeakers' to finally flourish. Or that's the plan, says **Paul Miller**

**B**efore we had the opportunity to lab test and review the first of Dynaudio's new Focus XD series loudspeakers [p40], I sat down with Claus P Rasmussen, Sales Director, and Wilfried Ehrenholz, CEO, to discover a little more about this 'quantum leap' in design and performance. It wasn't long, however, before talk of a new age of highly integrated and connected technologies had me thinking of previous 'new dawns'. So what, if anything, will ensure the system-in-a-speaker will prove a game-changer in 2015?

The idea of incorporating a DAC, active crossover and amplification (latterly a crossover in DSP with Class D amps) inside the loudspeaker cabinet is not especially new. As Steve discusses in our review this month, it's a route to market already navigated by Meridian, in particular, for decades.

### ONLY LOGICAL

On the face of it, this is an entirely logical evolution in hi-fi design – replacing an archaic passive crossover with active electronics and DSP that's able to provide vastly superior correction of phase and frequency response. Every facet of the loudspeaker's

**LEFT: Dynaudio's Focus flagship, the £8950 600 XD, incorporates a total 600W of Class D amplification, digital inputs and a crossover mapped in DSP**

performance, not least sensitivity (or, more correctly, its efficiency) is available for optimisation. And what about the new Devialet Phantom [HFN Feb '15]? This is yet another step on the evolutionary path, a system that employs the most sophisticated and cool-running electronics not only to provide a fully networked, hi-res audio solution but to shrink that solution into a pint pot without sacrificing bass extension. But experience tells us that the logical simplification of hi-fi is not necessarily what attracts all enthusiasts.

### GETTING ACTIVE

Audiophiles of an age will remember seeing and hearing Meridian's first active loudspeakers, the M1, back in the late 1970s. The sloped baffle with its 10in woofer was distinctive, but it was the technology inside – a Meridian 105S power amp with electronic crossover – that represented the true innovation. The idea spawned a few other active loudspeakers, but Meridian is unique in having stuck to its guns and developing the concept, right through to its MQA-ready DSP loudspeakers that are available today.

But if the hi-fi enthusiast market never took to the idea of active loudspeakers *en masse* (the flexibility of separate amps and fine-tuning potential of cables is evidently irresistible), then the pro sector has moved entirely the other way. Nowadays speaker manufacturers cannot sell a monitor into a studio environment *unless* it's active and typically packing a host of DSP within its cabinet. Just ask PMC...

### NEW WORLD ORDER?

Today, Meridian is joined by Linn and a very few others attempting to achieve a critical mass driven, not by any advantage in performance but by the recent and



**ABOVE: The Phantom, by Devialet, is a fully networked audio solution, complete with ADH amps and SAM bass correction**

'Enthusiasts never took to the idea of active speakers *en masse*'

rapid change in the high-end consumer's 'digital lifestyle'. In much the same way that the explosion in quality headphones and associated paraphernalia has been fuelled by the wealth of hi-res music downloads and portable, universally connected devices, then it's not

unreasonable to anticipate the high-end 'system in a speaker' appealing to tech-savvy, quality-conscious music fans.

This is certainly Dynaudio's vision for, despite still designing and manufacturing some very tasty passive loudspeakers (not least the Evidence Platinum floorstanders that graced our Dec '14 cover), it's clear the brand sees this fully-loaded concept as the real future. As does, I might add, Devialet with its Phantom.

Perhaps this will be true for Dynaudio. And Meridian. And Devialet. But just as the tsunami of headphones hasn't washed away the enthusiast's appetite for loudspeakers in general, I suspect these cutting-edge DSP towers won't herald the end of the familiar passive floorstander any time soon. ☺





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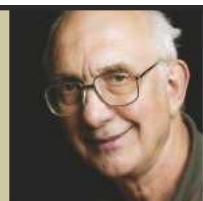
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AC/HFP/80



## 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

# Hard to come by

Downloading HD music over a fibre connection can have unexpected costs, explains **Barry Fox**, who is also frustrated by the scarcity of blank discs and the settings of some PC backup solutions

**T**he world is as it is, not how we might like it to be. It's going to go on getting harder to buy music on physical media, until – perhaps – CD, DVD, SACD and BD become the next vinyl and production ramps up again. Until then we have downloading and streaming, and the pitfalls that come bundled.

Some readers will be on capped broadband, for instance from BT. Exceed the monthly limit and there are severe cost penalties: £5.30 for every extra 5GB, or part thereof. Streaming low quality internet radio is unlikely to push you over the limit, but HD downloads with a fibre connection make excess a real risk. BT recommends that subscribers use the online Usage Monitor to check how close they are to the monthly limit. But this can be misleading by a factor of GB.

### HAPPY COINCIDENCE

Recently I made printouts of usage readings to analyse data consumption.

By gloriously happy coincidence this was shortly before BT issued a penalty for alleged excess.

BT admits that the Online Usage Monitor does not give a real-time reading. Total

usage for the month at 23.59hrs on the preceding day is displayed at 1400hrs on the day of checking. So the displayed reading is out of date but should never be more than 14 hours wrong.

A close look at my printouts revealed that on two successive days, just before the month ended (29/30th) the online monitor was using 23.59hrs updates from the same day (28th). Bizarrely, the two readings from the same update differed by 2.12GB! And even though these readings were nearly 4GB inside



**ABOVE:** Is the safest way to backup your music to burn it to 'old fashioned' blank physical discs?

the data limit, BT issued a penalty a day later based on an alleged 1GB excess, making a discrepancy of nearly 5GB.

After much nagging from me, BT's official 'explanation' is: 'While the broadband usage gets updated everyday, there is a time when the date does not get updated. Hence, you see two readings on the same date (actually the readings recorded are of two different dates).' I shall

now lodge a formal complaint with the telecoms regulator.

Once it has been downloaded, music is only as safe as the hard disk that stores it. Usually hard disks last for years, but like light bulbs they fail

in the end. Over recent years I have had several hard disks fail. One had a terabyte of music, movies and photos on board.

The only salvation will often be to buy a new disc and re-load the lost data. Very likely the online music services that sold the content will provide a free repeat download. Have you checked how easily this can be done for your music?

The easier option will usually be to re-load everything from a backup drive, ideally kept at a different location to safeguard against fire or hardware theft.

A standalone hard drive, with several TB capacity, now costs well under £100. But it's impractical to make a full copy of everything every day. That's why commercial backup programs save copying time and space by 'incrementally' copying only changes made since the last backup, and this is done automatically at pre-set times.

But there is an old adage: you never know whether your backups are any good until you try to use them, and then it is too late. I recently discovered one bear-trap pitfall, too late.

I have always used and recommended Acronis True Image for automating PC backups. Acronis offers 'incremental' backups and the recommended default setting is *not* to force a new full backup every week or so. There was one bad backup in the middle of a long incremental chain and this killed my whole data recovery process.

### UNHAPPY SURPRISE

So take my hard-learned tip. Do not rely on long chains of incremental backups. Make full copies every so often. And occasionally test them by deleting an expendable song from your PC and then trying to recover it from your latest backup. You may be unhappily surprised at what you discover.

As I've previously advised in these pages, the safest music backup is an original physical optical disc. After an initial rip to hard disk (which runs up no broadband usage) the optical disc goes into a cupboard under the stairs or up in the attic. There it stays until a hard disk or server fails, or is stolen. Then the original is available for a fresh rip.

The bonus is that very likely available coding algorithms will have improved since the original rip. So a forced re-load may improve the quality on hard disk. But this is where we came in: it's becoming increasingly hard to buy a physical optical disc to stash away. ☹

'Improved ripping may improve the quality of media loaded to hard disk'



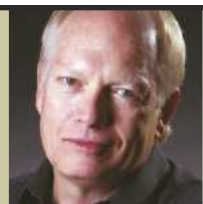
## Xtension 9 SuperPack

The Xtension 9 SuperPack from Pro-Ject Audio Systems represents one of the finest high-end turntable packages available today. Drawing inspiration from Pro-Ject's first ever 'money-no-option' turntable, the Xtension 12, this streamlined version boasts advanced technologies and phenomenal value for money. The high-gloss plinth (available in Black, Red or White) is an MDF construction filled with metal granulate, making it high-mass and non-resonant just like the platter, which is made from a special alloy lined with Thermo-Plastic Elastomers and topped with recycled vinyl records. The whole turntable is magnetically decoupled from a rack by three specially designed feet.

The Xtension 9 SuperPack's motor efficiency is improved by the built-in speed control module, and the whole package is finished off by the stunning 9CC Evolution Tonearm and pre-fitted Ortofon Quintet Black.

Available in the UK for **£2,200** (UK SRP)





## 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

# Dinosaurs in our midst

We've all looked in awe at amps so large and heavy they need three or four brawny technicians to wrestle them into place, but should they be celebrated or decried? **Barry Willis** offers his take...

Imagine a global automotive show with an emphasis on big engines – huge-displacement V8, V10 and V12 behemoths that drink petrol as if oil reserves can never be depleted, whose relative efficiency declines in direct proportion to their size. Major automakers compete with concept vehicles at this show, each with a more massive power plant than the year before. Automotive journalists fall over each other to be first with the news, gushing about 'soulful engineering' in paeans to a legendary Golden Age.

## FLOODLIT MONSTERS

On the fringes of this hypothetical event are new companies with amazingly compact high-performance engines that, by comparison with the floodlit monsters at centre stage, weigh very little, consume little energy, and convert nearly 90% of the energy they do consume into real-world torque. These prototypes get scant coverage from dewy-eyed romantics, and despite unassailable performance, generate little interest among auto fanciers, who long for the belch, smoke, roar and rumble of old-fashioned internal combustion.

Sounds ludicrous?

It is, because a durable, super-efficient high-torque engine that could be carried about

in one hand would be news item No 1 everywhere in the automotive world.

Yet it's exactly what happens at the Specialty Audio Exhibit each year at CES. Audio companies continue to trot out gigantic valve – and solid-state – amplifiers in ever-larger form factors. Some, the size of industrial heating-and-cooling units, are immovable objects, capable – their creators assert – of generating irresistible musical forces.



ABOVE: International Rectifier demonstrates its PowlRadio Class D amplifier chipsets at the International CES 2015 using Revel Salon 2 speakers, and also in the room – a Thorens TD 309

Typical of the kind of coverage such products provoke was an issue of one American audiophile journal, available free everywhere in the exhibit during the show. On its cover was a stack of immense silver boxes, differing only in size, and a headline heralding the rebirth of amplification.

Yet one 'reinvented' amplifier at CES 2015 was almost universally ignored by those covering the show. Its diminutive size and nonexistent visual appeal gave it

a negative 'splash factor' and its promotion was so subtle that it went straight over the heads of most visitors to the demonstration.

I'm referring to industrial parts

supplier International Rectifier and the stunning musical performance of its new PowlRadio Class D amplifier chipsets. In a Venetian suite that ordinarily would not have drawn my attention – the company doesn't make finished products but instead supplies parts to those who do, and is of little interest to the consumer press – was IR's sumptuous demo. The musicality of Revel's Salon 2 loudspeakers lured me in from the hallway.



Near a stunning red-and-white Thorens TD 309 turntable – one of the prettiest things at the show – was a capacious punchbowl filled with IR business cards. On each was glued a bit of moulded metal, smaller than a postage stamp, with a proclamation: 'This is a 130-Watt amplifier', deliciously ironic in the realm of oversized room heaters.

## LITTLE WONDERS

To showcase the potential of PowlRadio components, company engineers had cobbled together little prototype amps with appropriate power supplies and external circuitry, the completed projects about the size of small paperback books.

These little wonders drove the Revels through a single pair of cables, producing what to me seemed one of the loveliest, most musical, and most immersive sounds to be heard at the show.

Long ago I became a staunch convert to the musical realism inherent in high-efficiency, high-dynamic-range loudspeakers. I am similarly convinced that properly implemented Class D amplification is the only amplification technology worthy of future investment.

To my mind, at least, everything else is either a wistful exercise in nostalgia, or as doomed as the dinosaurs. ☹

'One "reinvented" amplifier at CES 2015 was almost universally ignored'

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## 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

# Who pays the piper?

The BBC's decision late last year to tighten the rules allowing open-source applications to access iPlayer streams caused much consternation. The corporation should think again, says **Jim Lesurf**

**D**o you use the BBC iPlayer? Do you use a free, but 'unofficial', method such as `get_iplayer` to search, index and stream content? Millions of people enjoy iPlayer on a daily basis. In engineering terms it's a spectacular success, and when you consider its enormous cultural significance it's arguably one of the BBC's greatest achievements.

However, at the end of October last year the corporation abruptly ceased providing internet data 'feeds', which could be used to catalogue what was available. Use a web-browser and the chances are you would be unaware of this. But if you use an open-source project like `get_iplayer` or XBMC then the effect was that their normal operation was stopped in its tracks. As I understand it, various models of 'smart' TVs and set-top boxes were also hit.

## NO WARNING

The BBC gave no announcement of its plans, simply stating after the event that it was because a contract to provide the service had ended. Predictably, the result was annoyance and frustration for thousands of users. Why was there no advance warning to let people prepare for the change? And why make a change causing such deleterious effects for many licence-fee payers without first providing an equivalent alternative?

The BBC appears caught between two conflicting demands. On the one hand it



**ABOVE:** Here the Mac OS X version of `get_iplayer` (Version 1.8.4) downloads a broadcast from the BBC iPlayer Radio site. For Windows and Linux see <http://linuxcentre.net/getiplayer/download>

aims to ensure that licence-fee payers enjoy as wide and as flexible access to as much material as is possible. More than once it has said that its long-term aspiration is to have all of its content available online as a freely available archive.

On the other hand, the corporation's managers have to negotiate with the legal departments of big international media companies over digital rights before it is able to broadcast feature films, *etc.* The BBC engineers and programme-makers are keen to maximise content availability but corporate legal teams are charged with ensuring you are able to view as little as possible for the maximum charge.

Happily, within a few days the ingenious `get_iplayer` developers produced a work-around and normal operation was restored, though the previous ability to search for and organise programmes was curtailed.

This last factor raises some issues over the legal duty of the BBC to ensure access by the disabled. Various groups – for example, those with low vision – can find `get_iplayer` or other 'non-BBC' methods of accessing iPlayer content easier to use than the BBC's own arrangements.



Similar questions arise when it comes to those who live in areas with slow, pause-prone internet provision. And as I write, there is still a question mark over those TV sets, *etc.* that lost functionality. Are these units now 'broken', and if so, who is legally responsible?

## IN THE DRIVING SEAT

I love the BBC and think it deserves every praise and credit for the wonder

*'If the BBC wishes to keep the licence fee, that's what I expect. What about you?'*

of the iPlayer and its content. But in my view the consequence of funding via the licence-fee is that the BBC's priority is to facilitate the ability of the fee-paying

public to access content as and when it wishes. OK, that may mean some films made by the commercial studios will not be shown or will be treated as special exemptions, but for BBC-made or commissioned content at least the fee-payers will be in the driving seat.

That also means freely allowing access methods that the BBC itself may not have implemented. But if the BBC wishes to keep the licence fee, that's what I expect. What about you? ☺



**RIGHT:** Devices running the open-source XBMC media player have also been affected





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Roy Gregory, The Audio Beat - July 2013

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## Tim Jarman Electronics Engineer

Tim Jarman has been repairing and collecting vintage hi-fi for over 20 years. He is an authority on both classic B&O equipment and the Sony Walkman series

# Blunt tools

Did the hi-fi market reach maturity decades ago, and are we now seeing manufacturers offering alternative solutions to audio engineering problems sorted long ago? **Tim Jarman** thinks so...

**T**wenty years ago one had to wonder where the future of hi-fi lay. The latest generation of 18-bit upsampling CD players were capable of such outstanding and consistent measured performance that further improvements seemed like merely gilding the lily.

When it came to amps, DC-coupled solid-state designs were able to produce more than sufficient power for any sensible domestic set-up while boasting a flatness of response and distortion levels which, mathematically at least, could not be improved upon usefully.

Then, as now, loudspeakers were the least perfect part of the chain. Yet with dome tweeter and midrange units in a variety of sizes mixed with traditional cone drivers made from exotic materials, it was possible to cover the whole audio band with a high degree of competence. And from something whose external dimensions wouldn't offend the lady of the house (too much).

With a strong emphasis on accuracy and correctness, this state of affairs was high-fidelity in its purest form.

### ALL CHANGE...

Fast forward to today and everything has changed. Valve amps are becoming increasing available at mid-market prices but many, on paper at least, perform poorly compared to the transistor amps of yesteryear. Damping factors of unity or less, limited power output, high distortion and frequency response anomalies are all easy to find if you go looking for them. Yet you can't visit a hi-fi show these days without seeing at least one new model.

The belt-drive turntable has made a big comeback too, bringing with it measurable (and sometimes audible)

'The result is that your hi-fi decides the music you are going to enjoy'



**ABOVE:** The direct-drive Marantz Esotec TT1000 from 1979 – 'many a modern belt-drive would wish for such performance' was our conclusion following a full *HFN* lab test in the Sept '12 issue

pitch instability of the type the Japanese direct-drives banished decades ago. Loudspeakers, meanwhile, have seen a return to the full-range approach, attempting to cover the whole audio band using a single drive unit. I've yet to hear this work properly, which is not surprising given the sheer difficulty of conceiving a structure that responds identically from 20Hz all the way up to 20kHz.

To my mind, all these components are blunt tools compared to what is possible technically, yet arguably they form what is now the backbone of serious audio. The big turntable with its mechanisms visible, the amplifier with exposed valves, loudspeakers with enormous cabinets... these all recall

hi-fi's earliest years, when experimentation was the central theme.

Decades of research and unimaginable amounts of money spent in Europe and Japan had supposedly solved all the problems by bringing hi-fi into a

period of resolve. It could be argued that this era is now in eclipse.

Of course, traditional hi-fi products still exist in the catalogues of a few established brands whose clients know what they want and are willing to trust the manufacturer's take on what represents 'correct' sound.

Cyrus and Naim are two good examples of this, but I can't think of too many others. Why should it be that things have changed in this manner?

### SOUND YOU LIKE

One answer could be that the emphasis has now moved from trying to create 'perfect' sound towards 'the sound that you like'. In the strictest sense this is not 'hi-fi' at all. Think of it as the final part of the musical process where the listener has the last say in how the musician's work should be perceived.

Described in those terms it all sounds appealing, but there are drawbacks. Like: how do you choose which equipment to buy? The old numbers game of picking units with as close-to-ideal measured performance goes out of the window.

Now you have to decide how you want a particular recording to sound then optimise your buying choices around that. The trouble then arises that the system that sounds divine with artist and album 'A' may be completely unsuitable for artist and album 'B'.

The result is that your hi-fi system ends up deciding the music you are going to enjoy and which recordings remain on your shelves in their sleeves and cases gathering dust. Think about this the next time you set out to audition a new piece of gear. ☺

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## Steve Harris Contributing Editor

Steve Harris edited *Hi-Fi News* between 1986 and 2005. He loves jazz, blues music, vinyl and vintage hi-fi and anything that makes good music come to life

# For the love of mono

Like some other innovations, stereo LPs were only really backwards-compatible if you already had forwards-compatible equipment. So why the rise of the mono cartridge? **Steve Harris** explains...

In 1958, when stereo hit the UK market, many people had only just changed over from 78s to LPs. There were still thousands of record players that couldn't play stereo records without damaging them.

Retailers had to have a double inventory of stereo and mono records, which was commercially disastrous for them. But in the early 1960s The Beatles came along, and the pop music business exploded. At that time LPs were made in stereo and mono, but 7in 45rpm singles were still strictly mono.

As the 1960s gave way to the 1970s and singles gave way to albums, 'hi-fi' and 'stereo' become synonyms. There followed a period when self-respecting hi-fi enthusiasts would have no truck with old mono records.

### GREAT HERITAGE

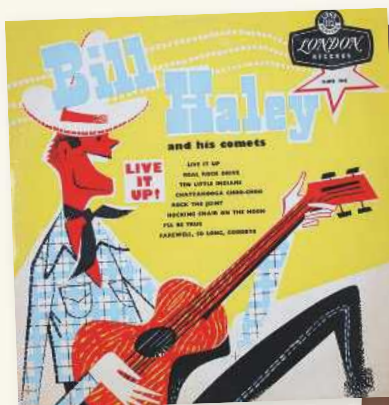
Eventually the tide turned, because the great heritage of mono recordings couldn't be ignored. Audiophile reissue companies started to remaster recordings of the early 1950s.

Meanwhile, specialist cartridge makers started to make mono-wired versions for 'true mono' sound.

In playing back a stereo record, the stylus moves vertically as well as horizontally. But in mono, the wanted movement is all in the lateral or horizontal direction. Vertical movement represents only noise or distortion, so it's better to have a cartridge that only senses the lateral signal.

It was Lyra that started the ball rolling in the very early 2000s, with the Lyra Helikon Mono moving-coil. In this case the coil former was set parallel to the record surface, rather than at 45° as in stereo cartridges. Lyra's current

**RIGHT: It's not just The Beatles: a mono cartridge could help open up a world of forgotten treasures from the pre-stereo era, like these 10in discs from the author's collection**



Kleo Mono uses the same approach. If you wanted to spend more, you could go for a Koetsu Coralstone Platinum Mono, built to special order with a five-figure price tag. But the more volume-oriented manufacturers soon entered the mono fray too. Audio-Technica offers a mono LP version of its £500 moving-coil, the AT33, and a 78 version too.

An old mono broadcast cartridge that almost became a cult in the mid 2000s is the Denon DL-102. Unlike the Lyra, Koetsu and Audio-Technica models, this has a traditional mono-era conical stylus with a curvature radius of 0.7mm, and tracks at up to 4g.

The biggest single factor driving interest in mono cartridges must have been the audiophile world's communal realisation that the early Beatles LPs are better in mono. Eventually, amazingly, this led to the release of the Beatles mono box in September 2014.

Ortofon's 2M Mono Special Edition cartridge, for example, was 'specifically created as a tribute to the new Mono Beatles albums set'. In fact, Ortofon now offers mono cartridges in all its hi-fi ranges, with a total of eight models including three versions of the classic SPU. Most of them,

including the 2M Mono SE, have modern line-contact and elliptical styli, but the 2M Mono, the 2M 78 and the SPUs have conical tips of various sizes to suit very old LPS and 78s.

Unlike most modern mono cartridges, the Miyajima Zero MC can't play stereo records without risk of damage, because it has almost no vertical compliance. But when I had the chance to try one out, I was in raptures, going through my whole dusty box of 10in LPs from Django Reinhardt to Kathleen Ferrier and from Louis Armstrong to Bill Haley.

### BRILLIANT ENGINEERING

In the 1970s, when everything had to be stereo, old mono recordings were bastardised with 'electronic reprocessing' to fake a stereo effect. In the 1980s, when everything had to be digital, old mono recordings were first ignored and then, all too often, just brutally, carelessly and cheaply digitised to produce something that was a travesty of the original.

In the 1990s you could say that sanity began to return. And now, in the 21st century, there's at last a real appreciation of the musical heritage, and an understanding of the brilliant engineering skills that went into pre-stereo recording. It's a treasure trove we can all enjoy. ☺

'In the 1980s, old mono recordings were brutally and carelessly digitised'

## YOUR VIEWS

# Sound Off!

Correspondents express their own opinions, not those of *Hi-Fi News*. We reserve the right to edit letters for publication. Correspondents using e-mail are asked to give their full postal address (which won't be published). Letters seeking advice will be answered in print on our Sound Off pages, but due to time constraints we regret we're unable to answer questions on buying items of hi-fi or any other hi-fi queries by telephone, post or via e-mail.

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## MY VINTAGE AR SPEAKERS FORTY-YEARS-OLD AND STILL SOUNDING FINE

I enjoyed reading Adam Smith's Vintage Review of the AR-7 loudspeakers in the February issue. My 1974 vinyl-only system has AR4x speakers. They still sound fine and I am able to compare them with my alternative system, which uses a Pathos Endorphan CD player.

I am a very long term reader of *Hi-Fi News*, which has given me much useful information and quite a few laughs over the years.

*Brian Lane, via email*



**ABOVE:** Brian's alternative system with his Pathos CD player on top of the rack

Adam Smith replies: Thank you for your kind words Brian, and you have a very fine pair of loudspeakers in the AR-4x. I heard a lightly restored original pair for the first time around two years ago and was absolutely astonished by the abilities of this small 40-year-old design.

To be honest, I cannot think of one of the company's designs of this era that wasn't a highly capable performer but, for me, it was in the smaller models like the 4x, 4ax and 7

that Acoustic Research really moved loudspeaker technology forwards during this time.

While speakers have undoubtedly become more technologically advanced and, dare I say it, a little more elegant looking in the intervening years, the fact that these classic models can still hold their heads up in sound quality terms is really most impressive. Enjoy them!



**ABOVE:** The vinyl system with Acoustic Research turntable and AR4x loudspeakers

## Classic amp for Chinese movies

PERIOD FEATURE COMES TO AID OF FRUSTRATED CINEASTE

I was reading your review of the Sony TA-1120A recently. It was in the September 2013 issue, but I work for a US embassy in Africa and only pick up my magazines when in the States about once a year, so I am always rather behind! I noticed the 'Left' and 'Right' speaker selection choices on the front panel. I have seen these before on other vintage amplifiers and have been wondering what exactly they do.

I enjoy watching old Hong Kong VCDs, and to offer both Cantonese and Mandarin soundtracks on this somewhat limited medium, the VCD authors assigned one language to each channel. What I would love to find is an integrated amp that would enable me to play a single channel through both speakers of a stereo set-up.

I do not understand either language, but listening to two separate soundtracks at once is maddening, as is listening to a single speaker on the right or left in a stereo system.



**ABOVE:** The Sony TA-1120A amp was released in 1965

I know that I could rig some kind of Y-cable set-up in the back of the VCD player each time I want to watch one of these movies, but it's hardly an elegant solution. Would a vintage amp or preamp with 'Left' and 'Right' speaker selection be the answer to my problem?

*Mr E Lange, via email*

Tim Jarman replies: The 'Left' and 'Right' functions play the channel selected on both loudspeakers. This used to be a popular function on amplifiers and is useful for dealing with open-reel tape recorders and their multiplicity of track formats.

The full set of options used to be stereo/left only/right only/mono/stereo with left and right transposed. Such features were very much of a time when more knobs and switches meant 'better'.

As for specific vintage amplifiers there are numerous Japanese models that will do what you require, but I would recommend hunting down a B&O Beolab 5000 amplifier or the more commonly available B&O Beomaster 3000/3000-2 receiver. Both have the switching feature and make solid vintage buys.

## Is system worth repairing?

READER SEEKS ADVICE ON RETURNING HIS TRUSTY YAMAHA SYSTEM TO THE ROAD

The headline 'HFN rekindles reader's interest in hi-fi' in the Oct '14 Sound Off pages truly hit the spot for me. You mentioned the Yamaha NS-1000 speakers. I have a pair, but sadly have not used them for about seven years because the sound from one channel of my power amp cuts out. There are also smaller problems with the amp, which I expect can be easily fixed.

My system consists of a Yamaha C50 control amp and C50 power amp, Yamaha T-70 AM/FM stereo tuner, Yamaha CDC-715 carousel CD player plus a Thorens 165 Mk II turntable with Ortofon cartridge.

Where can I repair the system to as near as possible to its original perfect performance? Is it worth repairing or would you rather recommend I go for more current models? I believe the NS-1000s should still work well.

*Gabby King, via email*

Tim Jarman replies: Part of the key to enjoying older hi-fi is self-sufficiency; I've always done my own restoration and repairs and find it to be at least as enjoyable as the listening afterwards.

In this respect vintage hi-fi and classic cars are similar hobbies. The latter quickly becomes an expensive chore if you can't do at least some of the spanner-work yourself. Basic hi-fi repairs are surprisingly straightforward and a little knowledge will go far.

If you have to have your amp looked at, the best advice I can offer is to find someone who does 'component level diagnosis' and only changes those parts which are actually faulty, rather than replacing whole handfulls of things and hoping for the best. This is the mark of true expertise in this arena.

Your amp, tuner and loudspeakers are beyond reproach and the other sources aren't bad either. If the system were mine I'd be very happy to stick with it.

Adam Smith replies: Congratulations, Gabby – you have a system to be proud of and it needs to be back in action as



**ABOVE: Yamaha NS-1000 loudspeakers, which were marketed from the mid '70s**

soon as possible. It seems that the likes of Tim Jarman and I are not the only people who realise just how much good and yet often unjustifiably ignored Japanese hi-fi there is out there, and your Yamaha set-up should be capable of excellent performance when working correctly.

In particular, the NS-1000s are exceptional loudspeakers when partnered properly, although the quests on which some people embark to hear them at their best often amuses me, as they rarely seem to think of the obvious amplifier partner. You see, in my experience, NS-1000s sound their finest when driven by a Yamaha amplifier. And this isn't really such a crazy concept when you consider the company's heritage and engineering abilities when it comes to the making of both musical instruments and hi-fi equipment. As such, your M-50 is an excellent partner and its 110W per channel should have the NS-1000s singing beautifully.

Therefore, I would definitely look into having the amplifier repaired and the turntable given a once-over, as by now it may well need a new belt and would certainly benefit from a general suspension check after its period of disuse. Yamaha's tuners of this era were also very good and so I would say that the only slightly weak link in your system is the CD changer. But if this is convenient for you and still working, then by all means hang onto it.

If you'd prefer something a little better, a modern Yamaha player such as the CD-S300 or CD-S700 will make an excellent match both sonically and visually with the rest of your system.



**ABOVE: The Yamaha CD-S300 CD player**

# 8

## Lanes On Your Entertainment Superhighway



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**RJ/E Cinnamon**



**RJ/E Vodka**



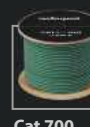
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**Cat 600 Pearl**



**Cat 700 Pearl**



**Cat 700 Forest**



**Cat 700 Carbon**

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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.

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## Time to hit the switch?

USING A SWITCH BOX TO FEED STREAMER WITH MULTIPLE DIGITAL SOURCES

A while back I purchased a Naim NDX streamer. Aside from the LAN connection on the rear of the unit there is one digital input with optional selection of the interface type. These are: optical (Toslink), coaxial (BNC), or coaxial (RCA phono).

I opted to set this to the RCA phono S/PDIF because my AVA Zara CD ripping unit has such a matching output. However, I soon realised that I had two further units – a Blu-ray disc player and a digital recorder, which also have RCA-type digital outputs.

It occurred to me that it might be useful to have a switch unit that could be used to select which of these units should feed the Naim's digital input. Then I recalled that there are many switches commercially available that can be used to route a range of audio sources into a single input.

I scanned the web and purchased one at a cost of about £25. I also had to purchase some short phono leads to complete the job. You could probably get away with any old phono leads, but I believe it is preferable to use proper 'digital' phono leads as these have a characteristic impedance of 75ohm.

The arrangement has proven quite handy for me and might prove helpful to others in the similar situations.

*Nick Willans, via email*

Keith Howard replies: The risk with using a switching box intended for (low frequency) analogue signals is that the 75ohm characteristic impedance that's part-and-parcel of the S/PDIF standard may not be properly maintained.



**ABOVE:** Reader Nick's three-way audio switch with selector knob, front view



**ABOVE:** Rear of the switch box showing three input cables and black output lead

Depending on the severity of the mismatch, this could degrade the S/PDIF signal. An online search using 'digital audio switcher' will find a variety of units designed specifically for this task, some of which provide for both S/PDIF coaxial and optical (Toslink) interfaces while also providing remote control of the switching between inputs.



**ABOVE:** Front view of Naim NDX and rear showing the user-selectable 'Digital Inputs'

## 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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# Smoking out acoustic mirrors

WHY DOES MORE AFFORDABLE FLOORSTANDER MEASURE BETTER THAN ITS UPMARKET SIBLING?

Recently I bought a pair of Pioneer S-71 floorstanding loudspeakers on eBay. This is the younger sibling of the Pioneer S-81 you tested and recommended in the August 2009 issue. It differs from the S-81 in that it does not have ribbon supertweeters. The bass driver complement is the same, but vents to the floor.

It sounds wonderful and a simple frequency response measurement showed that it has no 'Allison dip', named after Roy Allison who first described this upper bass cancellation effect. This is the first box speaker I have owned in over 20 years that has addressed this easily measured and audible effect.

I am surprised that even far more expensive speakers fail to address this issue. Perhaps you can shed some light on this matter and discuss it in your loudspeaker measurements?

*Dr K Fonseca, via email*

Keith Howard replies: For readers unfamiliar with the effect to which Dr Fonseca is referring, it occurs as a result of room boundaries acting as acoustic mirrors. In the case of a single boundary the outcome is the real sound source plus a second, virtual sound source located in an equivalent but opposing position on the far side of the boundary. These twin sources – real and

virtual – result in a doubling both of acoustic power (+3dB) and of sound pressure (+6dB) at sufficiently low frequencies where the path length between them is much less than a wavelength in air. (The wavelength in air at 20°C is 17.2m at 20Hz, 6.9m at 50Hz.)

In the case of a corner, with three orthogonal boundaries, seven virtual sources are formed by reflection, as shown in Figure 1. So in this case there is an eight-fold effect on low-frequency power and pressure, *ie*, a 9dB increase in acoustic power and an 18dB increase in sound pressure.

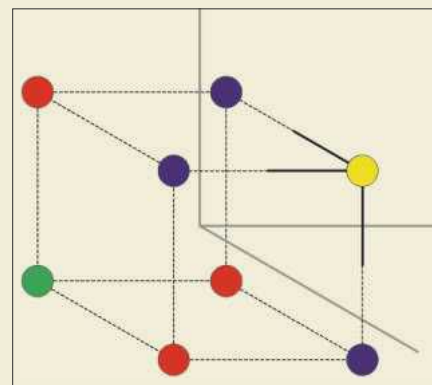
But the effect is more complex than the above suggests because as frequency increases the interference from the multiple sources (real plus virtual) cycles between being constructive (increased output) and destructive (decreased output), resulting in ripples in the frequency response.

In a room corner the worst-case result occurs when the distances between the drive unit and the three boundaries (floor, side wall, front wall) are equal. The power response then has an 11.4dB notch at roughly the frequency where the boundary spacing equals a quarter-wavelength. The second figure shows this for all three source-boundary distances being 1m.

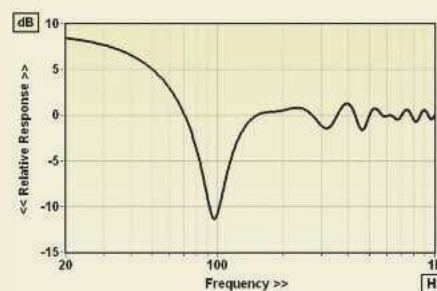
American loudspeaker designer Roy Allison, who worked at Acoustic Research before setting up his own company Allison Acoustics, was the first person to bring this behaviour to general attention ('The Influence of Room Boundaries on Loudspeaker Power Output', AES 48th Convention, May 1974, downloadable for \$20 from [www.aes.org/elib](http://www.aes.org/elib)) although the equations he used had been published 19 years earlier by R V Waterhouse.

Allison's solution was to place the bass driver close both to the floor and the wall behind the speaker, so as to control two of the three corner boundary spacings as advantageously as possible. This doesn't describe what the Pioneer S-71 does since only its port is close to a single boundary, but the fact that it has multiple bass drivers at different distances from the floor does help avoid the worst excesses of unfortunate speaker placement.

Contrary to what Dr Fonseca suggests this effect is not easily measured, at least not in isolation. Near-field bass measurement is largely blind to it (and intended to be so) whereas in-room response measurement shows not only the effects of boundary gain but of room modes also. Moreover, the result



**ABOVE:** Figure 1 shows image-source model of a sound source (yellow circle) in a room corner. A total of seven virtual sound sources are generated as a result of room boundary reflections, three from a single reflection (blue circles), three from two reflections (red circles) and one from three reflections (green circle)



**ABOVE:** Figure 2 shows power output versus frequency for a point source located 1m from all three boundaries in an infinite corner, assuming perfect reflectivity

will depend both on the chosen boundary spacings and the boundary construction (the latter because practical walls and floors cannot be relied upon to be perfectly reflective at low frequencies).

While driver-floor spacing is typically fixed (or almost so with standmounts), the side wall and front wall spacings vary from one installation to the next (as do the room modes). To measure only the boundary gain due to the three nearest surfaces would require something approaching an infinite corner, *ie*, a space where the two walls and floor are expansive enough to achieve a reflection-free measurement window of, say, 200ms (for 5Hz measurement resolution). For this, the walls and floor would have to be over 34m in extent.

In-room measurements are fine when conducted in the room where the speakers are being used. Otherwise their lack of generality makes interpretation difficult – which is why our speaker lab reports don't feature them.



**ABOVE:** Pioneer S-71's multiple bass drivers



## More bass from DL-304

READER'S TIPS TO BOOST THE LOW-END WHEN USING DENON MC CARTRIDGE

I was interested in Michael Merry's comments about the Denon DL-304 cartridge lacking bass [see *HFN* Jan '15], particularly as in his case the cartridge is used in an SME V arm.

I use the same arm and cartridge set-up but on a Garrard 401 turntable and there is certainly no shortage of bass. I suppose you could say the 401 is a contributory factor here.

Having said that, a friend of mine uses a DL-304 with a different deck and arm and there is no shortage of bass with his turntable and arm combination, either.

Two points to consider. The first is that Michael might want to experiment with using a heavier tracking weight than 1.2g. I use 1.3-1.4g and this helps the security of the bass. Secondly, I prefer to use the Clearaudio Alignment Tool. It's a very accurate device.

*Mike Bickley, via email*

Adam Smith replies: I completely agree with you Mike – you would have to work very hard indeed to make any cartridge partnered with a Garrard 401 turntable and SME V tonearm sound bass light! I would also say that increasing the



**ABOVE:** The Denon DL-304 MC cartridge sports a gold plastic body and costs £389

tracking weight on the DL-304 a little would be worth a try. Denon actually specifies a tracking weight range for the DL-304 of up to 1.4g, so it certainly would not hurt to go a little heavier.

Incorrect alignment is relatively unlikely to result in reduced bass performance, but it is always wise to make sure this is spot-on for other reasons – not least tracing distortion.

Finally, incorrect loading can also upset cartridge performance to a surprising degree, even where MCs are concerned, so experimenting with this is also a worthwhile endeavour.

## Capturing music's emotion

WHY GOOD SOUND DOESN'T ALWAYS MAKE FOR GREAT MUSIC...

I was surprised to read Ken Kessler's positive words of Stacey Kent's album *The Changing Lights* [see *HFN* Jan '15]. To my mind the music on this album has little in the way of emotion, soul and conviction. The recording may be audiophile in quality, but the music has little appeal.

Listen to Ida Sand's *Meet Me Around Midnight* and you will hear a jazz album that convinces. Or early Diana Krall records or even Demi Evans' *Why Do You Run*. Good sound doesn't make good music.

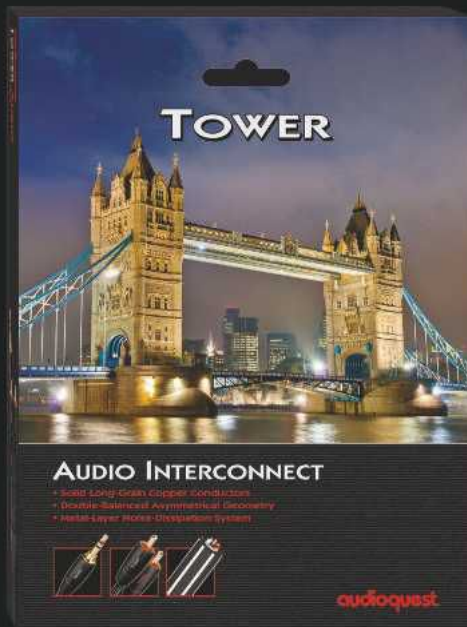
*Remi Balestie, via email*

Ken Kessler replies: Hmm... not the reaction I had at all. In fact, I found it more involving than most of Ms Krall's work, for example, so I guess personal taste will have to be the arbiter. Conversely, I can't



**ABOVE:** Stacey Kent's *The Changing Lights*

name any modern jazz vocalists (other than Dianne Reeves) who match the likes of Sarah Vaughan, so I guess I'm just adjusting my tastes to reflect a general lowering of my anticipation.



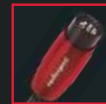
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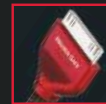
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# Kolster-Brandes PHC 20/PHA 30

Headquartered in Sidcup, Kent, this TV and radio manufacturer's first and only stab at high-end hi-fi did not sink without a trace. But how does its pre/power sound today?

Review: **Tim Jarman** Lab: **Paul Miller**

It's a name now long forgotten, but Kolster-Brandes was once a major player in the UK TV and radio market. Brandes was founded in Toronto in 1908 then taken over in 1922 by the US giant AT&T. Operations in the UK started in 1924 when the company opened up a factory to produce radio accessories.

Meanwhile, in the US, Brandes had become Kolster and was now in the hands of ITT (still very much a going concern today), so the UK division was renamed Kolster-Brandes, or KB for short.

## SURPRISING EVENT

Kolster-Brandes specialised in producing simple radio sets, its most famous early slogan being 'Inexpensive Radio'. Some forays were made into the better end of the market though – most notably a series of high-quality TV sets that appeared in the early post-war period. The launch of an ambitious matching stereo control unit and power amplifiers for the 1958 season was a surprising turn of events, yet the PHC 20 and PHA 30 are clearly fully developed and professionally produced units.

This period was a time of transition in domestic audio with the increasingly widespread introduction of stereo records. The bulk of the existing material was still mono, of course, and stereo radio broadcasts were not yet available.

Sensibly, KB designed its amplifier to suit the needs of both mono and stereo listeners, as well as those wishing to start with a mono system and then work up to stereo later. For this reason the power amplifiers were packaged separately and the control unit was capable of operating with either one or two of them.

In a mono set-up, a single PHA 30 power amplifier was connected to the right channel output of the PHC 20. Setting the function switch to 'mono' then cancelled the action of the balance control with the result that from an operational point of view the amp functioned as a mono model.

Since the PHC 20 contains no power supply circuit itself, AC and DC supplies for the valves came from the right channel PHA 30. The PHC 20 contains three valves, an EF86 pentode in each input stage and one 12AX7 (ECC83) double triode for the



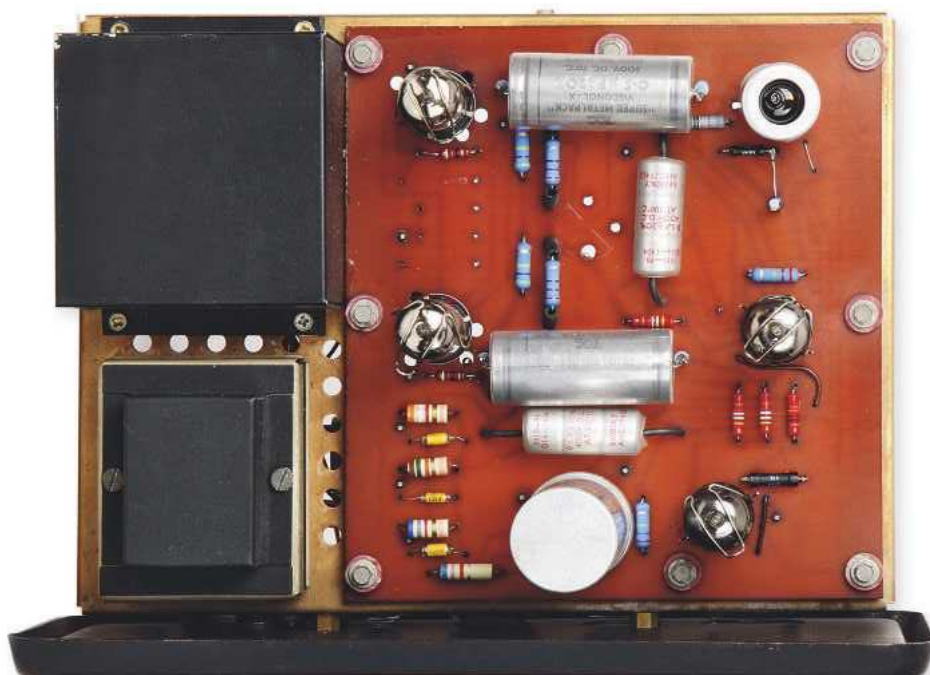
**ABOVE:** The company capitalised on its contract to supply radio equipment to the Cunard Line throughout the 1950s

tone controls and as a buffer stage for the outputs. Since the left channel EF86 was not needed for mono operation its heater was connected to a supply from the second PHA 30 power amplifier. An unheated valve is of course completely inert, so through this simple scheme the redundant parts of the control unit were effectively disabled if only mono reproduction was needed.

## LIGHT AND COMPACT

Powering a control unit from its power amplifier was standard practice at the time. It avoided the duplication of expensive transformers and other components while keeping the control unit light and compact – an important consideration given that console mounting in a large piece of furniture was a popular method of presentation. The power amplifiers would have been resident there too, hidden away behind the scenes.

**LEFT:** Using a printed circuit board for an amplifier was advanced technology in 1958, although Kolster-Brandes did not fit them to its television sets until well into the colour era







**LEFT:** Neat front panel in simple white, mercifully understated and free of the usual gilt. The LP and 78 buttons select the same input, but with different equalisation to suit the two formats

An interesting feature of the PHA 30 is that the DC supply it provides to the PHC 20 is electronically filtered to reduce hum and noise. This function uses an extra valve in the form of a 6BW7 pentode (similar to an EF80). Since the stage does not possess a fixed voltage reference it cannot be called a regulator, but even used solely as a filter it is a generous addition to the overall specification.

A quirk of the arrangement is that since the PHC 20 is supplied with DC current from the right channel PHA 30 only, the 6BW7 stage in the left channel one isn't used. The valve can even be removed without affecting the performance of the amplifier as a whole.

Filter aside, the PHA 30 is largely conventional in design. Push-pull EL84 pentodes are used in an ultralinear

configuration with automatic bias.

Two 12AX7 double triodes perform the functions of driver and phase splitter, the whole lot being powered by a selenium contact-cooled rectifier.

Meanwhile, a control at the rear of the chassis allows the heater supply to the

PHC 20 to be balanced in respect to earth, the aim being to optimise the adjustment for minimum hum. A similar control is fitted internally for the heater supply for the PHA 30's own valves, but this

is not intended for user adjustment. An output of 12W is claimed, a sensible upper value for a pair of EL84s.

A printed circuit is used to mount the valves and the majority of the smaller components, creating a neat and consistent product. Printed circuits were

a relatively new technique in 1958 and KB can be regarded as progressive in using them. However, it is interesting to note that the company was unique in sticking with the previous method of point-to-point wiring in its TV sets until colour TV arrived. In fact, it made a selling point of it.

### WELL EXECUTED

The industrial design of the PHA 30 is exemplary. It sports a neat front panel and all the potentially dangerous parts are fully enclosed. Compare this to the alternatives of the day with their exposed valves and, in some case, no bottom covers. Although it is designed to be hidden you could almost put the units on display – were it not for all the sockets being on the front.

The PHC 20 is similarly well executed having a stylish white fascia and clear black legends – a neat KB logo and a softly glowing red pilot light finishing off the look beautifully. Sadly, novel circuit details and fine styling were not enough to generate big sales. One problem may have been the price: at £23.2s.0d for the PHC 20 and £22.1s.0d each for the PHA 30s, the combination cost considerably more than the equivalent Leak Point One Plus (£12.12s.0d) and a pair of TL/12 Plus power amplifiers to go ➔

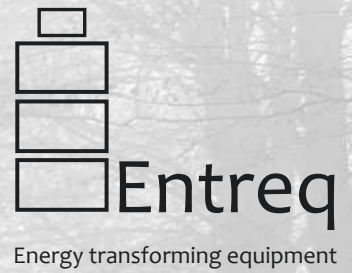
**'The amplifier's grip on the bass brought rewards of its own'**



**LEFT:** Another neat front panel and all the dangerous parts fully enclosed – an object lesson in how to design an amplifier of this type. Note the simple loudspeaker impedance selector



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**RIGHT:** Under-chassis view of the PHA 30 reveals recent modifications, including a silicon rectifier and revised earthing. The simple PCB layout is evident, a contrast to modern designs

with it at £18.18s.0d each. The amplifier was withdrawn in 1961 and KB would not be active in hi-fi again, although ITT did successfully market music centres and mid-range hi-fi separates during the '70s.

## INPUTS AND LEADS

As one would expect with something this early, you can't just drop the KB amplifier into a modern system without a bit of work. All the input sockets are TV aerial types, although suitable adapters (intended for RF, so plenty good enough for audio) are available. At the other end, ¼in jack sockets are used for the speakers, which are again unusual, but at least the plugs are obtainable and large enough to fit an appropriate thickness of cable into.

Four inputs are offered, but only two (radio and tape) are suitable for line level sources. An RIAA phono stage is fitted, but there are no exchangeable matching units like the ones Quad provided. In standard form the circuit is unlikely to match a typical modern cartridge, so for decent results an external phono stage is a good idea.

One detail that is to be praised is the design of the loudspeaker impedance switches. These offer 3, 8 and 15ohm settings and it is easy to switch them round to see which matches your loudspeakers best. I chose the 8ohm option for my reference Monitor Audio PL100s, the source being a Cyrus CD8 SE2 CD player.

'Where the amp shines is in its rendering of fine vocal detail'

It should be noted that the PHA 30s used here have been slightly modified during their recent restoration in respect of the power supply and earthing arrangements. These changes would tend to raise the output power a little and might reduce the amount of hum present. Certainly hum levels are not especially intrusive [see Lab Report, p125]. At low

volume settings very little was audible from the listening position when using either the radio or tape inputs, though noise levels did rise at higher control settings.

The most obvious shortcoming of the

KB amplifier is its lack of power. While 12W would have been a reasonably generous output at the time, since modern loudspeakers trade sensitivity for flatness of response and phase coherence it doesn't go so far these days. The power limitation doesn't present itself as the inability to

make a lot of noise, more that the nature of the sound noticeably changes as the volume is increased.

At volume settings much past half-way the treble becomes coarse and the bass begins to crack – not a situation to sustain if you value your loudspeakers. It was pleasing to note though that the volume control is well scaled for modern line level signals using the radio or tape inputs and no external attenuators should be needed.

## TIM LISTENS

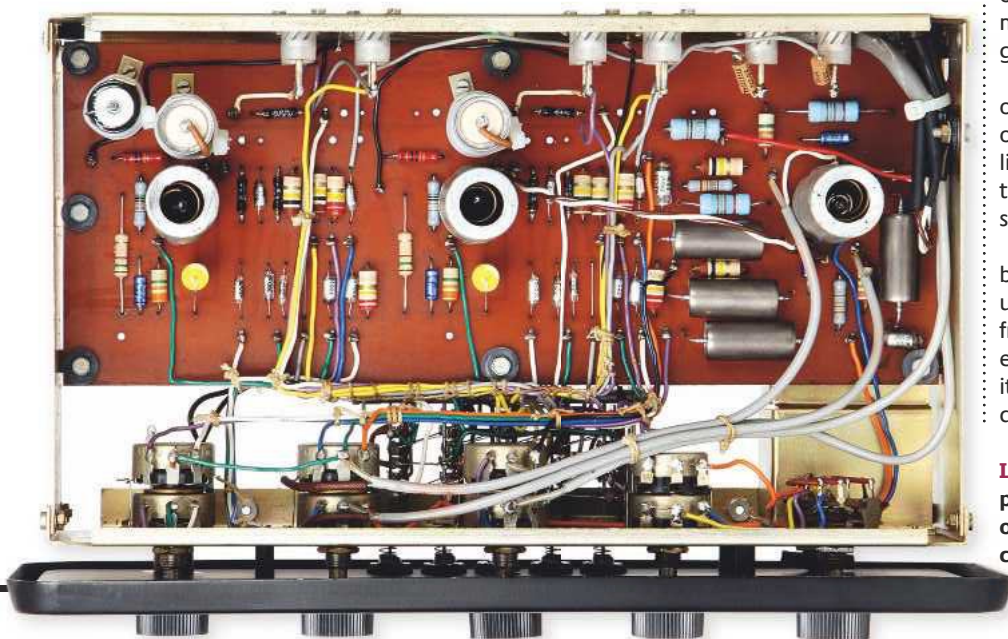
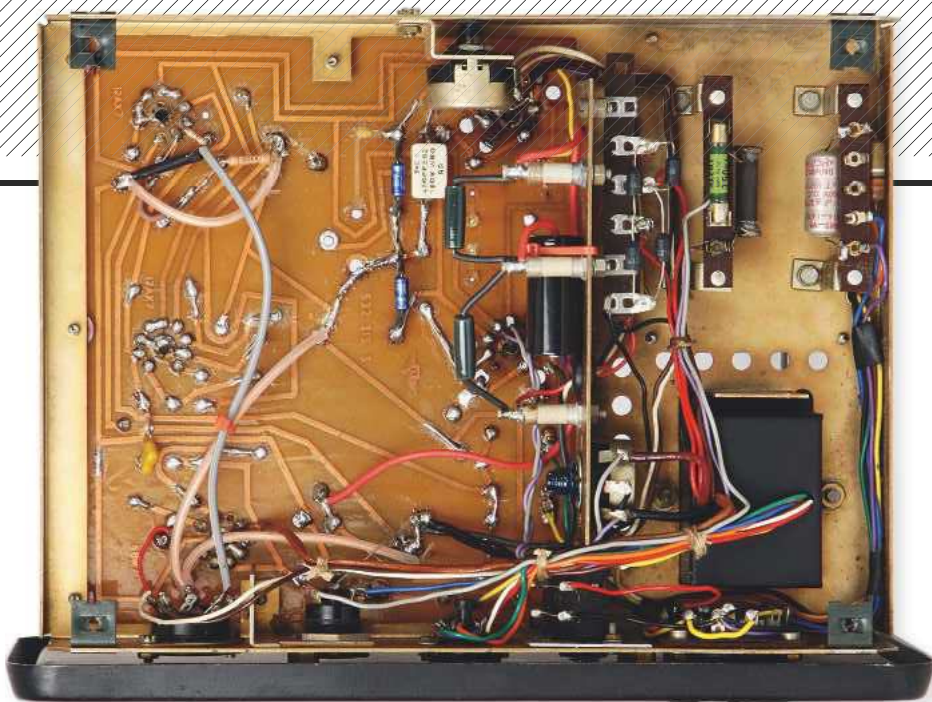
A surprising tonality was demonstrated when playing The Barenaked Ladies' charming 'Brian Wilson' from the album *Gordon* [Reprise 9 26956-2]. The treble at first sounded brisk and bright whereas the bass was lean – not what is expected from vintage valve kit.

Examining these two areas in detail, the percussion lines in the song suggested that the brightness originated from an upper midrange lift rather than from the sort of flat, extended response that later designs offer. This also pushed the vocals forward making for good intelligibility, though greater neutrality wouldn't go amiss.

The clipped bass is, I suspect, the result of an intelligent design decision. The output transformers aren't that big and limiting the low frequency coverage of the system as a whole is one way to avoid saturating them.

This does stop the sound becoming bogged down, 'syrupy' and suffering from uncontrolled boom (a problem heard frequently with other equipment from this era) but with The Barenaked Ladies' track it resulted in a sound which can only be described as 'boxy'. ☹

**LEFT:** A view inside the PHC 20 shows another printed circuit with the two preamplifier valves on the left and a further valve for the tone controls, shared by both channels, on the right





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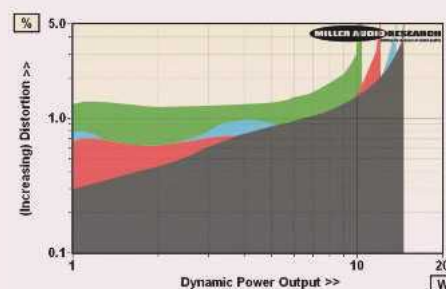


## LAB REPORT

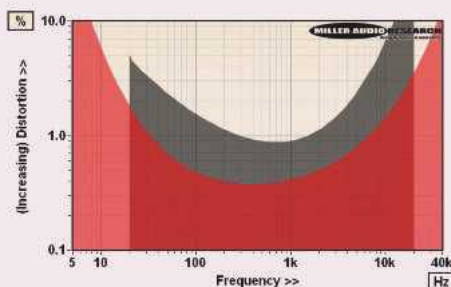
### KOLSTER-BRANDES PHC 20/PHA 30

Very few specifications survive for the PHC 20/PHA 30 pre/power but the 12W maximum power output originally cited in 1959/60 was achieved in practice in 2015 into both 8ohm (8ohm tap) and 4ohm (3ohm tap). There's some small headroom under dynamic conditions with the output improving to 14.5W into 8ohm (8ohm tap) and 12W, 13.7W and 10W into 4, 2 and 1ohm loads (3ohm tap). Nevertheless, should you chance upon a set of these amplifiers, sensitive loudspeakers are a must [see Graph 1, below]. Distortion was necessarily high at 5% to meet these outputs, the figure rising with power from 0.35%/1W to 1%/5W and 2.3%/10W through midrange frequencies into 8ohm. Distortion also rises markedly with frequency, exceeding 3% at 6kHz, 5% at 8.5kHz, 10% at 13kHz up to a full 36% at 20kHz (all at 5W/8ohm)! At sub-bass frequencies, THD rises quicker still [see Graph 2, below].

With the bass and treble controls set optimally (near enough 12 o'clock), the combined response of the PHC 20/PHA 30 is modestly extended with a +0.75dB lift through presence and treble coupled with a gentle, downward bass tilt amounting to -1dB/100Hz and -5.4dB/20Hz. The far treble reaches 20kHz at +0.7dB and 100kHz at -12.5dB, the overall balance erring towards the 'forward' or 'lean' in tone. Hum and noise was slightly high through our samples, the combined A-wtd S/N ratio of 67.9dB (re. 0dBW) unlikely to give any modern tube amp pause. Readers may view a full QC Suite test report for Kolster-Brandes' PHC 20 preamplifier and PHA 30 power amplifier by navigating to [www.hifinews.co.uk](http://www.hifinews.co.uk) and clicking on the red 'Download' button. PM



ABOVE: Dynamic power output vs. distortion (8ohm tap) into 8ohm up to 5% (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 (<5% THD, 8/4ohm)	12W / 12W
Dynamic power (<5% THD, 8/4/2/1ohm)	14.5W / 12W / 13.7W / 10W
Output impedance (20Hz-20kHz)	0.40-1.30ohm
Frequency resp. (20Hz-100kHz, 0dBW)	+0.8dB to -12.5dB
Input sensitivity (for 0dBW/12W)	21mV / 80mV
A-wtd S/N ratio (re. 0dBW/12W)	67.9dB / 78.7dB
Distortion (20Hz-20kHz, 5W/8ohm)	0.86-36.3%
Power consumption (idle/rated output)	125W/125W
Dimensions (WHD, pre/power)	340x140x221/300x170x230mm



Working through a number of other rock-based tracks and electronica merely confirmed this tendency, though the amp's grip on the bass brought rewards of its own. Nevertheless, if you are considering a valve amplifier as a way of bringing a 'warm' sound to your system then this probably isn't the one for you.

Where the amp shines is in its rendering of fine vocal and soft detail, which it does in a way that most can't manage. Enya's 'China Roses' from *The Memory Of Trees* [WEA 0630-12879-2] showed this character perfectly. True, the piece lacked its usual embracing warmth, but textures revealed in the vocal line were fascinating. It was as if they'd been cleaved into discrete layers. If the purpose of vintage equipment is to provide a different perspective, then the KB duo deserves full marks.

### BUYING SECONDHAND

This Kolster-Brandes amplifier system is something of a rarity, but if you do stumble across one there are a few things to look out for. The company was limited by the same poor quality small components as the rest of the British TV/radio industry of the time, so any unrestored example today is going to have its fair share of decayed capacitors and out-of-tolerance resistors.

Budget for a bit of restoration work if the units haven't had any attention for a while. With the

**ABOVE:** A rear view showing the TV aerial-type connectors used for inputs. Adapters to RCA types are available

exception of the 6BW7, all the valves are current production types so replacements are easy to find and cheap. The selenium rectifier is also a weak point in equipment of this era; they suffer from falling output with age. Modern diodes can be used to replace it but other circuit changes must be made at the same time to stop the voltage then rising to an excessive level.

Printed circuit boards are often a concern with valve equipment but the KB's are well made and drafted very much on the 'macro' scale, meaning that repairs to broken track work should be easy if needed. ⚡

### HI-FI NEWS VERDICT

For a first (and only) attempt at hi-fi, this design is a fine effort. It may not rival the ubiquitous Quad QC22/II, thanks to the latter's sophisticated filters and KT66 valves, but it's certainly a class above many of the thermionic one-hit wonders that litter this part of audio history. If you can work with the limited power of 12W by matching the amp with sensitive speakers then don't pass a KB by should it come your way.

Sound Quality: 74%



# The record that doesn't go round...

On the eve of the launch of Compact Disc in Europe, **Jens Hansen** describes the format's possible successor, Soundstream's AudioFile



first PCM recorder to be used on commercial recording sessions. Over 180 releases – on the Telarc, Chalfont, Philips, Eurodisc and RCA labels – have now been made with the Soundstream system, which was probably the first digital recorder to offer editing.

Christened the AudioFile, the system is based on a card the size of a conventional 5x3in index card and the thickness of a credit card. For non-audio purposes, ie, video and computer software, a larger 3x7in card is used. The smaller size card will store up to 45 minutes of audio: to give an idea of the storage density, the card can contain up to 600MB of digital data.

## COST SAVINGS

To draw a comparison with a more familiar data storage system, the AudioFile can store as much information as a 26 volume set of encyclopedias, including photographs and illustrations.

What's more, the duplication cost of the card will be less than 25 cents. Unlike the Compact Disc, which is injection moulded from

a stamper, rather like a normal LP, the AudioFile is duplicated by a photographic process. Not only is the card physically smaller than CD or LP, it can be made using less expensive materials, resulting in the exceptionally low cost.

What, then, is so special about the AudioFile? Fundamentally, there is no difference between it and Compact Disc. Both encode the audio signal as a digital bit stream, which is read by a low-power laser beam. But whereas CD's engineers decided to follow accepted practice, as in the videodisc, and store the bit stream as a series of concentric circles in a revolving disc, this system has the data split into discrete traces, which are then scanned, raster fashion, by a moving spot of light. The obvious example of this technique, in a very different context, is the use of an electron beam to build up a TV frame from a series of horizontal picture lines.

The data are written as a sequence of spots and spaces on the photographic medium in a series of discrete arcs. To read the data, rather than go in for the complicated servo and speed control of CD, a rotating disc with focusing microscope objective

*Hi-Fi  
News  
January  
1983*

Each month  
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from our vast  
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yesteryear

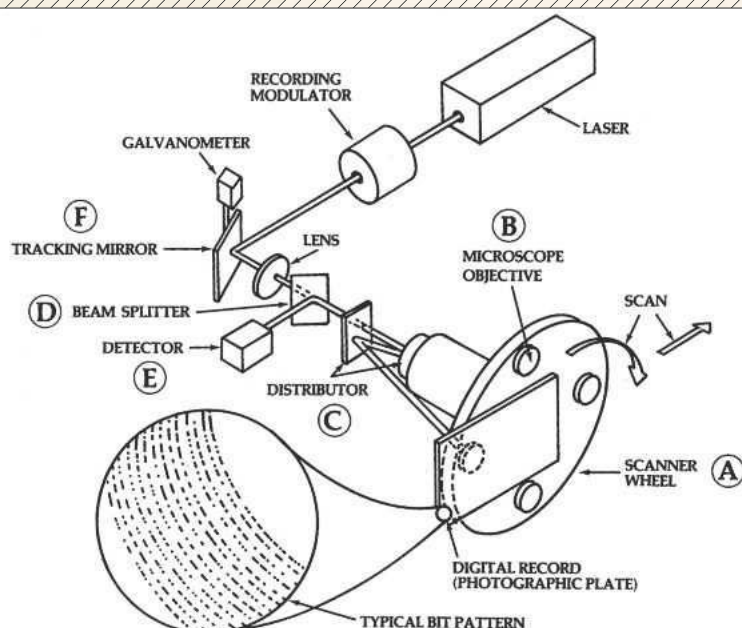
**A**lthough Compact Disc is due to be launched on March the 1st 1983, and is being heralded as the digital audio disc (DAD) system for the next several decades, it is perhaps anachronistic in that it still uses a revolving disc.

I remember vaguely a mention in one of the English hi-fi or studio magazines that Soundstream, the digital recording company, had developed a digital playback system where the software was in the form of a non-moving card.

As my business required me recently to visit, not just the USA, but the state of Utah, where Soundstream is based, I took the opportunity to visit the company.

Dr Tom Stockham founded Soundstream and developed the





lenses mounted on its periphery causes the laser beam to scan an arc on the card surface.

The disc is mounted on a lead screw so that as the laser beam, via the appropriate lens, reaches the end of its arc, the disc is moved forward and the next lens causes the beam to start at the beginning of the next arc.

### NO FOCUS SERVO

As with CD, a photodetector behind a beam splitter is used to pick up the modulated laser light. This, too, is mounted on a lead screw to keep pace with the linear movement of the focusing disc.

No focus servo is required for the detector, as there is no rotating disc with its attendant warps to be compensated for, and the card is pressed flat against a 'window' during replay. However, compensation is made for slight differences between the master recorder, playback machine, and the position of the card, so that the laser beam lays right on the data and not on the gaps between the arcs.

The discontinuities in the recovered data stream due to the use of discrete tracks and multiple scanning lenses are handled by feeding the output from the photodetector to a FIFO (first-in-first-out) memory buffer, the data then being clocked out at a fixed rate of about 2Mb/s. This buffer also takes care of wow and flutter errors that

might be caused by variations in the rotational speed of the lens disc – nominally 325rpm.

Prices between \$200 and \$800, depending on the 'bells and whistles' required by the eventual consumer, are being quoted, but unlike its rotating rivals, many aspects of the system are fluid: the record can be made from any material and any photosensitive chemical combination; it need not be flat (the DRC patents cover cylindrical and spherical surfaces also); and there can be more than one layer of data – by analogy with a conventional multi-layer, photographic colour emulsion,

coloured photosensitive dyes and matching exclusive filters are all that is required to have double, triple or multiple-play records.

### PROTOTYPE SOUND

Company President, Mr De Forest, showed me the prototype player. I listened to a recording of Vivaldi's *Four Seasons* and I must say that the sound quality from the system was extremely clean, certainly surpassing anything I have heard to date, even from Compact Disc.

Unlike the reflective system described earlier, the prototype I heard used a transmissive card, hence the need for the detector (the black thing covering the record) to be brought up front.

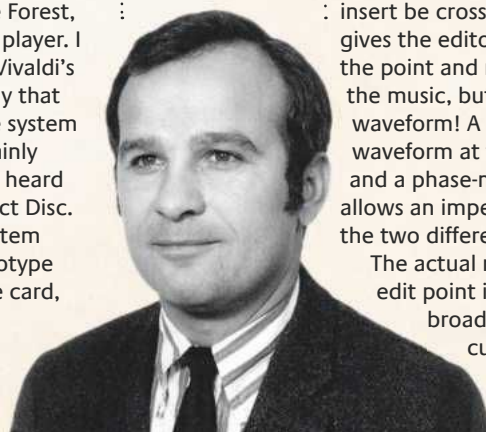
**ABOVE:** Diagram showing parts that make up the AudioFile system

**TOP RIGHT:** Soundstream's Los Angeles editing suite, with computer

**ABOVE RIGHT:** Dr Tom Stockham with his digital recorder

**FAR LEFT:** Artist's impression of the player, supplied by Soundstream, and HFN Jan '83 cover with mock-up of the unit for illustrative purposes

**BELOW:** Dr Tom Stockham pictured in 1970



Having seen and heard the AudioFile, Mr De Forest wanted me to see the rest of the company. One of the editing engineers, Dennis Mecham, who usefully has a degree both in music and in computer science, explained the method of editing digital recordings using Soundstream's 'Instant Access' editing system. This is extremely fast, and gives the producer more flexibility than any other system, it would appear.

Dennis started with the digital recorder, which apparently used an Ampex transport. The first step is to load the tape into the computer system (2, 4 or 8-track masters can be edited), the digital audio being stored on diskette. It appears that two diskette 'pages' are equivalent to one digital card.

To demonstrate an edit, Dennis took a passage of heavily recorded music where the producer's notebook had indicated that some inserts were necessary. The music passage is read from the computer, and when it is required that the insert be cross-faded in, the system gives the editor total control of the point and match not just of the music, but also of the musical waveform! A 'scope shows the waveform at the desired edit point, and a phase-matching technique allows an imperceptible matching of the two different recordings.

The actual resolution of the edit point is 10µs, which is broadly equivalent to cutting analogue tape to an accuracy of 0.00015in at 15in/s. ➔





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I was very impressed by the studio itself. The walls were all made of wood and shaped to break up any big flat surfaces, cladding panels being put up to damp the acoustic where necessary. The floor was covered with thick carpet and the ceiling East/Westlake shaped. At the back of the studio were a couple of steps up to a balcony with a row of chairs for listeners. Soundcheck speakers were a pair of Infinity Reference Monitors.

## LOST FOR WORDS

Asked to pick some music from the menu, I chose as an appetiser a passage from Mussorgsky's *Pictures At An Exhibition*, while the main course was the *1812*, both from Telarc Soundstream recordings.

The music was so clearly defined, and at such a level that I find it difficult to find the right words to express how impressive I found it. The *1812*, which I have played a lot at home, was perhaps the most interesting piece.

When we reached the passage where cannon were thundering and bells ringing, the loudspeakers jumped off the carpet. Having heard the 'original sound', there is no doubt in my mind that no conventional pick-up/turnarm/turntable combination could reproduce that *1812* in the same way. Even as I write, I can still remember that impressive sound.

That was effectively the end of my visit to Soundstream, but it is worth examining again what appears to be the major advantages of the AudioFile system:

- Record duplication, being a photographic process, should be both more reliable and less expensive than rotating discs.

- The mechanical system is relatively simple, and as the lens disc rotates at a constant speed, there is no need for a servo motor control to vary motor speed, as with CD.

- The use of simple on-axis optics and clamping to ensure a flat record obviates the need for a complicated focus servo mechanism.

- The working distance between the record and the scanning disc is so large that the entire

**'As the cannon thundered the speakers jumped off the carpet'**



optical system can be sealed, thus increasing reliability.

- Unlike existing DAD systems, the AudioFile would appear to be both upwardly expandable and non-critical regarding disc material.

Whether all this will be sufficient to persuade both soft and hardware companies to re-examine their

commitment to CD remains to be seen. Being first in the marketplace is possibly the most important factor governing the widespread

acceptance of any new technology.

We must wait and see what the outcome will be, but one deciding factor might be the fact that the low cost of mastering/duplicating cards will make it viable for short production runs suitable for specialist musical interests, the kind which will not be profitable on Compact Disc because of the very long production runs necessary to give an adequate return. ☺

## PROTOTYPE AUDIOFILE SPECIFICATIONS

**Model:** DAS 320

**Record size:** 3x5in (76x127mm)

**Number of audio channels:** 2

**Sampling frequency:** 50kHz (adaptable to any future standard)

**Quantisation:** 16-bit linear

**Playback technique:** optical laser

**Playing time:** 45 minutes per side or layer

**Dynamic range:** 90dB

**THD:** 0.004%

**Frequency response:** 'Flat' from 0-20,000Hz

**Wow and flutter:** Below measureable limits

**ABOVE:** Pages from the January 1983 issue of *Hi-Fi News* in which Danish engineer Jens Hansen describes his visit to Soundstream in Salt Lake City, Utah

**BELOW:** Specs supplied by Soundstream for its prototype player. As the prototype remained in the company's Utah labs, a mock-up was created for the *HFN* Jan '83 cover. The Jan '83 issue is believed to be buried in the Castle Howard time capsule, not to be opened until the year 3982!



**Also in HFN this month in 1983**

**FROM DIRECT-CUT TO DIGITAL**  
John Atkinson talks to Jack Renner, engineer and part-owner of American record company Telarc.

**THE RULES OF THE GAME**  
A difference is always a difference, but when is it an improvement? James Boyk guides the unwary through the subjective minefield.

**A EUROPEAN CASSETTE DECK**  
The Revox B710 MkII auditioned by Angus McKenzie.

**NEW LOOK AT HORNS**  
Adrian Orłowski looks at both historical and present day developments of the horn-loaded loudspeaker and concludes that there is still life in the old beast yet.

**ALVIN GOLD ON...**  
...pick-up cartridges with a subjective look at the B&O MMC1 & 2, Accuphase AC2, and Koetsu Black.

**THREE BUDGET LOUDSPEAKERS**  
The Mordaunt Short MS20, Celestion Ditton 110 and Mission 700S reviewed by Trevor Attewell.

**TWO NOT-SO-BUDGET LOUDSPEAKERS**  
Alvin Gold hears the AR98LS and Heybrook HB3 improved.

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Avid Acutus RF turntable, sealed box new  
Bakoon EQA111r phono stage, near mint boxed used  
Benz Micro LP, boxed plenty of life left used  
Cartridge Man Conductor Air Bearing Tonearm new  
Clearaudio Innovation Compact, good condition dem  
Clearaudio Unify Tonearm excellent boxed dem  
Clearaudio Basic Symmetry Phono Stage boxed used  
Conrad Johnson TEA 1b Phono stage used  
Conrad Johnson Premier Six phono preamplifier used  
Consonance Cyber 40 phono stage dem  
Garrard 401, Jelco 750 12" arm, new plinth and lid dem  
Graham Phantom Supreme 12", SME cut dem  
Hadoock 242 Export, dem  
Hanns T30, mega TT, sealed box new  
Lehmann Black Cube phono stage dem  
Inspire Full on! Technics 1210/Plinth/PSU/SME M2 arm used  
Linn Sondek, Ittok, nice condition used  
Linn Sondek, Lingo, Naim Aro, superb used  
Linn Sondek, Basic plus, Vahlha, VGC+ used  
Linn Sondek, Grace 707, basic psu, VGC+ used  
Linn Sondek, Naim Aro, Staff build Armageddon used  
Linn Lingo, excellent used  
Linn Basic Plus, vgc+ used  
Lyra Erosion Step up used  
Michell Hydraulic Reference, Fluid arm, excellent used  
Michell Technoarm A in black as new mint boxed used  
Michell Synco/RB250/Eroica, great condition used  
Michell Orbe SE, excellent boxed used  
Moth phono stage dem  
Musical Fidelity XLP5V3 phono stage dem  
Musical Fidelity XLP5V8 phono stage dem  
Naim Aro, excellent boxed used  
Naim Stageline N excellent boxed used  
Pioneer PL530 Direct Drive, good condition used  
Pioneer PhonoBox SE phono stage, excellent value dem  
Project RPM 9 turntable with arm and platform dem  
Project Xpression mk2, arm and cart dem  
Project RPM 5 Turntable/Arm boxed with Speedbox used  
Project RPM 4 Turntable/Arm with cover, great! used  
Project Perspective, Speedbox SE, Shure V15mx Rega Planar 2, RB250, excellent boxed used  
Rega RP3 Elys2 cartridge, excellent boxed used  
Revolver Rosewood, G1022, excellent used  
Roksan Xerxes RB300, PSU, boxed used  
Roksan TMS 2 with Reference PSU, boxed as new used  
Roksan Xerxes, XPS, SME Fit dem  
Graham Slee Fanfare Amp3 dem  
Graham Slee Reflex C with PSU 1 dem  
SME 3009/3, excellent boxed used  
SME V, excellent, due in dem  
SME V12, nr mint boxed used  
STD305, vgc, no arm used  
Systemdek, Syntex PU2, excellent used  
Systemdek IIX900/RB250/AT440 used  
Technics 1210, near mint boxed used  
Thorens TD150, SME3009 good condition new  
Thorens TD160 HD turntable used  
Thorens TD160, Audio Technica arm, boxed used  
Thorens TD209 turntable package dem  
Thorens TD2030 Blue turntable new  
Thorens TD125 c/w SME3009, excellent used  
Tom Evans Groove, 0.85mm/100 ohm, excellent used  
Townshend Elite Rock c/w Excalibur, boxed excellent used  
Transfiguration Orpheus L, good condition dem  
Trichord D20 2 c/w NC PSU & HP Cable dem  
VH1 Colibri M/C cartridge new  
VDH Condor M/C cartridge new  
VPI Scout, JMW arm excellent used  
VTL TP2.5 phono stage (new) new  
Wilson Benesch Act 1 Tonearm, nr mint superb used

## Radio/Recorders

Akai GX95mk2 boxed with remote used  
Arcam T61, vgc+ used  
Denon TU-S10 used  
Musical Fidelity A5DAB, sealed box used  
Naim NAT03, excellent used  
Naim NAT01 and NAPST home, serviced, vgc+ used  
Naim NAT101 & SNAPS, excellent £500 Naim service used  
Nakamichi Dragon, excellent! used  
Nakamichi CR4e, vgc used  
Nakamichi DR10, excellent used  
Nakamichi DR1, vgc used  
Nakamichi BX2, excellent used  
Nakamichi S80, near mint boxed used  
Nakamichi RX505 used  
Pioneer CT91a reference used  
Pioneer CT5810S used  
Pure 701ES DAB Tuner used  
Quad FMA, late grey version, excellent used  
REVOX B215s, vgc+ used  
Tandberg TCD440a, superb! used  
TEAC V8000S, superb used  
TEAC V80003S, excellent used  
Rotel RT1080, excellent used  
Yamaha KX1200 excellent used  
Yamaha CT7000, vgc used

## Amplifiers

AMR 777 Integrated dem  
Anthem Integrated 2 Valve Integrated used  
Arcam Alpha 7, vgc+ boxed used  
Arcam C31 preamplifier, remote excellent used  
ArtAudio Jota 520b, excellent used  
Audio Flight Pre and Flight 50 Class A power used  
AudioAnalogue Bellini VB and Donizetti Cento, superb used  
Audio Analogue Maestro Ref SE integrated dem  
Audio Analogue Pucini Ref SE amp. Black dem  
Audio Project ap60 integrated dem  
Audio Research Ref 610 Monoblocks, vgc boxed used  
Audio Research LS25 mk2, excellent boxed used  
Audiolab 8000Q/Ms, silver, excellent boxed used  
Audiolab 8000C excellent boxed dem  
Call Audiolab 8000P vgc boxed dem  
Audiolab 8000A vgc boxed dem  
Audion Sterling Plus KT88 Integrated boxed dem  
AVI Lab Series Pre/Power, excellent remote used  
BAT VK50se preamplifier, vgc+ used  
Bryston 4Bsst2, excellent boxed, due in used  
Chapter Audio Couplet Power Amplifier used  
Conrad Johnson Premier 18, boxed with remote used  
Consonance Cyber 10 Integrated used  
Consonance Ref 8.8 integrated valve amp used  
Consonance Cyber 211 monos c/w Pavane valves used  
Creek A50i Integrated with MC board boxed used  
Cyrus XPower, excellent boxed used  
Cyrus aCA7 Pre and aPA7 Monos, excellent used  
DartZeel NHB108B, excellent £20+k new used  
Denon PMA1500AE, excellent used  
EAR 834T Integrated, boxed excellent used  
Esoteric A03 Power, boxed near mint dem  
Graef GM100 valve power amp dem  
Icon Audio, MC34 boxed used  
Jolida 211 Monoblocks, £7k new, superb used  
Leema Hydra 2, vgc+ boxed used  
Leema Elements Amplifier, excellent dem  
Leema Tucana 2, excellent dem  
LFD Integrated amp LE MK111 dem  
LFD L51 Inestage, reasonable shape used  
Linn Majik Kontrol & 4100 Power, excellent used  
Linn Kolektor Preamplifier used  
McIntosh C22 & MC275 Commemoratives, boxed used  
McIntosh MA5100, excellent! used  
Meridian 501V preamp, excellent used  
Meridian 501 Pre used  
Micromega IA100, great integrated, boxed used  
Moon W7RS, excellent used  
Musical Fidelity M3i, excellent boxed, REDUCED used  
Musical Fidelity A1000 Two box monster Integrated! used  
Musical Fidelity A1008 Two box monster Integrated!!! used  
Musical Fidelity A1 FPB Preamp and PSU, sealed box new  
Musical Fidelity 550K Superchargers, sealed boxes! used  
Musical Fidelity X-T100 Integrated dem  
Musical Fidelity Pre 8 and 2 x MA65 chrome fronted used  
Naim NAP100, vgc+ used  
Naim NAC82, excellent boxed used  
Naim NAP250, olive excellent boxed used  
Naim NAP250, very late olive excellent used  
Naim NAC42.5/NAP110, vgc used  
Naim NAC42/NAP110, excellent boxed used  
Naim NAP250, excellent late boxed olive used  
Naim NAP150, excellent boxed used  
Naim NAC202 with NAPSC, boxed used  
Naim NAP180, excellent boxed used  
Naim NAT1.5, excellent remote boxed used  
Naim NAC152/NAP155XS, excellent boxed used  
Naim NAC90/NAP92, vgc used  
Neutonia Sallis Integrated, classy Restek built used  
Onix OA32 Integrated, excellent used  
Orade Delphi, Zeta, due in used  
Pathos Logos Integrated dem  
Placetate Audio Passive Linestage dem  
Prima Luna Prologue 3 Preamplifier vgc+ used  
Prima Luna Prologue 2 Integrated, good shape used  
Prima Luna Prologue 3 Preamplifier, REDUCED dem  
Puresound L300 valve preamp used  
Quad 66 Preamp, excellent remote used  
Quad 99 Pre/Power, excellent, remote, Quadlink used  
Quad 405, from used  
Quad 33/303, vgc, serviced used  
Resolution Audio Opus 21 S80 Integrated dem  
Renaissance RA02 Monos, vgc and excellent value used  
Roksan Kandy K2 Power, nr mint boxed dem  
Sonic Euphoria PLC Passive pre dem  
Sugden Masterclass Monoblocks, in titanium used  
Sugden A21a line Integrated dem  
Sugden Masterclass Pre/Monos in Graphite used  
Sugden Masterclass Pre/Monos in Titanium used  
Sugden Masterclass Integrated in Titanium used  
Tag/McLaren 60iRV, excellent boxed used  
Talk Electronics Hurricane/Tomado Pre/Power used  
TEAC Distinction A1000 Integrated, ex demo used  
Trio L07C and L07Ci, both good condition from used  
Union Research Simply Italy Integrated dem  
Union Research S2k Integrated, excellent used  
Yamaha ASS00, excellent boxed used  
Yamaha A-S3000, nr mint boxed dem

## Digital

Arcam Alpha 8, excellent used  
Arcam Alpha 8se, excellent boxed used  
Arcam CD17, excellent used  
Arcam CD37, vgc+, remote used  
Arcam CD37, remote excellent used  
Arcam Alpha Plus, excellent dem  
Atoll 100SE DAC used  
Audio Alchemy digital transmission interface/psu new  
Audio Analogue Maestro SE CD dem  
Audio Analogue Paganini (later model) dem  
Audio Synthesis Transcend CDT (Modded SONY) dem  
Ayre Evolution DVD used  
Cary Audio CD306 Pro, near mint boxed used  
Chapter Audio Sonnet CD & Nevo remote used  
Chord 'One' CD player used  
Chord Qute EX DAC, excellent boxed dem  
Consonance CD120 Linear dem  
Consonance CD2.2, new sealed dem  
Consonance Droplet, vgc+ dem  
Creek Destiny Integrated CD player, boxed used  
Cyrus Discmaster/Dacmaster, vgc+ used  
Cyrus DAC XP, excellent boxed dem  
Cyrus CDXT2, mint boxed just back from Cyrus dem  
Cyrus CD8, boxed remote dem  
Cyrus CD7Q chip, vgc+ dem  
Cyrus CD8se, boxed remote used  
Cyrus DAD3, excellent used  
Denon DN720AE, near mint boxed used  
EAR Aute 3, mint boxed dem  
Exposure 210CD, remote dem  
Goldenote Koala, near mint boxed used  
Idea Design Katana cd player (no remote) used  
Kelvin Labs DAC, rare dem  
Leema Elements CD player sealed box dem  
Linn Karik 3, excellent boxed remote dem  
Marantz CD6003, excellent boxed used  
Marantz CD10, excellent boxed new belt kit used  
Marantz CD63K1, remote, boxed excellent used  
Marantz CD6004, nr mint boxed dem  
Marantz NA7004, nr mint boxed dem  
Meridian 506/20 with MSR used  
Meridian 563 DAC reasonable condition used  
Meridian 500 Transport, excellent boxed used  
Meridian 602/606 combo with remote used  
Micromega Leader, remote used  
Moon Equinox CD used  
Musical Fidelity 3.5 CD dem  
Musical Fidelity A1Pro CD new  
Musical Fidelity KW SACD, new laser, upgraded ps used  
Musical Fidelity M1 DAC, excellent boxed dem  
Musical Fidelity M1 CDTB dem  
Musical Fidelity M6 black boxed dem  
Musical Fidelity M3 black boxed dem  
Musical Fidelity M1 C1ic new  
Myriad Z20DAC, excellent boxed used  
NAD C545Bee, excellent boxed used  
Naim CDSi, excellent boxed used  
Naim DAC, nr mint boxed dem  
Naim CDSi, near mint boxed dem  
Naim CDS3, excellent boxed, remote used  
Naim CDSi, excellent boxed dem  
Naim CD3.5, vgc used  
Naim CDX2, excellent boxed dem  
Peachtree DACi, excellent used  
Prima Luna Prologue 8, ex demo boxed dem  
Quad 99CDP, excellent REDUCED used  
Rega Planet 2000, excellent used  
Rega Apollo R, excellent used  
Rega Apollo 35th Anniversary, excellent used  
Rina D10, excellent used  
Rega Saturn, excellent boxed used  
Roksan Kandy K2, excellent boxed used  
Roksan Kandy K1 Mk3, excellent boxed used  
Rotel RCD965BX, excellent boxed used  
Sugden Masterclass CD original version used  
TAG McLaren DAC 20, excellent dem  
Tube Technology Fulcrum CD transport dem  
Tube Technology Fulcrum DAC (inc DAC64 chip) dem  
Yamaha CD-S3000 near mint dem  
YBA GC-10, ex boxed, £1600 new, BARGAIN used

## AV/Accessories/Cables

Audeze LCD2 excellent dem  
Audeze LCDXC excellent dem  
Bryston BHA-1 Headphone amplifier, superb dem  
Chord Anthem (original), from 0.5m up used  
Custom Design Milan, ex display dem  
Cyrus PSXR, excellent from dem  
Elemental Audio Equipment Rack dem  
Elemental Audio speaker stands dem  
Ergo AMT phones with Amp 2 (£2.5k new) dem  
G-W T2.6F Valve headphone amplifier, excellent used  
Grado GS1000 and RA1 amplifier used  
Isotek Nova power conditioner dem  
Lehmann Rhineland dem  
Musical Fidelity M1 HPAB dem  
Musical Fidelity TriplexX power supply new  
Naim XPS DR, ex demo dem  
Naim Supercap, various excellent boxed from dem  
ProAudio Bono Reference Platform used  
Stax SR404/SRM006ii, stand, cover etc boxed dem

## Loudspeakers

Acoustic Energy AE1 Classic new  
Acoustic Energy AE1 Reference standmount new  
Acoustic Energy AE 1 Mk11 in Gloss black dem  
Alacritty Audio Caterham Classic, flightcased, £2k new used  
Apogee Duetta Signature (Reality rebuilt) Superb used  
Art Audio Stiletto in Maple dem  
Aspara Acoustics HL6 in Oak dem  
Audio Physic Tempo in Cherry, fair dem  
Audiovector Si3, near mintboxed dem  
Audiovector Si3 Super, near mint boxed dem  
Aurum Cantus Music Goddess in Gloss black dem  
Avalon Ascendant Mk2, mint crated, £10k new used  
B&W CDM1 in black, vgc+ used  
B&W CDM1se in cherry, excellent used  
B&W DM601s3, vgc+ used  
B&W DM602s3, vgc+ used  
B&W DM602s3, vgc+ used  
B&W XT4, excellent new  
Castle Harlech, excellent boxed dem  
Castle Chester vgc later versions dem  
Eminent Technology LFT8, some marks used  
Epos M22 in Cherry dem  
Ferguson Hill FH007/8 'desktop' audio set boxed used  
Final 400 Electrostatics with ES400 Sub dem  
Focal Electra 1008, mint boxed dem  
Focal Electra 1028, mint boxed dem  
Focal Electra 1038, mint boxed dem  
Gallo Nucleus Reference 2, rare, superb & boxed used  
Heco Celan 500 in Silver dem  
Heco Celan 300 in Mahogany dem  
Heco Statement in gloss black, £3k new dem  
Kef Q100, brand new, sealed box new  
Kudos C10, boxed vgc and cheap used  
Leema Kandia Mk1 in black new  
Leema Xero in Mahogany dem  
Linn Index with KuStone stands, vgc+ used  
Living Voice IBX R2 in stunning Zebrano, excellent used  
Magneplanar MG1.6, superb, boxed used  
Mark & Daniel Maximus with treble extenders £2500sh dem  
Mark & Daniel Mini in Grey inc. Marble cabinets. dem  
Martin Logan Mosaic, excellent boxed used  
Martin Logan Quests, superb sound, reduced used  
Martin Logan Prodigy, excellent used  
Martin Logan Summit X, ex demo used  
Mission 782se nr mint boxed used  
Mission Freedom 5, vgc in Rosewood used  
Mission 752, 2 pairs, from used  
Monitor Audio BX2 excellent boxed dem  
Monitor Audio RS8 excellent dem  
Monitor Audio GX300, near mint boxed dem  
Monitor Audio GX 5.1 Home Cinema set BARGAIN new  
Monopulse Model S new  
Monopulse Model A speakers new  
Monopulse Model C new  
Musical Fidelity M6C Floorstanders, boxed vgc+ used  
Naim OVR400, excellent dem  
Naim SBL, vgc+ dem  
Nola KO speakers in black dem  
Nola Micro Grand Reference inc stands, £15k new dem  
PMC Twenty 21, excellent boxed, ex dealer demo used  
PMC Twenty 22, excellent boxed, ex dealer demo used  
Proac D38 in Yew, boxed used  
Proac D28, good condition in cherry boxed used  
Proac D18, good condition in cherry boxed used  
Proac Studio 140 mk2, nr mint boxed dem  
Proac Studio 110, excellent boxed dem  
Proac Studio 115, excellent boxed dem  
Q Acoustics 1020, vgc+ dem  
Quad 211 Floorstander used  
Quad ESL63, Rosewood, great condition used  
Quad ESL57, good condition used  
Quad 11L2, excellent boxed used  
Red Rose Rosebud £2.5k new with (used) stands dem  
REL Sterling, black ash vgc used  
Revel M22, excellent boxed new  
Revolver RW45 floorstander in Cherry dem  
Revolver Cygnis Gold in Black, £14k new dem  
Sonus Faber Elipsa, superb boxed used  
Sonus Faber Cremona Auditor, boxed used  
Spendor A6, in Walnut excellent boxed used  
Sunfire True Sub Subwoofer dem  
Tannoy Prestige Autograph Mini, ex boxed used  
Thiel CS7.2, vgc, just refurbished... used  
Totem Mani Signature, boxed near mint used  
Totem Mite in black dem  
Totem Rokk in mahogany, excellent used  
Totem Star, near mint boxed new  
Usher N6311, transit damaged to clear dem  
Usher Be10DM, excellent dem  
Velodyne DD18 sub in black dem  
Veritas H3 (Lowther drivers) in gloss black, 100db dem

## Special system deals

Audio Analogue Crescendo Amp and CD used  
Consonance Ping CD/AMP dem  
Linn Classic Movie 05, excellent boxed dem  
Naim Unifilite, ex demo dem  
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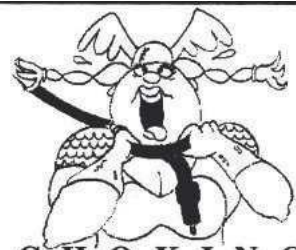
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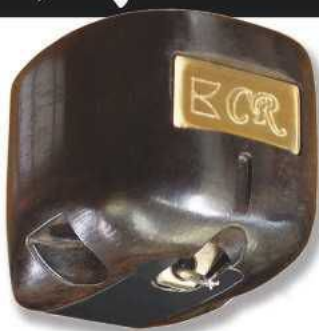
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## LAST WORD

# OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Will hi-fi have a place in the home of the future? Ken Kessler ponders a report on things to come



Journalists are often fed the results of surveys, market research and other founts of knowledge, but it seems in the case of audio that it's only to depress us. I'm old enough to recall when hi-fi was aspirational, and figured in people's Top 10 hierarchies not too far below owning a home and a car. Now I doubt it's in the Top 50.

### FREE OF BIAS

A recent email informed me of a report on the home of the future commissioned by one of this country's suppliers of electricity. As such, I feel it's free of bias because the company doesn't manufacture the goods that use electricity, and the EU has ensured that everything is to be made more efficient. Equally these are not guys who would champion valve gear just because it ensures that we (by that, I mean valve lovers) have higher electricity bills.

Thus, I have no idea what purpose this serves a power company, when everything from fridges to vacuum cleaners has to be more efficient, and therefore less of an 'earner'. I suppose it's a bit like McDonalds conducting a survey on eating habits, with the full knowledge beforehand that governments are stamping down on fats, salt and everything else that makes food tasty.

But back to the report. I do not need constant reminders that hi-fi as of 2015

has only slightly more relevance or appeal to the average consumer than typewriters or VCRs. It has been forgotten, or rendered redundant. Here is the list they found of what people are 'most looking forward to' for future tech. Read it and weep:

- Smart thermostats (31%)
- Domestic robots (26%)
- Smart screen tech (26%)
- Smart security and lighting (23%)
- 3D printers (22%)
- Home theatre (22%)
- Connected fridge (15%)

### SIMPLY STUPID

Smart thermostats at No 1? Really? Thermostats have been 'smart' for decades.

Maybe the respondents are simply stupid. Home theatre aside, which tied with 3D printers, none of the hotly-anticipated developments has anything to do with home entertainment,

let alone the playback of music.

I expected, at the very least, to see something about streaming, but I suspect that all 'amusements', including gaming, fall under the 'smart homes' umbrella, which – in a decade – will mean most functions in homes of high disposable income will be operated via remote wireless devices with predictability features, and physical formats will vanish... except for anachorophiles.

'Hmm... I wonder if someone has come up with an app to lift up a tonearm'

But the survey rings true. A visit to Crestron in the USA gave me a glimpse of the future, with nearly all appliances, home heating and other systems controllable by apps, from anywhere on the planet with access to the internet.

### MUST BE A FREAK

Audio in one form or another will certainly figure in homes with 'intelligent surfaces' – those virtual computer screens that respond to waving hands. They'll take care of content, 'whether it is movies, web pages, sports or Skype video images'. But I put quotations around that to emphasise how the survey didn't include *music* at all in that list. I must be a freak: I still listen to music all day, and read 'physical' books.

'Appliances and devices will be operated by speech or gesture.' Hmm... wonder if someone has an app to lift up a tonearm – or should we simply dig out those old Revox, B&O, Technics, Sharp, ADC and other clever decks from 30 years ago and find a way to adapt them? They already have the hands-off functionality.

'We'll become used to "prediction engines" that will anticipate our needs and act accordingly. For example, if we put on a movie they will dim the lights to the level we normally use.' Gee, I never know in advance what I want to listen to when I enter my music room. Fancy a machine reading my mind. Will it also determine that I want the 1991 edition of Nina Simone's *Sings The Blues* with more bonus material, and not the 2006 compilation?

There is no doubt that apps are the way of the future, and a certain satisfaction is to be had running your bath or engaging the oven from your car or the train on your way home. But I really have no desire to switch on music when I'm not there.

Amusingly, the report included this most telling observation about the denizens of the UK: 'The kettle remains king; almost one in five (23%) choose it as their favourite appliance.' I'd have thought TV, telephone or washing machine would have trumped something that simply boils water, a task a pot on a burner can accomplish. The British and their tea: looks like multiculturalism has some way to go, eh? ☹

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