

hi-fi news

& Record Review

172
pages

TUBULAR TITAN

Engström's ERIC Encore – hot bottles, sizzling sound

Auralic Altair

Super spec
streamer gets
G2.1 update



CHILI PEPPERS
BLOOD, SUGAR, SEX...



Rogers AB3a

Active sub towers let the
LS3/5A dig deep

VINTAGE

Meridian MCD

In-depth re-test of an '80s icon

EISA
AWARDS
2021-22

The year's best
hi-fi revealed!

Mola-Mola
Kula

Innovative
modular
integrated

Monitor
Audio

7th-gen
Silver 500
floorstanders



ENGSTRÖM

DS Audio
New DS 003
'optical'
pick-up
trips the
light fantastic



• **OPINION** 12 pages of letters & comment • **VINYL RELEASE** Traffic's *John Barleycorn...* on 180g LP
• **CLASSICAL COMPANION** Saint-Saëns' *'Organ' Symphony* • **STUDIO TOURS** Inside Abbey Road
• **FROM THE VAULT** Revox B225 silver disc spinner • **READERS' CLASSIFIEDS** Hi-Fi bargains galore

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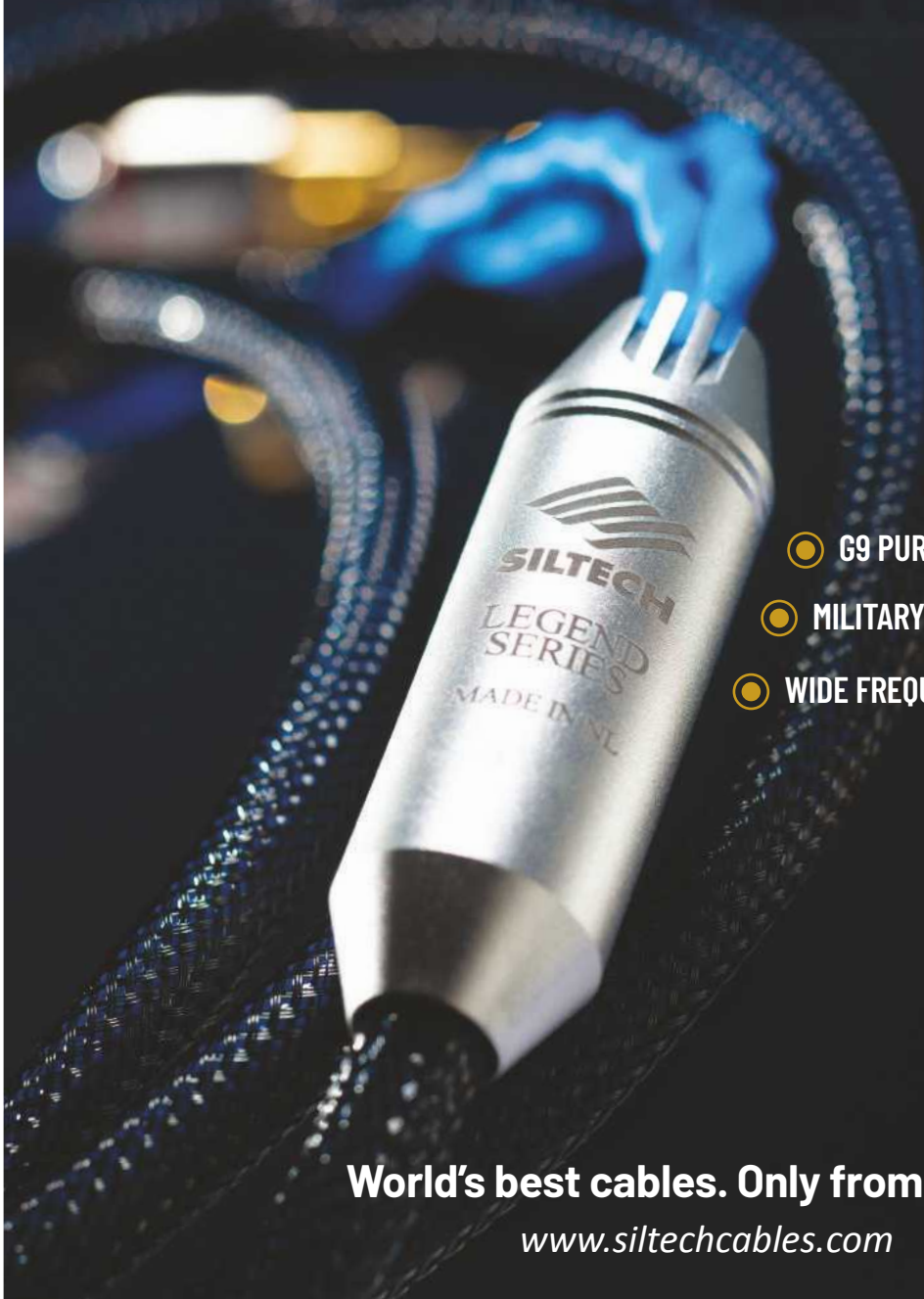
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AVIDHIFI has a full creative independence, designing and crafting extraordinary instruments that connoisseurs consider to be the world's finest, from the vinyl record to the final sound.



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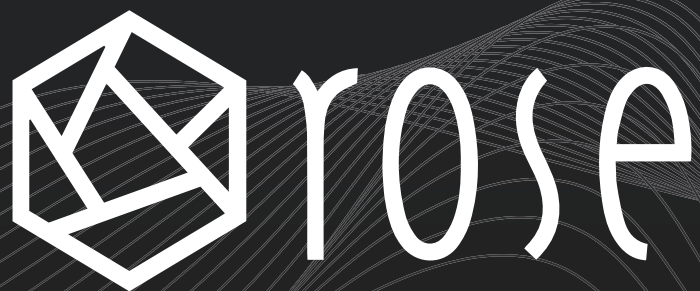


'This may be the best cartridge I've ever heard'
Ken Kessler Hi Fi News 2021 Feb



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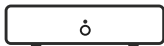
RS150

High Performance Network Streamer



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in amplification and applied it to one goal
- To reach down into the record and reveal every bit of information.

The V10 is designed to capture the sound
To get you closer to the music
To get you into the groove



MM and MC || Subsonic Filter || System matching
Auto standby || Balanced (XLR) output

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**Best
Product**
2021-2022

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also for balanced wired connection

Legend 40 Silverback:

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The Expert Imaging & Sound Association of as many as sixty specialist magazines from around the world has honoured System Audio with its Best Wireless Speaker Award two years running! Located at Roskilde, the music city of Denmark, System Audio has received more than 150 awards for sound, design and innovation since 1984.



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Legend 5 Silverback:

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EISA is the unique collaboration of 60 member magazines and websites from 29 countries, specialising in all aspects of consumer electronics from mobile devices, home theatre display and audio products, photography, hi-fi and in-car entertainment. This truly international association includes expert members in Australia, India, Canada, the Far East, USA and the wider European community, ensuring the EISA Awards and official logo are your guide to the best in global consumer technology!

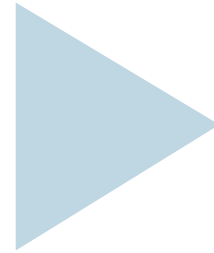


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For your consideration...





"There's something deeply alluring about this streaming CD player/integrated amp combination, in both sound and function. In turn, this makes it easier to appreciate the music without being distracted by the technology. Now there's a thought for the future..."

I35 Prisma + CD35 Prisma: HiFi News Highly Commended



"The latest Primare platform is a highly modular amplifier system, but even as just an amplifier the I35 integrated is one of those products that you just love to enjoy!"

I35: HiFi+ Top 100



"If you like a sound that is fast, open, clean, clear, dynamically expressive and devoid of manipulative emphasis, the I25 Prisma ticks all the boxes. Analogue and digital in graceful harmony? That perfectly sums up the Primare I25 Prisma. Enthusiastically recommended."

I25 Prisma: HiFi Choice Five Stars



"Primare R35 – Flagship phono stage is an analogue triumph... it is an incredibly flexible and capable phono stage that seemingly has the ability to extract the very best from any cartridge that crosses its path."

R35: HiFi News Outstanding Product



"Primare's sophisticated PRE35 / A35.2 combination is a class act. Furthermore, while optimised as a pair, both pre and power amp remain very competitive in their own right, the PRE35 as a go-to hub for comprehensive digital systems while the A35.2 is an all-round high-value powerhouse."

PRE35 Prisma + A35.2: HiFi News Highly Commended



"Tonally, the I35 is rich and satisfying rather than bright and breezy, and yet it comes over as both energetic and dynamic sounding."

I35: HiFi+ 2020 Editor's Choice Award



"Make no mistake, products like the Primare I25 Prisma are the best expression of why this is a golden age for audio. This one box does it all, and it does it all damn well!"

I25 Prisma: HiFi+, Integrated Amplifier or Amplifier/DAC of the Year 2019



"Primare's R35 wins HiFi+ phono stage of the year! At the R35's affordable price tag, it's sensational"

R35: HiFi+ Phono Stage of the Year 2020



"Something that Primare has made an art form over the years is their ability to produce equipment that feels special. What results is a product that feels like a deeply clever solution to the business of making an audio system."

I15 Prisma: AVForums, Highly Recommended



"Despite its copious amounts of facilities, you shouldn't think of this amplifier as a lightweight in the sonic stakes. Yes, it has a dry and accurate presentation, rather than embellishing the music, but it's always fun and is backed up by plenty of power, too."

I15 Prisma: HiFi Choice Recommended



"Built with the same care the company brings to its main amplifiers, its low-noise design is informed by the flagship R35 model just as its sound is the familiar 'Primare' mix of weight and substance allied to detail and resolution"

R15: EISA Phono Preamp 2020-2021



"Able to resolve detail, throw a light on dynamic contrasts and pull you into the music without adding its own character, it's an ideal bridge between your vinyl player and amp."

R15: AVTech Media 2020/2021 Best Phono Stage



"In use, its majestic grace, poise and control is matched by a measured and even tonality. Smooth, couth and sophisticated, Primare's I15 Prisma proves that you can have the convenience of app control, stylish elegance and musical satisfaction all in one."

I15: Prisma AVTech Media Award 2018/2019: Best Stereo Integrated Amplifier



"For alongside its fine sound there's extensive functionality including Roon and Chromecast. Decidedly not a minimalist product, the Primare I15 Prisma is a lovely listen that packs a wealth of technology into a small box, and does so with great elan."

I15 Prisma: HiFi News Highly Commended



"... a precision and focus that doesn't blunt edges, blur textures or drag tempos and presents the solid and the spacious as a coherent whole with the full spectrum of tonal colours and accurately rendered instrumental timbres."

R15: Hi-Fi Choice – Recommended, Five Stars



The quotes above are from only some of the many great reviews and award recognitions the current range of Primare models have received from the UK press. For the full reviews and award citations, as well as many more from both the UK and world press, go to [primare.net](https://www.primare.net)



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May 2021



April 2021

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Released to honour the 250th anniversary of the birth of Ludwig van Beethoven, the 2M Black LVB 250 redefines what is possible from a moving magnet cartridge. By mounting a nude Shibata diamond on a boron cantilever, the same combination found on our high-end MC Cadenza Black cartridge, it truly is an exercise in technical excellence that has to be heard to be believed.



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It all started with the Cardea C10 back in 2006. 15 years later, the Cardea series has evolved considerably, but the principle behind them remains the same: to create a high-performance loudspeaker for the real world music lover. Now featuring refined drive units and crossovers derived from our reference Titan series, the Cardea's continue to be recognised as one of the best speakers at its price point. But don't take our word for it. Hear the Cardea's for yourself at your local retailer and discover the Kudos difference.



CARDEA C10

A masterfully compact standmount, the C10 may be small but it certainly packs a punch.



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CARDEA C20

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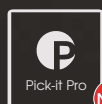
T+A
Engineering Emotion



Debut Pro

30 years of experience

The Debut Pro is far more than a special edition, though it was released to commemorate the 30th anniversary of Pro-Ject Audio Systems. It's a new premium addition to the Debut range, exhibiting the very best technical design, elegant aesthetics and true high-end sound from an affordable audiophile device.



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NEW



TPE Damped
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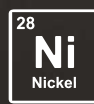
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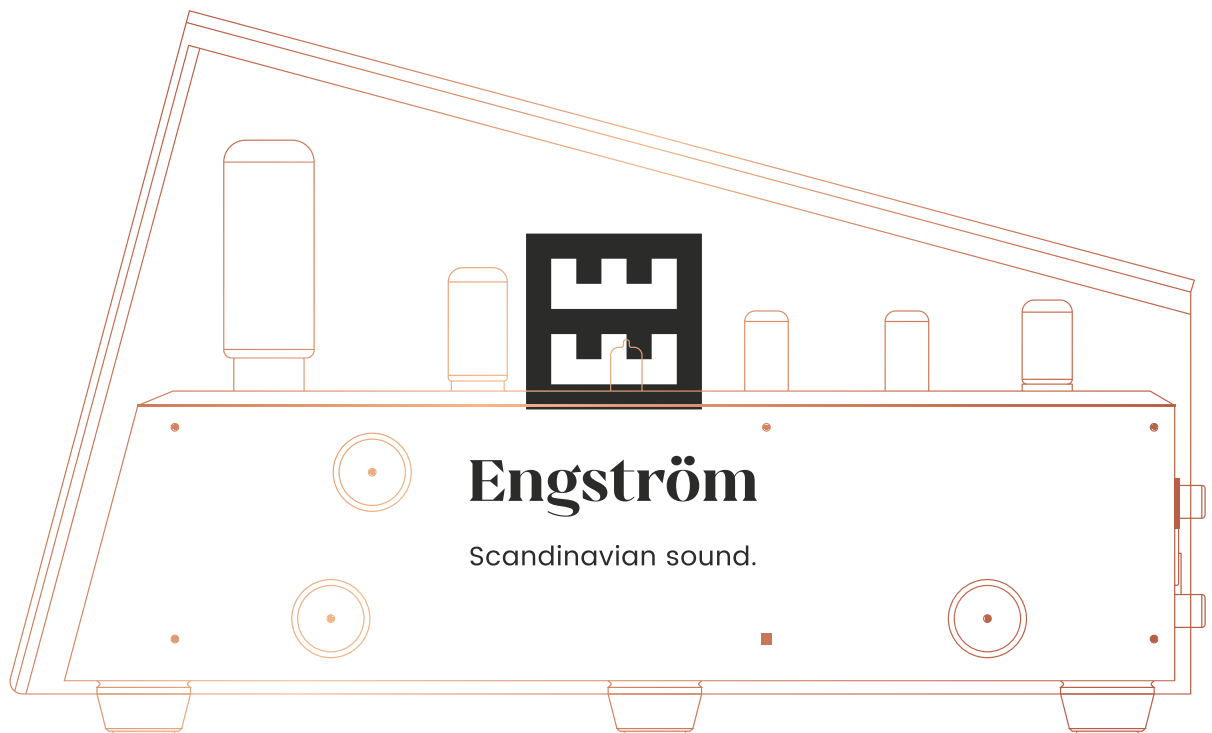
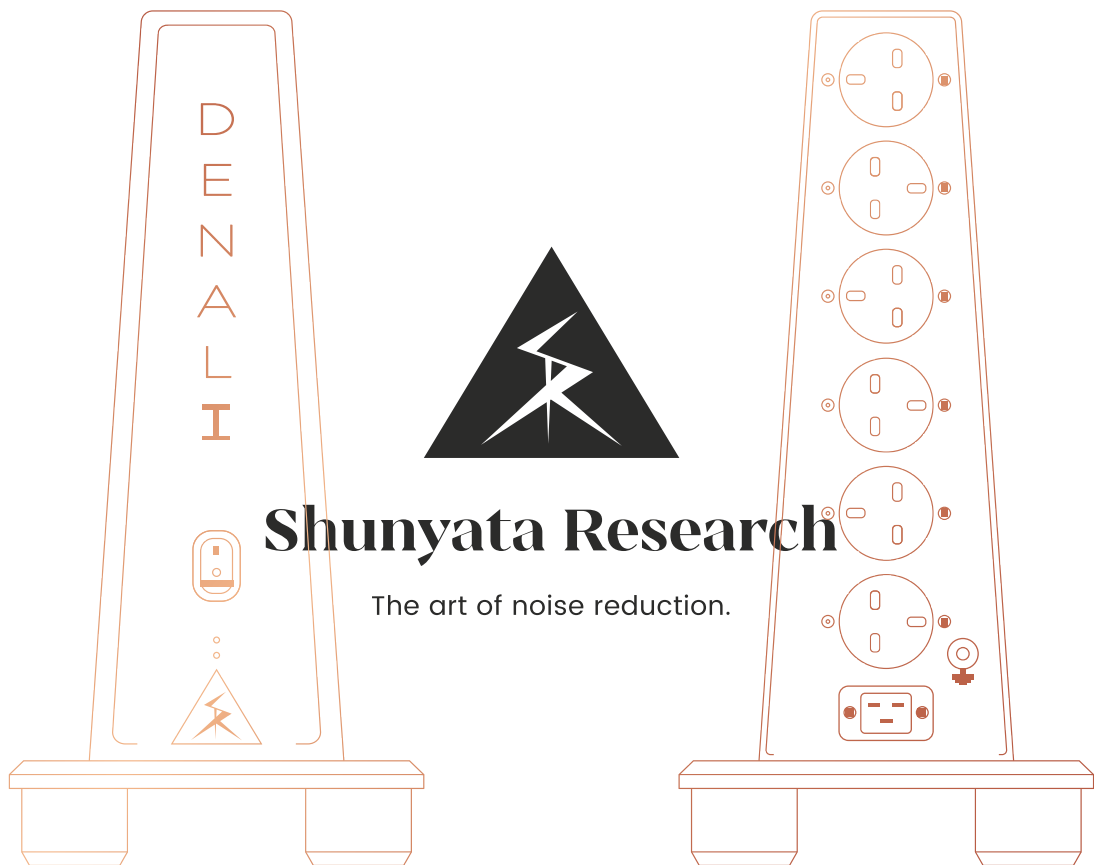
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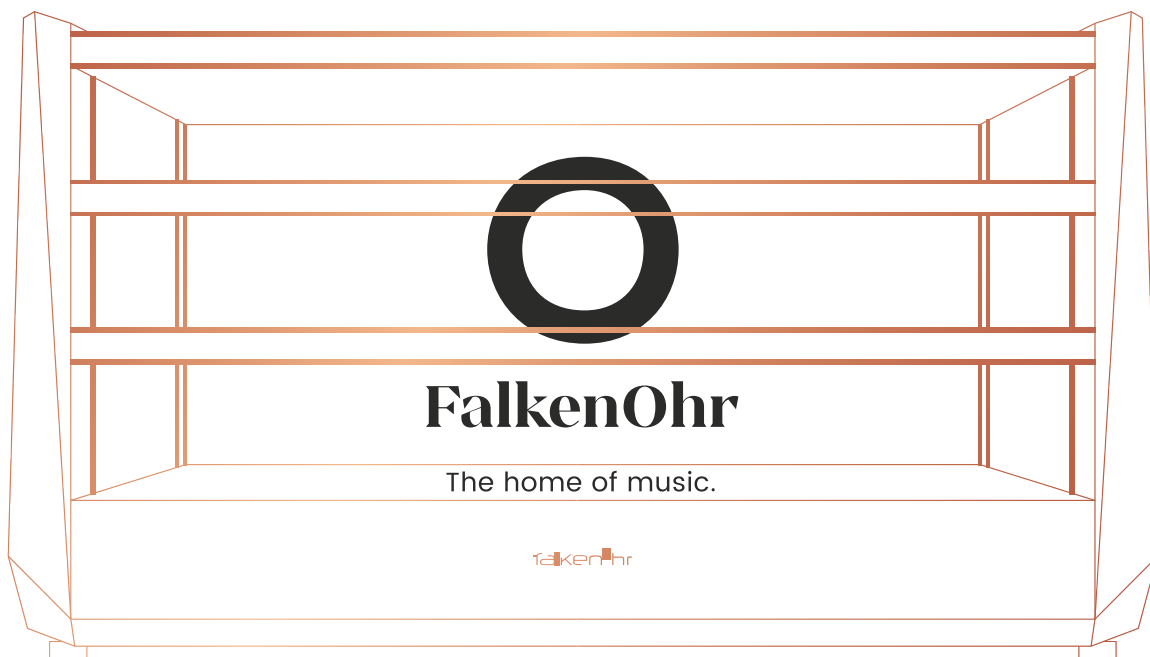


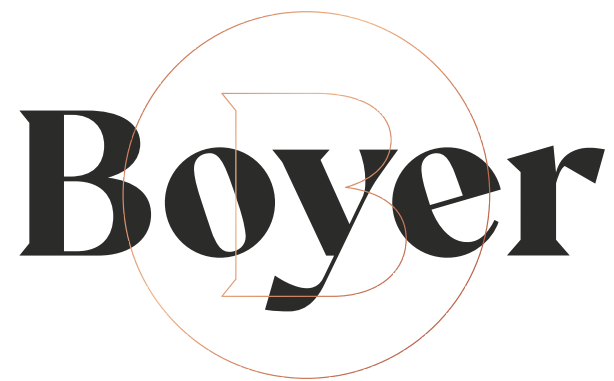
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ABOVE: Elevated to Auralic's G2.1 platform, the Altair is a digital streamer, music library, DAC and preamp in one. We lift its lids on p54



ABOVE: Elegant simplicity of the Kula integrated's chassis disguises the technical sophistication of Mola-Mola's engineering. See p58



MUSIC: The Chili Peppers hottest album, *Blood, Sugar...* is our Vinyl Icon, reaching No 3 in the US in 1991 (p108) while Traffic's *John Barleycorn...* spooks Steve Sutherland on 180g vinyl (p106)

RIGHT: *Hi-Fi News & RR* is the UK's representative of EISA's Hi-Fi Expert Group. Editor Paul Miller took over as EISA's President in June 2016

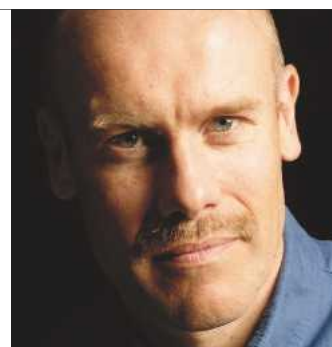


Despite the ongoing uncertainty of our times, each new edition of your favourite hi-fi magazine still arrives like clockwork – and bigger too! This October issue of *Hi-Fi News* has expanded into a bumper 172-page offering where, as the exclusive UK member of EISA's Hi-Fi Expert Group, we can reveal the cream of the crop, as tested, judged and voted for by the most respected quarters of the international audio press.

As President of this near-40-year old institution I've overseen its expansion from European to worldwide membership. So now enthusiast colleagues including John Darko (based in Germany) and Mikhail Borzenkov (Moscow) share their experience alongside *SoundStage!* (Canada), *Audio Accessory* (Japan) and *Stereophile* (USA) with longstanding EISA members from the greater EU community.

EISA's alliance of Expert Groups extends beyond hi-fi to include home theatre and TV products (our sister title *Home Cinema Choice* is the UK member), photography (*Amateur Photographer* from these shores), in-car and mobile devices. That's 60 publications, spanning no fewer than 29 countries.

Once again, the Association worked remotely this year with no fewer than 40 exclusive brand



webinars taking place through spring and products as diverse as new smartphones, 8K TVs and projectors, camera bodies and lenses, soundbars and in-car DSP audio solutions distributed globally for test alongside the hottest of new hi-fi.

There were more than a few new technical innovations uncovered this year and one,

'EISA's Advanced Smartphone winner is a perfect vinyl tool!'

from the Mobile Expert Group, could have the most hard-core of vinyl aficionados turned on to smartphone tech.

Winner of EISA's Advanced Smartphone category, the slick OPPO Find X3 Pro, includes a x30/x60 microscope viewer and camera. This, as I discovered, is absolutely perfect for very close scrutiny of stylus wear. It's a great reviewer's tool too – see picture, p47 and p81 for the full list of all 80+ Award winners.

PAUL MILLER GROUP 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



DAVID PRICE
An avid collector of audio treasures, and life-long hi-fi addict, DP lends his ears and experience from analogue to digital



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



MARK CRAVEN
Editor of our sister title *Home Cinema Choice*, Mark's passion for music extends from stereo to multichannel and Dolby Atmos



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



ANDREW EVERARD
has reviewed hi-fi for over 30 years and is still effortlessly enthusiastic about new technology, kit and discovering new music



STEVE SUTHERLAND
Editor of *Hi-Fi Choice*, Steve was at the helm of *NME* through the Britpop years. Steve brings a unique slant to our music features

Take BAT

BALANCED AUDIO TECHNOLOGY'S ALL-TUBE INTEGRATED

Arriving not long after the VK-3500 [*HFN* Sep '21], Balanced Audio Technology's VK80i again finds the Delaware-based marque leveraging design and technology elements of its reference REX series in an integrated amplifier. Unlike the VK-3500, however, this new model, priced £9995 and available in black or silver, is a tube-only design, joining all-tube pre- and power amps in the BAT stable.

The fully-balanced VK80i's claimed 2x55W power is delivered via two pairs of high-current 6C33C-B triodes, via output transformer taps specified for low (3-4ohm), medium (4-6ohm) and high (6-8ohm) loudspeaker loads. Ease-of-use is enhanced by BAT's 'intelligent' automatic bias regime for each tube, and fuse-less protection – all features

trickled down from the REX 3 power amp. A supplied remote offers source selection and control of the amp's 90-step (± 1 dB interval) resistor-ladder volume, with settings viewable on the front-panel LCD display. Analogue line inputs include one balanced on XLR, plus three

single-ended RCA connections.

Balanced Audio Technology Inc., USA,
01423 358846; www.balanced.com;
www.karma-av.co.uk



Fresh Exposure

FULL-WIDTH SERIES KICK-OFFS WITH AMP

With the avowed intention of re-focusing on the 'upper end' of hi-fi, after its compact and affordable XM series, British brand Exposure has launched the 3510 amplifier, a replacement for its 2015-era 3010S2D. The first of a promised new range inspired by its flagship 5010 series, this £2250 full-width integrated claims 115W/8ohm from its bipolar transistor output stage, while the preamplifier section benefits from a 'hybrid' power supply optimised to reduce noise. Out of the box source connections are six line-level inputs, although MM or MC phono, and a plug-in DAC module, are optional extras. Further flexibility comes from the 3510's preamp output, fixed/variable configuration of its 'AV' input, and onboard headphone amplifier (770mW/33ohm). The amp ships with a newly designed remote control, and black and titanium finishes are available for its all-aluminium chassis. **Exposure Electronics, Lancing, UK, 01273 423877; www.exposurehifi.com**



HI-FI NEWS' NUGGETS

UNI-Q ALL AROUND

KEF has expanded its Architectural Speaker range with the Uni-Q equipped Ci160ES in-wall/in-ceiling driver solution. Priced at £250/pair, the square-shaped baffle includes an inset 16mm alloy dome tweeter placed at the acoustic centre of a 160mm bass/mid driver. This new square model joins the entry-level E Series which already includes 130mm, 160mm and 200mm circular-profile in-ceiling speakers. <https://uk.kef.com>

JBL IN-A-BOX

Priced at £1500, the L75ms is a new all-in-one music system from JBL. Its retro-inspired, curved wooden casework combines a 25mm titanium dome tweeter, a 100mm midrange and two 130mm 'woofers' with dedicated, DSP-driven amplification and a wired/wireless network streaming engine. Analogue line and a MM phono input complete a very comprehensive package. It even has a classic Quadrex foam grille! www.jblsynthesis.com

Matrix... revisited

X-SABRE 3 BOOSTED WITH STREAMING HUB



Matrix Audio has refreshed its X-SABRE DAC [*HFN* Nov '17] with a slimmer cabinet, new front-panel display and user interface, and Wi-Fi/Gigabit Ethernet network connection. Based around an ESS ES9038Pro DAC catering for 768kHz/24-bit PCM and native 22.4MHz DSD, the X-SABRE 3 also marks the company's first network streamer supporting Tidal Connect and Spotify Connect, and claims Roon Ready status. Connections include coaxial, optical, I²S and USB-B, plus 12V trigger in/out. Album artwork, plus sampling rate, file format and input, can be shown on its circular LCD display. Other features include Apple AirPlay 2 support, MQA decoding/rendering, and an asynchronous mode that's enabled via a Crystek CCHD-950 femtosecond clock. Pricing is £2950.

Matrix Electronic Technology Co. Ltd, China,
07738 007776; www.matrix-digi.com/en;
www.signaturesystems.co.uk

JET5 touches down

ELAC BRINGS AMT TWEETER TO ENTRY-LEVEL SOLANO

Previously employed on the brand's Concentro, Vela and Carina ranges, ELAC's JET5 tweeter has now landed on its new Solano loudspeakers. Comprising the BS283 bookshelf/standmount and FS287 floorstander, plus a centre for multichannel systems, the range becomes the entry-point for the German company's AMT (Air Motion Transformer) technology.

All ELAC's drivers feature rigid cast alloy baskets/frames – the JET5's distinctive pleated diaphragm joined on the Solano models by custom 150mm 'sandwich' woofers made from bonding paper and aluminium cones. One of these drivers completes the



two-way BS283, while the FS287 utilises a pair in a two-and-a-half-way configuration with a 450Hz/2400Hz crossover. Nominal impedance for both speakers is specified as 4ohm, and sensitivity at 85dB (BS283) and 87dB (FS287).

The Solano series' MDF cabinets feature slightly curved front baffles, lacquered aluminium base plates – enabling down-firing bass-reflex ports – and are available in gloss black and gloss white finishes. At the rear, dual sets of binding posts cater for bi-amped/bi-wired systems. UK prices have yet to be announced.

ELAC Electroacoustic GmbH, Kiel, Germany, 01359 270280; www.elac.com

A new wired generation

TRANSPARENT TAKES FOUR CABLE RANGES TO 6TH-GENERATION

US cable specialist Transparent Audio says a 'new measurement metric', and revised approach to materials selection, has allowed it to launch sixth-generation updates of its premium Magnum Opus, Opus, XL and Reference series. Known collectively as the Connoisseur Collection Generation 6, while neither the cable geometry nor networks are fundamentally changed, the carbon-fibre shells of the Opus and Magnum Opus, and carbon-fibre composite of

the XL and Reference are now all mass-loaded with a void-filling flexible epoxy resin. This, and a redesigned 'vibration-nulling' acrylic plinth, promises reduced microphony across the loudspeaker and interconnect series. Pricing for the hand-made cables is on application – terminations and lengths can be customised to suit.

Transparent Audio Inc, Maine, USA, 0208 971 3909; www.transparentcable.com; www.absolutesounds.com



French flair with Jadis

JADIS LAUNCHES 'ENTRY-LEVEL' DIAPASON LUXE TUBE AMP

French manufacturer Jadis, famed for its single-ended tube amplifiers [*HFN* Apr '21], has announced the Diapason, a 15W Class AB design intended to reach a 'wider audience' courtesy of its £3600 price tag. All-analogue as standard, with six RCA line inputs, it can be upgraded with a basic 44.1kHz/16-bit USB input before or after purchase.

To meet the entry-level brief, the company says it has modified its custom-made transformers, while still adhering to its hand-wound ethos, and used a 'simple frame' for the amp's compact

(370mm-wide) stainless steel chassis. This is fronted by a grey face plate, with rose-gold inlay, housing source, balance and volume controls.

Output is handled by quartet of Tung-Sol 6L6 tubes, each pair in push-pull configuration, while an ECC82 and pair of ECC83 triodes comprise the input/phase-splitter stages – all can be protected by a removable perforated cage. Note that unlike other Jadis models, the 6L6 tubes cannot be swapped for alternatives.

Jadis, Villedubert, France, 0208 971 3909; www.jadis-electronics.com

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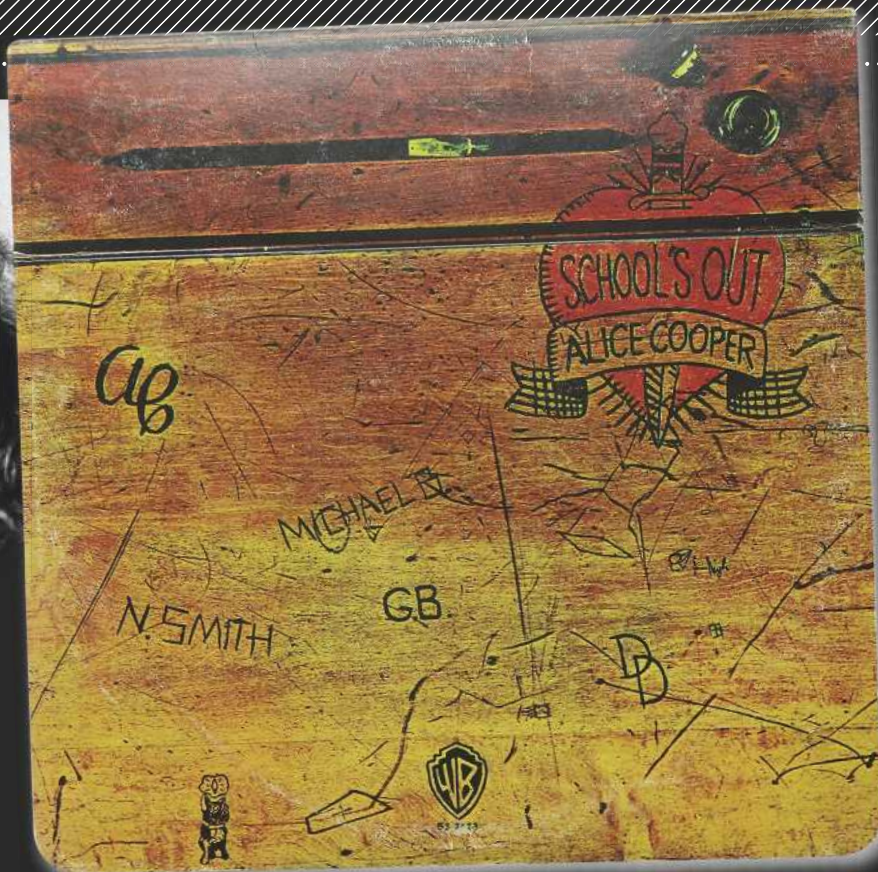
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INVESTIGATION



Under the covers...

Johnny Sharp on the creation of the artwork for Alice Cooper's early '70s album *School's Out*



BELOW: 'No 1 in England' screams this picture sleeve for the German release of the single 'School's Out'. In the UK itself the sleeve bore the image of the band around a trashcan that would appear on the inside of the album sleeve



When Alice Cooper's single 'School's Out' swept across America in the spring of 1972 then went on to become an international smash hit, it offered a ready-made shoutalong anthem for a generation.

'I've never had a song or heard of any song that's had as much impact on kids', Cooper said in 2012. 'That song is everybody's national anthem. From US presidents to movie stars to guys you would look at in an airport and think were the furthest thing away from rock 'n' roll, they would come up to me and say, "'School's Out' got me through school".'

The artist formerly known as Vince Furnier has admitted that his own days in the classroom in Phoenix, Arizona in the early 1960s were far from unbearable, not least because he was a successful runner who formed a band with friends from his state champion cross-country team – The Spiders. They would go on to be

renamed Alice Cooper, with Furnier ultimately adopting the same sobriquet. 'I had the jocks covered... I had the rockers covered. No one was able to beat me up.'

BUILDING A MONSTER

There was a lot more to Alice Cooper than one rousing rebel song, though, and when the album of the same name was released in June 1972, the sleeve design took the classroom concept and ran with it, even having fun with the whole concept of packaging LPs that had gatefold sleeves.

The design, which was by Craig Braun, offered a similar sense of suggestive humour found on the trouser-fly sleeve of The Rolling Stones' *Sticky Fingers* LP from the previous year that Braun had also co-created. As such, it helped cement in the public consciousness the brand values (although you'd have been lucky to find many people using that term in 1972) of a hard rock band taking the straight-baiting, shock-rock modus operandi of the '60s counterculture bands and building up on it, helping

to shape the emergent glam rock scene while doing so.

That process had actually begun several years earlier, as a whole aesthetic universe was formed around Alice Cooper, fuelled by a clutch of artistic, cultural and musical inspirations on the part of the artist formerly known as Vincent.

The Spiders relocated to LA in 1967, and persuaded avant-rock maverick Frank Zappa to sign them to his new label Straight. They were now going under the moniker Alice Cooper, their name designed to sound, in Vince's words, 'like

'Is one of them about to hit us with some kind of club?'

Lizzie Borden. It's like that innocent girl next door has a hatchet behind her back'. The frontman was also beginning to embody that character, inspired by looks such as the make-up smeared Bette Davis in *Whatever Happened To Baby Jane* and the eyepatched, black-clad Anita Pallenberg as The Great Tyrant in *Barbarella*. Zappa's live-in girlband The Girls Together Outrageously helped further style the band.

Their making two albums with a psychedelic, experimental rock



sound, to little local interest, the band relocated again to Detroit ('LA didn't get us. They were all on the wrong drug for us', said Cooper in 2003), where they found Midwest fans were more receptive, particularly now that their sound was hardening into a chunkier, punkier hard rock style.

POP GOES PANTO

Hooking up with ambitious Canadian producer Bob Ezrin, they created their first hit in the shape of 'I'm Eighteen'. This caught the attention

of Warner Bros, which signed the band and funded grander stage shows and stunts – such as the mock execution of their frontman in an electric chair – as well as promoting their first hit album, 1971's *Love It To Death* (albeit with a cover that was censored).

With the addition of a snake mascot to adorn the cover of *Killer*, the full Alice Cooper audio-visual assault was fast building momentum. The stage was now

TOP: Photo of Cooper taken for Warners in 1972 (far left) and the front cover of the album showing the top of the school desk with the band's name and album title drawn in the shape of a heart

ABOVE: Solo shot of the singer from 1972, label of the original LP on Warner Bros (top), group shot taken in 1968, inside the gatefold sleeve showing the contents of the 'desk', and the LP with original paper panties

LEFT: The Alice Cooper group pose for a photo in 1973 to promote *Billion Dollar Babies*

set for Alice Cooper, the man, the band, the pantomime villain, to terrorise the pop charts.

Used on most other LP sleeves, the image of the band found within *School's Out* would have been enough to sell their music. A black and white photo shot by fashion photographer Roger Prigent saw the addition of a top hat to Cooper's person, the finishing touch to one of rock's most iconic stage characters.

He was stood, however, with his bandmates, around a trash can, seemingly in a state of advanced intoxication, like the droogs from *A Clockwork Orange* gone feral, one swigging from a bottle of beer, another seemingly about to hit us with some kind of club and... hang on a moment... is that one of them hiding in the bin? And is that a gun he's pointing at us?

SEE ME AFTER SCHOOL

By the time LP buyers reached that part of the package, though, they would probably have known just how parent-scaringly delinquent the band looked, as in most territories the image had previously adorned the picture sleeve of the huge hit single that launched the album. However, when it came to the LP ➡





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INVESTIGATION

THE BRAUN LEGACY

While *School's Out* may be a memorable sleeve, it's not the best-known of those that New York-based designer Craig Braun had a hand in. He kickstarted his career by selling the concept of adding self-adhesive stickers to album sleeves, trumpeting 'Includes the hit single...'. Later, he helped create a unique gimmick for *The Velvet Underground & Nico*, the 1967 debut by the New York art-rock pioneers mentored by Andy Warhol. The artist wanted to add an extra suggestive element to the packaging, and Braun offered a solution. 'I developed a special pre-coated label stock with removable adhesive', he explained, 'so when the banana was "peeled", the shocking-pink fruit was revealed!'

Braun says it was Warhol's suggestion to Mick Jagger that planted the seed for the famous sleeve of The Rolling Stones' 1971 LP *Sticky Fingers*, wherein the image of a man's jeans on the front cover featured a real zip, which could be unfastened to reveal an inlay featuring a strategically placed lips-and-tongue Stones logo (originally designed by John Pasche but further refined by Braun).

Braun also worked on sleeve designs such as *Led Zeppelin III*, The Who's *Tommy: As Performed By The London Symphony Orchestra And Chamber Choir* (which won a Grammy), and Cheech & Chong's *Big Bambu* (1972), which contained giant rolling papers inside. In 2001, however, he retired as Creative and Marketing Director at Warner Music, and is now a professional actor.



TOP: Original poster for an appearance by the band at the 3 Rivers Stadium in Pittsburgh on June 23, 1972

ABOVE: We're in the money... the group in a trade ad for the single 'No More Mr Nice Guy', released in March 1973

ABOVE LEFT: Cooper on stage in 2011 with an 8ft-long boa constrictor called Dali. Sadly, Dali died in 2013 of suspected pneumonia

RIGHT: The Rolling Stones' *Sticky Fingers* sleeve with real zip. The zips had to be amended so as not to damage the LP



CHRISTOPHE OCHAL



proper, that shot was housed in an altogether more elaborate package. The main cover image presented the top of a wooden school desk with the band members' initials scrawled on it, and a heart drawn on it emblazoned with the band name and album title. And then, it turned out, the sleeve of this album, named after a song that included the lyric 'We can't even think of a word that rhymes', had hidden depths.

'It caught people off-guard, I think, as it opens into a real desk with legs, inkwell, pencil grooves, etc', designer Craig Braun said in 2017. 'I carved initials and stuff in the wood of an antique desk I had someone source in downtown NYC, and then my staff put chewing gum on there.'

The idea may not have been entirely original as the 1971 album *Thinks: School Stinks* by Kevin Godley And Lol Creme's pre-10cc act Hotlegs, had a similar sleeve, designed by the pair, but Braun took the idea a few steps on. As well as the fold-out die-cut design, underneath, other contents of the 'desk' are pictured, including

marbles, penknife, a catapult, crayons, a comic book, some sort of note 'to alicia', the track list on a report card and album credits presented as if they're a school exam where you have to fill in the blanks.

KNICKERS IN A TWIST

There was another element to the US version of the album's release, that European punters were sadly deprived of. 'I wrapped the record in a pair of women's panties over the vinyl', Braun explained. For Cooper, this tied in perfectly with the concept of the sleeve. 'If you were 14-years old and on Monday morning you could sit at your

desk and produce a pair of panties, you were the man', Cooper said in 2012. 'They were probably your sister's, but it looked like you got lucky, which was probably a lie.'

It's said that those copies had to be discontinued because the panties were found to be flammable, but according to one account, there's more to the story than that. In *Billion Dollar Baby*, Bob Greene says that after the first consignment of

'It was said the panties were found to be flammable'

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ABOVE: Cooper in an MCA promo shot from 1988 (above) and on stage in 1973 on the *Billion Dollar Babies* tour

panties went out with early copies of the album, thousands more pairs were imported from the UK, and then held up at customs under the Flammable Fabric Act. Greene claims the band's manager Shep Gordon was well aware of this law and had anonymously called customs officials to warn them that the packages were arriving. The incident duly received international newspaper coverage and Cooper's notoriety spread.

Thanks to *School's Out*, Alice Cooper went from an increasingly big noise among underground rock fans to a global symbol of glam rock decadence. The sleeve had, of course, tied in with the band's whole aesthetic, their spectacular stage shows were a huge draw, and Alice himself

RIGHT: The singer poses for a publicity shot in 2011, taken by the British concert photographer Ross Halfin



had achieved that cartoon-character level of instantly recognisable, easily imitable infamy. 'We were bigger than ever', Cooper later reflected. 'I strolled onstage wearing a top hat and cane, and kids started wearing top hats and makeup on the back streets of London.'

GRADUATION OF AN ICON

The band would never have a hit quite as big as 'School's Out' again, but the album's follow-up, *Billion Dollar Babies*, repeated the LP's commercial success. After Cooper went solo in 1974, he too was unable to reproduce the same hit formula on record with quite the same impact, despite several more hits. But his notorious stage shows, and the visual persona that was set in stone with *School's Out*, have meant he really hasn't had to. The title 'the godfather of shock rock' is surely his for life. And kids may well be singing 'School's Out', well, for ever. ☺

COOPER'S COVERS

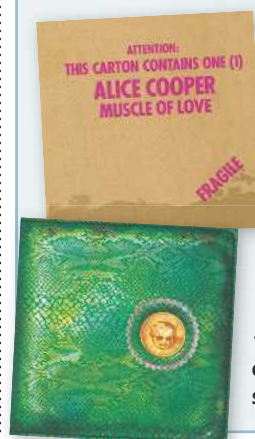
Alice Cooper the group and solo artist are actually two different entities, with the frontman parting ways with the band after seven albums in 1974. But it's the group's sleeves that first helped establish their glam-meets-gore audio-visual universe.

Their third album, 1971's *Love It To Death*, blueprinted the Alice Cooper sound as we would come to know and love it. But it was also housed in a risqué, androgynous sleeve photo of the band that looks for all the world like the template for sleaze-rock gang bands to come, from The New York Dolls through to Guns N' Roses. It saw Cooper with his finger protruding from his trousers as if it were something else entirely, even though, after 'I'm Eighteen' gave the band their first hit and Warners signed them, the image was censored on subsequent pressings [pictured top].

By this time the Baby-Jane-in-drag make-up was helping further enhance Alice's look, and, the *Killer* album sleeve [pictured above] introduced an important newcomer to the family. Inspired when a fan approached the group with a live boa constrictor at a show in 1971 and frightened the life out of the singer, he incorporated snakes into the band's stage act. A boa named Kachina appeared on both front and back covers of the album, dangled menacingly over his bandmates by its new owner, drummer Neal Smith. With a free calendar given away with the LP featuring Alice in a noose, the full show was now being reflected.

Subsequent band albums came in similarly inventive packages to *School's Out*. Their final LP before Alice went solo, 1973's *Muscle Of Love* comes in a brown cardboard package, deliberately stained to hint at its seedy contents [below left]. The inside then reveals the band outside an 'Institute For Nude Wrestling', only for a subsequent shot to depict them sprawled on the street, having been thrown out, a gorilla with a blonde wig having supposedly been responsible. Not as successful a concept, to be

fair, as the leather wallet-style gatefold of the album's predecessor *Billion Dollar Babies* [bottom left] from 1973. That came complete with a photo of the band by David Bailey in which they cradle white bunny rabbits in front of a stack of dollar bills while Alice holds a baby also wearing his trademark eye makeup. It was the best-selling album of their career – who knew that shock sold so well? Alice did.



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four-week issue schedule. But we did it... never missing one issue of the magazine or compromising the '*Hi-Fi News* Pledge':

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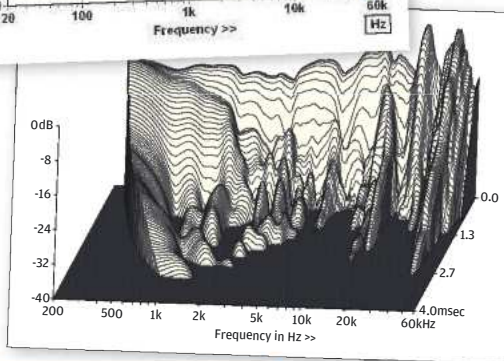
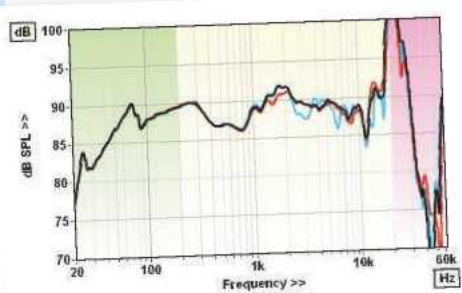
LEFT: Innovative, research-based test & measurement – with exclusive colour 'data visualisation' – underpins every review in *Hi-Fi News*. In every issue you will discover performance-determining facts that are unique to our reporting



ABOVE: 'Where would you like this?' Engström distributor Guillaume Boyer lands the first of two huge crates at *Hi-Fi News*, the flagship tube amps ready for unpacking, lab testing and extended auditioning [see p40]

truly independent evaluations. We do not release reviews to brands for 'fact checking' or other modification prior to publication. They read it when you read it.

5. Above all we respect our readers. You demand the best reviews informed by decades of experience, product knowledge and technical expertise. We endeavour to live up to that expectation.



IN THIS ISSUE...

LEFT: Only *Hi-Fi News* provides in-depth reviews of pristine vintage hi-fi, pictured and tested inside and out. Here's the laser and tray mechanism of the iconic Meridian MCD player [see p156].

RIGHT: Capturing the reference-quality pictures that grace our reviews is another specialised job. Here's the new DS Audio DS 003 optical cartridge, powered-up and dressed for its photoshoot [p46].



Engström ERIC Encore

With radical styling, serious room-heating ability and possibly the highest price per Watt ever seen in these pages, these Swedish power amps are the result of a family obsession
 Review: **Andrew Everard & Paul Miller** Lab: **Paul Miller**

To misquote Sly & The Family Stone just a little, Swedish hi-fi company Engström – it only makes tube amplifiers – is a family affair.

Founded by engineer Lars Engström and his industrial designer nephew Timo as recently as 2008, the company is based in Lund, just northeast of Malmö, and has its R&D HQ some 600km away in Nacka, south of Uppsala on the Baltic Sea coast. The division of labour in the company sees Lars Engström as chief engineer, having given up work in fields as diverse as navigation, microcomputing and railway signalling systems in 2001 to concentrate on amplifier development, while his nephew is responsible for the look of the products, and the company operations.

ON BOARD AT CES

Well, that's almost the story. Part of the company family, if not blood-Engströms, are board members Ihab Toma, who first encountered the brand at the 2010 CES in Las Vegas, and later went from client to

joining the business, and Chakib Sbiti who, the company says, 'enjoys his AC/DC on Engström-driven sound systems'.

The Engström product range is a family, too. This includes the Arne integrated amp, the Monica preamp, and Engström's inaugural power amp, the Lars – named after the founder. And the £136,950 ERIC Encore monoblock power amps we have here? The original ERIC model, of which this is an upgraded version – more of which later – took its name from the celebrated Swedish choral conductor and teacher, Eric Ericson (1918-2013).

It's fair to say no other amplifier we've encountered looks quite like the ERIC Encore, with its huge custom-made 'ski-slope' glass cover over the valve complement channelling air up past the two massive power triodes, and thus out through the vent at the 'high end'. And neither has any amp we've tested seemed so extreme, at least on paper. You see, while this may not be the most expensive power amp we've tested, that honour taken by the £250k D'Agostino Relentless Monoblocks [*HFN* Mar '20], it's almost certainly the priciest per watt (W).

You see, while the Relentless monos deliver 1600W/8ohm, or £156 per stereo watt, the ERIC Encores are rated at 70W apiece, so each stereo watt is costing some £1950! So they'd better be very good watts indeed for these amps to make any kind of sense. Fortunately for Engström, while the numbers may not seem to add

up on paper, the sound is something entirely different. But before that, we should explore under the hood with PM...

'There are two brightly-glowing ER845 power tubes'

UNDER GLASS

The 65kg weight of the ERIC Encore is largely

divided between the custom German-sourced glass, the machined alloy plates that form the chassis and last, but certainly not least, the host of coupling and PSU transformers that fill its interior, writes Editor PM. The first version of the ERIC – as

BELOW: Multiple PSU, interstage coupling and output transformers fill the ERIC Encore's alloy-clad frame chassis. Tubes, from the left, are the GZ34 and 4x6CH3 (PSU rectification), 2x6C8010, 2x6L6GC and the pair of huge ER845 triodes





ABOVE: Assembled with precision, and with a frosted glass top-plate complementing the huge protective glass cover, Engström's ERIC Encore is an 'audio art installation' in its own right. But never be tempted to run it 'naked' [below]

still seen on Engström's website – used an 845 power triode sourced from KR Audio (called the T100) but the Encore version uses a new tube from Germany's ELROG. This is an exquisitely hand-prepared tube and clearly built to last (scroll to the bottom of <http://vinylsavor.blogspot.com/search/label/ELROG> for pictures and videos). Nevertheless this was not a straight '845-swap' [see Interview sidebar, p43] but necessitated a fairly significant reworking of the entire output stage.

But let's start at the input. Here there's a switch to select between RCA and XLR sockets, both routed through a Lundorf transformer, and a third position labelled 'DIR' that connects directly to the EC8010 frame-grid triodes. These are configured as a long-tailed differential pair that's capacitor coupled, using 'audiophile' foil and Teflon SCR caps from France, to the driver stage. The latter comprises a pair of 6L6GC beam-power pentodes, wired as triodes here, in a balanced configuration that's transformer-coupled to the main power amp stage.

GLORIOUS GLOW

Here's where we find the brightly-glowing ELROG ER845 power tubes, one push-pull pair per side connected to the outside world via a custom-wound transformer. These heavyweight lumps of iron and copper include two secondary windings that are connected in parallel to achieve 4ohm or in series for a notional 16ohm tap. A different output

transformer is selected if the ERIC Encore is ordered in its 8ohm guise.

More transformers service the various power supplies. The largest, also with custom windings, is centre-stage in the 1kV (1000V) HT supply for the ER845s. In practice there are actually *two* mains transformers connected in series, with four 6CH3 tubes forming the bridge rectifier and filtered via two chokes and three 1500V polypropylene capacitors. The other power supply is a 400V line for the driver stage with its own mains transformer, GZ34 rectifier, choke filter

and polypropylene capacitor. There's also a choke-filtered DC filament supply for the input gain stage, regulated down from the 400V PSU – as close to 'solid-state' as you'll find in the ERIC Encore!

As I mention in my Lab Report [p45], while Engström makes no special claims for Class A operation – a refreshing modesty in its own right – the performance of these fully balanced/push-pull monoblocks suggest they are exactly that. But, once switched on, running at 185°C and 1000V, and drawing 430W from the wall apiece, these precious ➔





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LEFT: The thickness of Engström's two-piece glass cover is evident here. The shape and gaps are part of a 'chimney' design that draws air from the rear, venting up and out

bottles should never be left unattended or used without the purpose-designed glass hood installed.

THE HOT SEAT

Fortunately, we did much of our listening to the Engström power amps over a few relatively cool days, and with windows open in PM's main room, writes AE. So while the amps' thermal characteristics may be welcome in the Swedish winter and a bit of a problem in a globally-warmed English summer, their sound – connected between PM's Melco/dCS Vivaldi One front-end [*HFN* Feb '18] and B&W 800 D3 loudspeakers [*HFN* Oct '16] – was worth every bit of the inconvenience, with its combination of massive weight and pure, organic musical flow.

Opening our account with Gregory Porter's *Liquid Spirit* [Blue Note 0602537410538] the ERIC Encores warmed to their task in minutes, more than living up to the title of the album, sounding gorgeously lush and refined, but never slow or leaden. Instead, they delivered crisp, tight rhythms allied to a sonorous, close-focused view of Porter's voice.

And as if that didn't tingle the spine enough, playing Kate & Anna McGarrigle's *Dancer With Bruised Knees* [Warner Bros 7599-25958-2] showed the Encores to be capable of bags of detail and definition, while bathed in a lovely warmth. There was a beautiful, natural generosity to the sisters' impeccable and delightful harmonies, everything in the mix sounding

'A big, warm, free-breathing view of the performance'

clear and with mesmerising presence, but without a sense of being over-analysed.

Switching musical style to the 2014 Gustavo Dudamel recording of Mahler's 3rd [Berliner Philharmoniker Recordings] and the ERIC Encores instantly delighted with their big, warm, free-breathing view of the performance. And there *is* that sense

of performance, thanks to the massive bass weight available here, the fabulous rosin bite to the low strings and the silky violins, and the feeling of space and air around the performers. Despite 'only' 70W per channel driving the

speakers [see PM's Lab Report, p45], the amps are more than capable of generating realistic listening levels while still having plenty in reserve to deliver a palpable, explosive power when required.

OMINOUS AND AWESOME

That glorious orchestral ability was in evidence with the latest Max Richter set, *Exiles* [DG; 48kHz/24-bit download]. The entire programme is a spine-tingler, but the closing 'The Haunted Ocean' benefits from that remarkable bass weight, while fine detail in the playing of the Baltic Sea Orchestra paints the atmosphere with great ominous sweeps of instrumentation above that menacing low-end. It's chilling, thrilling – and magnificent.

The ability of these amplifiers is truly wide-ranging. Loading up the recent 50th anniversary release of George Harrison's ➔

LARS ENGSTRÖM

Lars Engström is the CEO and chief designer of Engström, a position held for the last 15 years in what is essentially a 'family' company supported by external investment [see p40]. Editor PM asked Lars about his love of triodes. 'For me it began in 2001 with Lynn Olson's designs [www.nutshellhifi.com/triode1.html].

'I was not especially convinced by SET operation, so went the fully balanced, push-pull route. Every stage in our amplifiers is fully balanced. Normally we use transformer-coupling between driver and output stage and capacitor-coupling between input and driver. Our integrated amp, the ARNE, is DC-coupled but this is the exception.'

And why the change of output tubes for this 'Encore' version of the ERIC? 'Our customers wanted the ability to tube roll with other 845s but the design around the original KR triode would not permit this. With the Encore, you *can* use alternate 845s, although we recommend the (very expensive) tubes that we have selected.'

Engström is also on the trail of what it calls the 'Scandinavian sound' which informs much of the Encore's voicing. 'During our sound tuning we use Marten Parker Trio loudspeakers with an Audio Research CD7 CD player and a "vintage" Thorens TD 125 from the 1970s', reveals Lars. 'I even have a TD 124 at home – I like Thorens!', he says.

Lars also revealed a new product. With one integrated, one pre and two power amps in the range, these will soon be joined by an all-tube MM/MC phono preamp later in the year. Price? If you have to ask... PM





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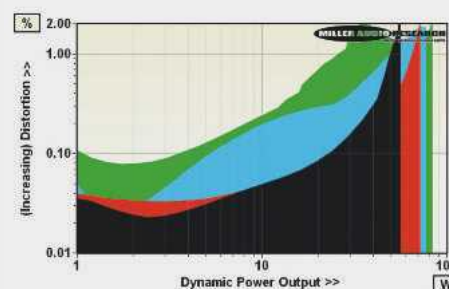
Renaissance ESL 15A

LAB REPORT

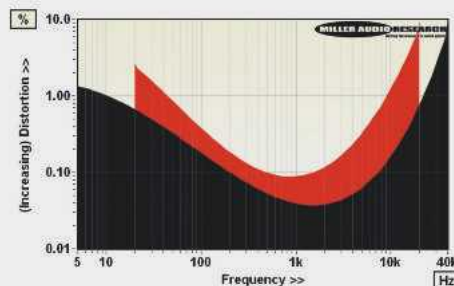
ENGSTRÖM ERIC ENCORE

This fabulous example of 'audio architecture' is ordered with either 8ohm or 4ohm output transformer secondaries – our sample, judging by the 72W/4ohm power delivery, was configured with the latter. Into 8ohm, the ERIC Encore delivered 56W with 56W, 72W, 78W and 83W achieved under dynamic conditions into 8, 4, 2 and 1ohm [see Graph 1, below]. This equates to a maximum current of 9.1A which is not unreasonable for a pair of 845 tubes operating with a 1000V plate voltage. These tubes are running as close to Class A as practical – the power consumption at idle and full 70W output unchanged at 430W while the 185°C triode temperature cools under load. Anyway, all my power figures were obtained with a slightly relaxed 2% THD limit although, as Graph 1 also illustrates, the amp is clearly optimised for 8-4ohm loads with distortion increasing markedly into 2 and 1ohm. At 1W/8ohm distortion is as low as 0.04% through the midband, increasing to 0.09% at 10W/8ohm, but jumps up at HF to reach 1.2%/10kHz and 9.1%/20kHz/10W [see Graph 2, below].

The 1.45-1.26ohm (20Hz-20kHz) source impedance of the '4ohm tap' will have some impact on damping and system freq. response, depending on choice of speaker, but the bandwidth of the amplifier – flat to within ± 0.5 dB from 48Hz-45kHz and -10.5dB/60kHz – is otherwise set by one of the interstage coupling transformers. Overall gain is a sensibly modest +26.3dB (balanced XLR input), requiring an 810mV input to raise the rated 70W/4ohm output. However, a moderate (rectifier) noise of -51dBV pulls the A-wtd S/N down to 76.2dB (re. 0dBW) – comparable with a vinyl rather than 'digital' system. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max current is 9.1A



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

HI-FI NEWS SPECIFICATIONS

Power output (<2% THD, 8/4ohm)	56W / 72W
Dynamic power (<2% THD, 8/4/2/1ohm)	56W / 72W / 78W / 83W
Output impedance (20Hz-20kHz)	1.45-1.26ohm
Freq. response (20Hz-20kHz/100kHz)	-0.85dB to -0.1dB / -9.8dB
Input sensitivity (for 0dBW/70W)	140mV / 1100mV (balanced)
A-wtd S/N ratio (re. 0dBW/70W)	76.2dB / 95.0dB
Distortion (20Hz-20kHz, 10W)	0.085-9.1%
Power consumption (Idle/Rated o/p)	430W / 430W
Dimensions (WHD, each) / Weight	360x480x750mm / 65kg (each)



LEFT: Three-position rotary selects between transformer-coupled RCA and XLR inputs, the latter bypassing the transformer when in 'DIR' mode. Below there's a huge ground/earth post and to the right a single set of 4mm Furutech speaker cable binding posts

Rodgers & Hammerstein
At The Movies
[Warner Classics
3193012], which utterly delighted with its propulsive detail and the

All Things Must Pass [Universal 192kHz/24-bit download; n/a cat. no.] their big, substantial sound makes the most of these remasters, from the catchy and very '70s pop of 'What Is Life?' to the anthemic 'My Sweet Lord'. The latter grabs the attention with the opening acoustic guitar, seducing with the string sound on the celebrated riff and bringing out all the character of Harrison's vocal.

There's a very real sense of hearing deeper into this wonderfully rich and multitextured mix, even distinguishing individual voices in the first entry of the backing vocals, after which the track really shifts up a gear in a very obvious fashion. And the ERIC Encore's ability with dense mixes and characterful performances is also heard to good effect with Gov't Mule's live *Dark Side Of The Mule* [Provogue/Mascot PRD 7446 5], the remarkable guitar of Warren Haynes on 'Shine On You Crazy Diamond, Pts 1-5' cascading through a solid, three-dimensional soundstage, thanks to the blend of focus and warmth here. Even better, the presentation remains clean and tight when cranked.

THAT'S A WRAP

Enchanted by their sound, we rounded up our last session with two favourite test tracks. The first was the dense and richly detailed performance of 'The Carousel Waltz' from The John Wilson Orchestra's

sense of conductor and orchestra having an absolute ball.

The other? 'The Dance', from the London Chamber Orchestra's 1989 recording of Nick Bicat's *Under The Eye Of Heaven* [Virgin Classics LCOCOD 1], which can sound thin or even tinny on some systems. Here the bass weight and insight ensured a real sense of punch in Christopher Warren-Green's solo amplified violin, the sparkling percussion and the deep, hard-hitting bass and drums.

The pounding yet very clean sound brought back the thrill of hearing the piece performed live at Hammersmith Odeon back in 1990, and the poster simply saying 'Classical Music Bloody Loud'. And, yes, that's just what these Engström flagships delivered! ☺

HI-FI NEWS VERDICT

The rarity, price and domestic impracticality of these amps means few will ever hear them. But the payback for all that is a presentation that's both captivating and enthralling, and seemingly designed to challenge all the old clichés about what valve amps do (and don't) do. If you do get the chance to hear them, you really should do so, for they sound every bit as glorious and unique as they look.

Sound Quality: 89%



DS Audio DS 003

With the DS 003, DS Audio delivers its 3rd generation technology in a system one-tenth the price of its flagship Grand Master. Can it hope to offer a taste of its authority?

Review: **Ken Kessler** Lab: **Paul Miller**

Attesting to what I firmly believe is a 'hi-fi truth' – that differing technologies have innate sonic traits, eg, valve vs transistor – is this latest DS Audio 'optical' cartridge, the £4995 DS 003 with matching energiser. It replaces the £5050 DS 002 [*HFN* Jun '17], so there's even a slight price reduction.

DS Audio cartridges certainly possess a family sound. Seasoned audio enthusiasts might agree that all the various types – MM, low- and high-output MC, strain gauge, Decca/London, moving-iron, moving-flux, and in this case optical – all exhibit specific characteristics. Cantilever material and stylus profile offer some differentiation within a given range and so it is here, in part, with the new DS 003.

MATCH POINTS

Fitted to the DS 003 are an aluminium cantilever and line-contact stylus, contrasting with the outgoing DS 002 (same cantilever but Shibata stylus) and the Master 1 [*HFN* Dec '17] with its sapphire cantilever and Micro Ridge stylus. It's also possible to 'mix 'n match' within the DS Audio catalogue as all the company's cartridges work with all of its energisers, so in *reduction ad absurdum*, one could feed the £13,795 Grand Master [*HFN* Feb '21] into the £1481 DS-E1 [*HFN* May '19] energiser, or vice versa – the £1162 DS-E1 cartridge into the massive two-chassis £39,900 Grand Master energiser.

I tried the DS 003 with both the DS-E1 and Master 1 equalisers to gauge the performance of the DS 003EQ, which sits in between them in the catalogue. It's worth noting that existing owners of a DS Audio pick-up or equaliser can purchase either the DS 003 cartridge or DS 003EQ equaliser separately, the cartridge costing £2298, the equaliser £3147. Purchasing them together saves £450.

RIGHT: Inside the DS 003EQ energiser/ equaliser showing screened PSU transformer [under cover, left], 5x33,000µF/25V electrolytics per channel [lower right] with equaliser/bass filter and active preamp output [top right]

I find the differences between DS Audio cartridges to be far greater than the differences between the various energisers/ equalisers. Suffice it to say, each cartridge works perfectly with its matching energiser in terms of value and overall balance, but don't let that stop you from purchasing, say, an DS-E1 cartridge with a DS 003EQ, or a Master 1 with a DS-E1 energiser.

Company President Tetsuaki 'Aki' Aoyagi [see boxout, p47] has confirmed there's a trade-in policy for owners who wish to upgrade cartridge or energiser, so you will never be stuck with either, as each can accommodate the upgrading of the other.

As for the differences between the DS 002 and DS 003, the latter really is a new model rather than a refinement. It represents the 3rd generation of DS Audio's

optical technology [described in great detail by Editor PM in all our previous reviews] and employs the main cartridge mechanism from the flagship Grand Master.

LIGHT WORK

Cantilever and stylus mark the territory

between the two, as does body material. The Grand Master uses a diamond cantilever and Micro Ridge stylus, with a body of 'ultra duralumin', while the DS 003 uses the aforementioned aluminium cantilever and line-contact

stylus, with aluminium body. Inside the DS 003 is a re-designed optical system with independent LEDs and photo-detectors for the left and right channels, providing a claimed increase in output voltage from 40mV to 70mV. DS Audio also claims an

'The guitar playing exists in its own dimension'



RIGHT: Alloy body and top plate with threaded lugs ensures the DS 003 can be bolted tight. Decorative LED strip is separate from the internal LED that 'powers' the photocells and generates the audio output

improved signal-to-noise ratio and reduced crosstalk [see PM's Lab Report, p49].

A smaller beryllium shading plate [this modulates the light falling on the photocells] brings a 50% weight reduction, down to 0.74mg, with a substantially different shape. This is said to be less than 1/10th of the mass of an MC cartridge's core and coil system. The DS 003's internal wiring is also 1.6 times thicker than in previous models, to lower its impedance.

As for the DS 003EQ, DS Audio has increased the thickness of the PCB from 1.6mm to 2.0mm and copper foil from 35µm to 70µm over that of the DS 002 equaliser. The DS 003EQ provides four levels of cut-off for the low-frequency range, via two sets of RCA outputs and a two-way toggle selector.

NEW EARS

Aside from the shallow body, which will either necessitate lowering the arm (with care not to foul the LP edge with tapered tonearms) or to use spacers, the DS 003 is incredibly straightforward to deploy. The pins are colour-coded, and the tracking force is absolutely spot-on at 2.1g.

Choice of bass roll-off is a matter of system matching, especially when moving from big floorstanders to small two-ways like LS3/5As. That's because this cartridge delivers massive amounts of lower octave action – so powerful that I heard my system with new ears. The Wilson Sasha DAW [HFN Mar '19] is even more 'massive' down below than I realised, especially after playing the Jimi Hendrix collection *Voodoo Child* [Classic Records RTH-206].

What drew me to it was an article I had seen recently about rock trios in which one member overshadowed the other two, *eg*, Clapton in Cream. What the author explained with utter lucidity was the worth of Noel Redding and Mitch Mitchell on bass and drums respectively.

BELOW: The sculpted alloy faceplate and profiled casework of the DS 003EQ is clearly modelled on the much larger Grand Master EQ



INSET: (Below) DS Audio's line-contact stylus mounted into the crimped end of its alloy tube cantilever (pictured at x30)

From the opening notes of 'Purple Haze' through all eight sides (except for, of course, a few Band Of Gypsies tracks), the article was validated, both musicians driving Hendrix along, not merely complementing him.

From little fills to cavernous thunder, the DS 003 extracted all the bass energy and percussive slam with richness and control, sounding like a cross between a classic Japanese moving-coil and a Decca. I was reminded of the latter's speed, attack and precision, but that was not all. There was an uncanny, Koestu-esque fluidity which manifested itself in the strangest way.

Let's not be coy: early Hendrix LPs were in many ways 'kitschy psychedelia' thanks to lots of weird left-right panning and level phasing. The DS 003 expanded the soundstage and created within it a consistency that allowed the panning to be accomplished with the smoothest travel you could hope to hear, eschewing dead

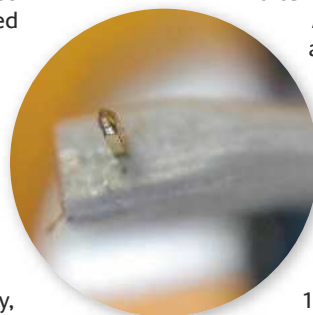
areas, while the in-out phasing was equally effortless. This authority also enhanced the front-to-back depth experience of, er, the Experience, so even though the gimmicky effects are dated, you hear without obstruction how the musicianship remains – after 50-plus years – without peer.

And if you want to understand atmosphere, listen to 'The Wind Cries Mary' via the DS 003, and hear how the guitar playing seems to exist in its own dimension – not merely its own space.

SILKY CUT

More conventional is the 1972 orchestral version of the *Who's Tommy* [Ode SP99001],

which remains unnecessary, as the original release was majestic enough. Whatever the reason, Pete Townshend sanctioned this performance of the rock epic with A-list guests – Rod Stewart, Ringo Starr, Richie Havens, Maggie Bell, Merry Clayton, Richard Harris, *etc* – backed by the LSO. It would be followed by the film soundtrack, a live performance from a few

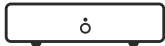


TETSUAKI AOYAGI

DS Audio's Tetsuaki Aoyagi (Aki) was a certified accountant before joining Digital Stream Co., Ltd. Says Aki, 'I studied accounting and management because I was thinking of starting a business, making products no-one had ever created, but my knowledge of engineering came from product development at DS Audio'.

Aki was not a traditional 'hi-fi guy', but his initiation was also a revelation. 'One day, a company advisor, an audiophile, invited me to listen to some LPs because I had never heard vinyl at that time', remembers Aki, 'the first song he played was Michael Jackson's "Thriller". I was shocked by the sound, so much better than my iPod! I could not believe it.' Watching the LP spin and seeing the cartridge glow, Aki was converted. 'It was a Toshiba C-100P optical cartridge and I asked him why it lit up. He explained the technology and gave me a C-100P.'

Impressed by the long-out-of-production device, Aki thought, 'If I make an optical cartridge with current technology [LEDs and photo-detectors], the sound should be even better. This would make many people happy – just what I was looking for!'. Development of optical cartridges began the very next day, Aki launching the company DS Audio in 2013.



into — the — groove

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To get you into the groove

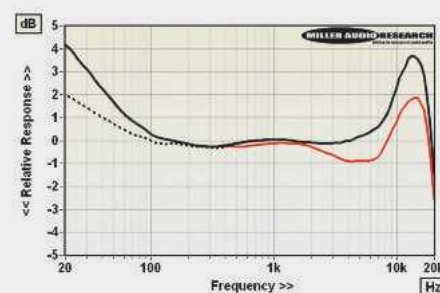


MM and MC || Subsonic Filter || System matching || Auto standby || Balanced (XLR) output

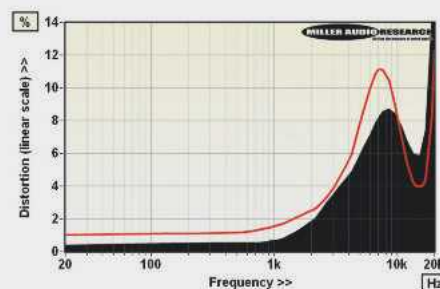
DS AUDIO DS 003

Like the DS-E1 [HFN May '19] and earlier DS 002 [HFN Jun '17], the DS 003 may employ a basic crimped alloy cantilever but its line-contact stylus has more in common with the former (Shibata) than the latter (elliptical). Its tracking performance beats both, however, not least because the downforce range has been increased from 1.6-1.8g to 2.0-2.2g in the third-generation DS 003 and Grand Master [HFN Feb '21] 'optical' pick-ups. Unlike the DS 002, the DS 003 cleared the maximum 80µm groove pitch (75µm on the right channel) and the most severe +18dB modulation (315Hz lateral cut, re. 11.2µm) at 1.7% THD.

Says Aki [see boxout, p47], 'In the 2nd generation vibration system, the distortion rate was consistent regardless of the stylus pressure, but in the 3rd generation, the distortion rate decreased when the stylus pressure was increased.' In practice distortion is slightly lower at 1.5% (DS 003) vs. 1.7% (DS 002; 1kHz/5cm/sec) but trends higher at 0.55-15% (20Hz-20kHz, -8dB re. 5cm/sec) vs. 0.45-10% for the lateral cut [see Graph 2, below]. The latter is as much a function of the DS 003's improved HF frequency response where the +7dB/12kHz peak from the DS 002 is traded here for a less aggressive +2dB (left)/+3.8dB (right) boost at a higher 14kHz [see Graph 1, below]. The symmetry between lateral [L+R, black traces] and vertical [L-R, red traces] is also excellent while the stereo separation is improved by a huge 10dB (25dB to 35dB) – both clear benefits of the 3rd gen dual optics/shading plate mechanism. Finally, as we've seen before, bass output is also boosted, reaching +4dB and +2dB/20Hz via 30Hz and 50Hz settings (first-order roll-off selected). PM



ABOVE: Frequency response curves (-8dB re. 5cm/sec) lateral (L+R, black, 30Hz cut; dashed, 50Hz cut) versus vertical (L-R, red, 30Hz cut)



ABOVE: Lateral (L+R, black fill) and vertical (L-R, red) tracing and generator distortion (2nd-4th harmonics) vs. frequency from 20Hz-20kHz (-8dB re. 5cm/sec)

HI-FI NEWS SPECIFICATIONS

Generator type/weight	Photo-optical / 7.7g
Recommended tracking force	2.0-2.2mN (2.1mN)
Sensitivity/balance (re. 5cm/sec)	940mV / 0.80dB (from Eq unit)
Compliance (vertical/lateral)	15cu / 18cu
Vertical tracking angle	25 degrees
L/R Tracking ability	75µm / 80µm
L/R Distortion (-8dB, 20Hz-20kHz)	1.2-12% / 0.55-15%
L/R Frequency resp. (20Hz-20kHz)	+2.0 to -6.0dB / +3.8 to -1.5dB
Stereo separation (1kHz / 20kHz)	35dB / 25dB



ABOVE: Rear view of the DS 003EQ PSU/equaliser. The pick-up's internal LED is powered via the R- and L- pins while the output is returned via R+ and L+, all via the 'Input' RCAs. The equalised outs are filtered at 30Hz or 50Hz (steeper via output 2)

years ago, and who knows what else, but this oozes pedigree despite it now being redundant.

And what a sound! The grandiosity matches the LSO's more traditional fare, and through the DS 003 it called to mind, of all things, some of the better-sounding Arthur Fiedler and The Boston Pops open-reel tapes. The feel was silky, with that inimitable air possessed only by opera and Broadway stage recordings. As it's 50 years old, the voices have changed, especially Stewart's, but the sonority and diction of the inimitable Richard Harris emerged so lifelike from the system that I was compelled to hook up LS3/5As to make sure I was hearing such authenticity.

ULTRA CRISP

More pointless than an orchestral version of *Tommy* is the 2020 'reimagining' of a masterpiece. Yusuf/Cat Stevens (yes, that's how he's billed) and the original producer, former Yardbird Paul Samwell-Smith, re-recorded *Tea For The Tillerman*² [Cat-O-Log Records 02508 88695] with mainly leaner arrangements. The DS 003 revealed that his voice has altered less over

the decades than has Stewart's, while the instruments' harmonics were breathtakingly convincing.

Again, the DS Audio technology – here come the traits – demonstrated background silences, openness, freedom from fatigue and anything else that could mar such crystalline sound. This was evident on every track of the mono remastering of The Turtles' *Golden Hits* [Demon DEMREC628], capturing Johnny Barbata's ultra-crisp drumming and new-to-me low-level details in the impossibly familiar 'Happy Together'.

If one is lucky enough to listen to a world-class component, there's usually a watershed moment, one of a revelatory nature that tells you when something truly is special. For the DS Audio DS 003, it arrived with both the discoveries among The Turtles' tracks, but especially the remastered *Ladies Of The Canyon* from the box set, *Joni Mitchell – The Reprise Albums 1968-1971* [Rhino R1653984].

Mitchell possesses a voice of such unique clarity and fragility that it is immediately recognisable, while 'Big Yellow Taxi' is a song I've heard so many times I thought I knew every millisecond. The DS Audio DS 003 performed the miracle that elevates a component from the merely superb to the magnificent: it made the song sound like I was hearing it for the first time. I am smitten. ☺

HI-FI NEWS VERDICT

The DS 003 shows emphatically how trickle-down technology benefits the customer, while maintain a pecking order. As close as it is to the mind-boggling Grand Master, enough differences ensure that the two can co-exist: the DS 003 is the more lively of the two, the Grand Master the more subtle. That said, if you can afford a Grand Master, buy it. If you cannot, the astonishing DS 003 will still blow your mind.

Sound Quality: 90%



ABOVE: Alloy cantilever and fulcrum/suspension arrangement is visible here. Cartridge pins are gold-plated and usefully spaced. Power for the internal LED is supplied via green and blue pins

Monitor Audio Silver 500 7G

Hot off the production line, this flagship of MA's 7th-gen Silver range marks a significant uplift in performance

Review: **Mark Craven** Lab: **Paul Miller**

By now, there's surely not an audiophile alive who doesn't know that Monitor Audio's Platinum loudspeaker series is its pinnacle, and that as you move down through Gold, Silver and Bronze the prices become friendlier and the technology trickles. Silver – a range that's been rolling for over 20 years – represents the sweet spot in this hierarchy, and, says the UK company, is its most popular series. Judging from the performance, build quality and elegant design of the £1725 Silver 500 7G, I can't imagine this popularity waning.

The '7G' suffix is important, as it denotes this three-way floorstander is from Monitor Audio's fresh-from-the-factory seventh generation lineup that launched in August. The Silver 6G models [*HFN* Mar '18] are discontinued but the naming conventions have been retained, so the Silver 500 7G is a direct replacement for the Silver 500 6G.

It's the largest and costliest speaker in the series, joined by slimmer floorstanders (the Silver 300 and '200) and standmount/bookshelf models (the Silver 100 and '50). All feature upgrades to drivers, crossover, and cabinet/finish, so while this is another case of evolution not revolution, there's still more going on than meets the eye.

STRUCTURAL ENGINEERING

The woofers and midrange debut the mkII versions of Monitor Audio's Rigid Surface Technology (RST) drivers. These feature C-CAM using a new aluminium alloy to improve tensile strength, and a hexagonal dimpled profile derived from the RDT (Rigid Driver Technology) units in the company's Gold 5G stable [see PM's boxout, p51]. The RST II units also sport updates to the driver surrounds, plus a switch from ferrite to neodymium on the midrange magnet and a wider diameter voice-coil for the woofers.

Interestingly, while the C-CAM bass drivers are again 200mm (including the surrounds), Monitor Audio has downsized

the Silver 500 7G's mid from '4in' to '3in' (actually a 76mm cone with 100mm chassis) in pursuit of improved directivity and better extension/integration with the loudspeaker's gold dome C-CAM tweeter. This high-frequency unit is also a new concoction, benefiting from a ring magnet, rear-vented surround, and patterned grille optimised to work with its second-generation Uniform Dispersion Waveguide.

All of the Silver 500 7G's driver assemblies are mounted to the cabinet via a bolt-through connection, which provides further rigidity to the internally braced, twin rear-ported MDF enclosures.

ON TREND

Inside there's also a new crossover, which the brand says was designed concurrently with the Silver 500 7G's drivers, one project informing the other. Ceramic resistors, polypropylene and polyester capacitors, and air-core and steel-core inductors are used across an optimised three-way (800Hz/2.7kHz) network.

For £1725, these floorstanders are rather imposing. If you want a loudspeaker that will fit neatly in a small/mid-sized room, investigate the Silver 200 or 300 models, as these use 156mm woofers and so don't have this cabinet's 23cm girth. The Silver 500 7G enclosure is deep too (33cm), and once Monitor Audio's new – and smart – moulded ABS outriggers are attached you'll have lost a lot of floorspace.

It's useful, then, that the new styling of this seventh generation is right on trend. Monitor Audio describes it as 'crisp-edged', but that sells it short. There are no curved faces, but corners are smooth and the

RIGHT: Available in High Gloss Black, Satin White (pictured), Natural Walnut, Ash and Black Oak, the MDF cabinet is traditionally braced and further reinforced via MA's 'bolt through technology' which connects the rear of the driver magnets to the back panel [see pic p53]



DRIVING HISTORY

Monitor Audio has pursued the ideal of very light, stiff drivers since the R852MD standmount with its alloy tweeter in 1985, followed by the 'gold dome' in 1986 and the ceramic sandwich mid/bass driver that appeared in the Studio 10 in 1989. The first of what we would recognise as MA's C-CAM (Ceramic-Coated Aluminium/Magnesium) drivers appeared in the Studio 20 in 1991. Marking this 30th anniversary, the latest C-CAM and RST II (Rigid Surface Technology) drivers in Monitor Audio's Silver 7G series are the result of 'trickledown' from the previous 5th-gen Gold series. The dimples that serve to enhance both the physical structure and moderate the resonant behaviour of the RST II bass and bass/mid cones are hexagonal, rather than circular, in shape here. The alloy itself has been changed to offer greater tolerance of the increased forces during moments of high excursion, maintaining performance at even higher levels without increasing the mass or thickness of the cone. The 'C-CAM' component refers to both the alloy and oxide coating used across all its drivers, including the gold-coloured 25mm tweeter. For the latter, this brings exceptional stiffness that, almost inevitably, yields a vigorous breakup mode outside the audioband, here at 31kHz [see Lab Report, p53]. PM

finish of our 'High Gloss Black' and 'Satin White' samples was spectacular. There are three other colourways to choose from: Black Oak, Natural Walnut and Ash variants that dress the cabinet in real wood veneers. The last of those is intended to evoke the 'Scandinavian look', so ABBA fans should hunt it down.

TO BOLDLY GO

My most recent experience with the Monitor Audio 'house sound' was the sixth-generation Bronze 200 floorstander [HFN Jun '21]. Like the fool that I am, I wondered how much similarity I would detect between that loudspeaker and the Silver 500 7G, before realising that there's not just a circa-£1200 price difference, but a huge however-you-measure-it gap in the sound quality.

This speaker makes far more of an impact than does its entry-level brethren – its sound is bigger, bolder and more mature, and it has the ability to disappear from your mind when listening to music. With the right material, it engineers a wide, deep and seamless soundstage. The 50-litre cabinet and dual woofers delivers authentic, room-filling bass that melds with an evocative midband performance. It's a knockout.

LEFT: Removing the grille reveals a 25mm C-CAM 'Gold' dome tweeter (with 'UD Waveguide') crossing over at 2.7kHz to a 76mm C-CAM midrange that, in turns, hands over to a pair of 200mm C-CAM bass drivers at 800Hz. The cabinet is supported on sturdy outrigger feet

'There Will Come A Time' [*Monsters Exist*; ACP Recordings ACPCD1804, 44.1kHz/24-bit] is one of electronic duo Orbital's oddest yet most involving tracks. Some of it is par for the course – fluid synthetic orchestration, effects panned across the stereo spread – but it's joined by a spoken word narration by science boffin Professor Brian Cox. His is a voice I know well, and the way the Silver 500 7G positioned him dead-centre, a floating presence dispensing words of wisdom while behind him keyboards flanged and drums thumped, was almost hypnotic.

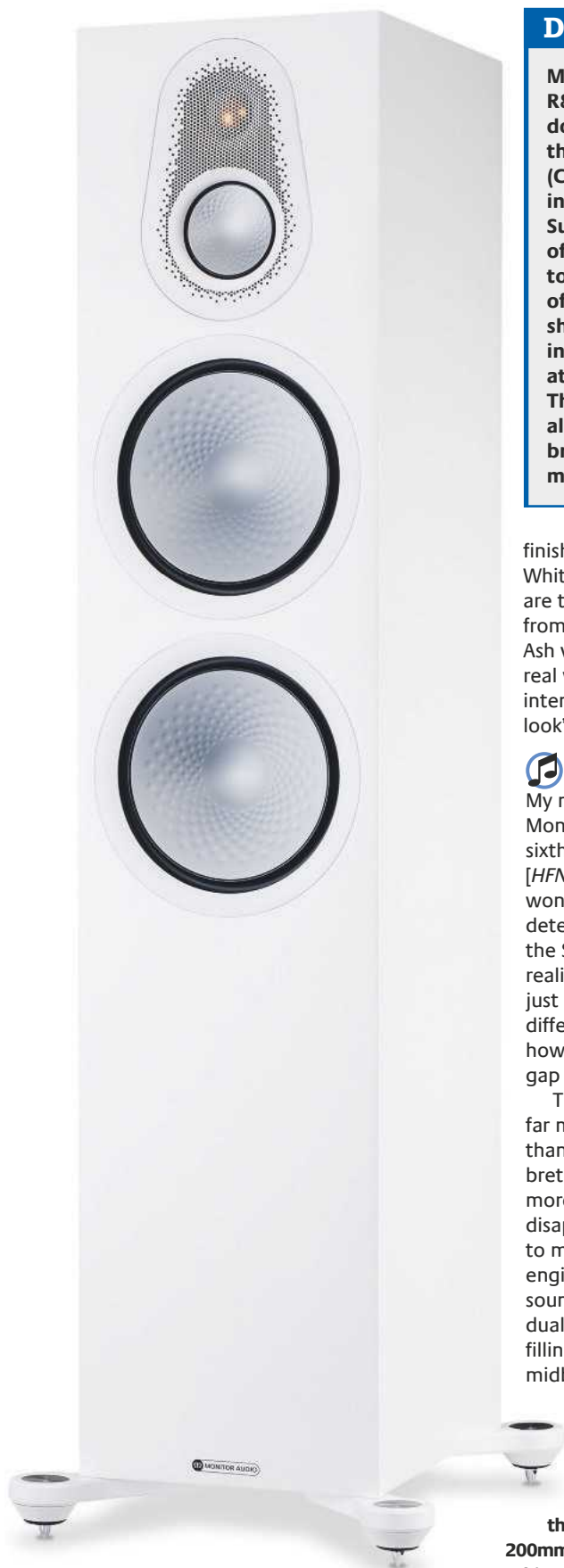
Key here was the Silver 500 7G's scale. Sometimes with smaller floorstanders

I find myself leaning in; with this pair I was leaning back, letting everything wash over me. Even a more down to earth track such as REM's 'Houston' from *Accelerate* [Warner Bros 9362-49874-1] benefited from the speaker's air-

'Its ticket price looks like an absolute steal'

shifting output. And while this isn't a slick recording, due to a purposefully pressurised studio process, it sounded far more considered than I remembered, as the Silver 500 7G revealed both the detail in the percussion and in Michael Stipe's vocal, while giving its cello notes impressive timbral bite.

'Ai Du', from Ali Farka Toure and Ry Cooder's collaborative album *Talking Timbuktu* [World Circuit WCD 040] approached the honesty and intimacy of a live performance, and Monitor Audio's floorstander put on a show that made its ticket price look like an absolute steal. This jazz/blues fusion runs the gamut from buoyant basslines and calabash drums ➔



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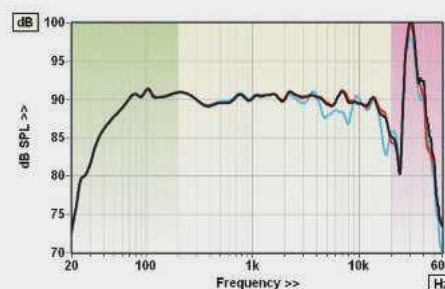


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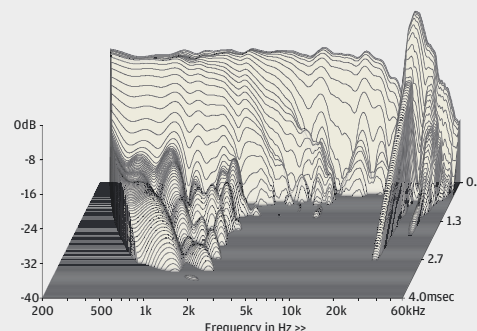
MONITOR AUDIO SILVER 500 7G

Measured at the average listening height (just below the C-CAM tweeter) the '7G' Silver 500's response is remarkably flat and even [see Graph 1, below] with an exceptionally low $\pm 1.0\text{dB}$ error from 200Hz-15kHz, the $-9\text{dB}/24\text{kHz}$ treble dip increasing this to $\pm 3.8\text{dB}$ across the wider 200Hz-20kHz span. The HF response limit of 22.6kHz ($-6\text{dB}/10\text{kHz}$) is set by this 'dip' although this is only the prelude to the $+10.6\text{dB}$ resonance of the hard dome at 30.9kHz [pink shaded area, Graph 1 and also see Graph 2]. Pair matching is also exceptional at 0.4dB (200Hz-10kHz) and 0.6dB (200Hz-20kHz) while the grille adds a circa -2.5dB disruption between 4-9kHz [blue trace, Graph 1]. The two 200mm (160mm effective diameter) bass drivers operate over a 55-425Hz/ -6dB bandwidth and the rear-facing ports, both tuned to 35Hz, maintain the low freq. reach to a diffraction-corrected 34Hz (-6dB re. 200Hz). Incidentally the lower woofer and port both have a 'cleaner' output.

As importantly, while MA has engineered a response that's both flat and uniform, it's also achieved its high rated 90.5dB sensitivity at 90.2dB/1kHz (and 90.3dB re. 500Hz-8kHz) combined with low 0.1-0.2% midband distortion (re. 90dB SPL) without imposing an especially punishing load on the partnering amplifier. Strictly speaking the Silver 500 presents a 5ohm nominal load (it's rated at a harsher 4.1ohm) with an impedance minimum of 4.2ohm/164Hz and a further dip to 4.25ohm/2.35kHz, both instances with negligible impedance phase. Similarly, the maximum, modest swings in phase angle of $+31^\circ/-45^\circ$ both occur at $>8\text{ohm}$ impedance. PM



ABOVE: Response inc. nearfield summed drivers/ports [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w grille, blue



ABOVE: C-CAM tweeter break-up dominates at 31kHz but cabinet and other drivers are very well controlled

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V - 1kHz/Mean/IEC)	90.2dB / 90.3dB / 87.8dB
Impedance modulus: minimum & maximum (20Hz-20kHz)	4.2ohm @ 164Hz 21.4ohm @ 19Hz
Impedance phase: minimum & maximum (20Hz-20kHz)	-45° @ 79Hz $+31^\circ$ @ 48Hz
Pair matching/Resp. error (200Hz-20kHz)	0.6dB / $\pm 3.8\text{dB}$ / $\pm 3.9\text{dB}$
LF/HF extension (-6dB ref 200Hz/10kHz)	34Hz / 22.7kHz/22.5kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.4% / 0.12% / 0.45%
Dimensions (HWD w/feet) / Weight (each)	1095x319x389mm / 23kg

LEFT: The bi-wire/bi-amp terminals may be combined with a solid link. Note Monitor Audio's 'bolt through' driver bracing and rifled 'HiVe II' bass ports designed to reduce turbulence. Bass extension is improved over the 500 6G

Time spent positioning the Silver 500 7G reaps rewards. My pairing imaged very well – I didn't find them fussy regards toe-in to get them focused, and even when sat off-axis I still felt invited to the party. Yet the dual bass drivers' output requires some management. These speakers have considerable low-end reach and impressive stop-start ability, but site them too near boundary walls and these admirable traits can suffer. Four foam bungs are provided for the bass-reflex system, giving flexibility over tuning, and with the speakers positioned 45cm from my wall, I found using them on the lower HiVe port tightened up the LF.

COME FLY WITH ME

However you arrive at an optimal set-up, once there you're in for a treat. Spin 'La Grange' from ZZ Top's *Tres Hombres* [Warner Records; 96kHz/24-bit] and the Silver 500 7G locks into the crunch of Billy Gibbons' guitar and the boogie swagger of the rhythm section. Quite partial to the Top, I cranked this track up. PM's Lab report [opposite] reveals a high sensitivity and an impedance that is broadly untroublesome, which in the real world appears to translate into a speaker that needs little more than a tickle to play loud. With power behind him, Gibbons' guitar solo flew, and I was in seventh heaven. ☺

HI-FI NEWS VERDICT

Monitor Audio's big-boned Silver series floorstander gets off to a strong start thanks to a smart aesthetic and wallet-friendly pricing, and its appeal only grows when the music begins. The 500 7G's sound is large scale, full-range and peppered with detail, and it seems to expend no effort at all when asked to play loud. Audition at your peril, because once you've heard a pair, you'll want to buy them!

Sound Quality: 87%



to a shimmering mandolin and vibrato viola, as its seven players vie for soundstage space. The separation and texture given to all its constituent parts was superb.

Generally speaking, the Silver 500 7G's high frequencies are crisp, clear and airy. There's some lack of sweetness, and I noted an occasional tendency for them to slip into bright, sharp territory depending on the recording. The high-fret bends during the guitar solo in The Marshall Tucker Band's 'Can't You See' [Tidal Hi-Fi download] appeared to find a place that the speaker's C-CAM tweeter didn't really agree with. Elsewhere, however, the loudspeaker's warm, enveloping voicing is sure to please its mid-budget audience.

Auralic Altair G2.1

Built as a 'box within a box', and promising a slicker all-round performance, Auralic's G2.1 series now extends to the fully-fledged Altair streaming DAC/preamplifier

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

We've commented previously on the similarity – at least in styling – between many of the products in the Auralic range, and here's another head-scratcher in the form of the Altair G2.1. It's only a little more than the Aries G2.1 'Wireless Streaming Transporter' [*HFN* Feb '21] – £4599 plays £4199 – yet this model, designated a 'Digital Audio Streamer', is a much more comprehensive product. It comes complete with onboard DAC, a preamp that allows it to drive a power amp or a pair of active speakers directly, and there are even analogue inputs – a line level and MM phono – to reinforce that role as a complete system hub.

Indeed, you can go even further with the option of an internal hard drive to allow the Altair G2.1 to function as a network music store as well as accessing external storage. Specifying it with a 2TB SSD installed adds £400 to the price, while looking around Auralic's retailers finds it with a 1TB SSD fitted for £4699, or a 4TB drive for £4899. All these are reasonable add-on costs considering the premium charged by some computing brands for a storage upgrade.

LIKE LIGHTNING

Bought 'as is', without the internal storage options, this is still an extremely flexible device. Leave aside the analogue capability for a moment, and you can play music into it via optical, coaxial and AES/EBU inputs; connect a computer via its asynchronous USB-B port, or an external USB store using the USB-A; or stream to it over a home network using either Wi-Fi (for which twin antennae are provided) or Ethernet. It also has both Bluetooth and AirPlay connectivity and is also Roon-ready, allowing the Altair G2.1 to be used as an endpoint with a system built around a Roon Core.

RIGHT: One linear PSU [top right] feeds screened areas for phono eq [bottom right], the DACs [top left], ladder volume controls [centre left] and 'Class A Orfeo Output modules' [heatsink, bottom left]. Optional HDD would sit above volume cans

If you don't go down the Roon route, the Altair G2.1 itself supports a range of online streaming services, as well as being able to stream from the user's own network library. Qobuz and Tidal are built-in, as is Internet radio, and it can also work with Songcast and Spotify Connect.

Making sense of all this is Auralic's own Lightning DS operating system, which works in conjunction with the well-sorted app of the same name, and is available for Apple iOS devices. There's also the option of controlling the unit using the Lightning Web Control Interface: it's just a matter of reading the Altair G2.1's IP address from its settings menu, typing that into a web browser, and you're in business.

Both the app and the web version cover both basic operation and detail settings. You can, for example, enable the internal resampling system, upsampling

or downsampling across a 44.1kHz to 384kHz range – all this running under the control of Auralic's custom 'Dual Femto' master clocks. There's also a built-in – and very flexible – parametric equaliser, and you can even tailor the sound to suit your speaker positions, with adjustable gain and distance parameters. It's no substitute for getting your speakers placed correctly, but in the real world it could prove handy.

DIGITAL WIZARDRY

Dig even deeper and there's a huge raft of adjustment available here, including setting a fixed output should you want to use the Altair G2.1 into a conventional amp or preamp. You can also set the brightness and format of the display, the automatic power-on parameters, and select from a range of digital filter options [see PM's boxout, p55]. Having spent some time





trying these filters, I can safely say the one you choose will be a matter of personal taste, and I really wouldn't devote too much time experimenting. Find the one you like – I ended up with 'Smooth', but you may disagree – and forget about it.

Depending on the input you choose, the Altair G2.1 can handle digital datastreams at up to 384kHz/32-bit and DSD512, the higher limits achievable via both network and USB connection from a computer (for which Windows users will need a driver) or USB storage, whether from a connected drive or optional internal storage. The legacy digital inputs – optical, coaxial and AES/EBU – top out at 192kHz/24-bit, but can accept DSD64 via DoP if required.

The analogue line and MM phono inputs bypass the digital wizardry of Auralic's 'Tesla' platform and can be configured to fixed level in a 'home theatre bypass'

'The rich weight of the orchestra is breathtaking'

mode. These inputs also go straight to Auralic's 'resistor-ladder' volume control and to its proprietary 'Orfeo' Class A output stages to either unbalanced RCAs or balanced XLRs. There's also a 6.35mm headphone socket on the front panel, along with a large, sharp and informative

display and a single control covering volume and 'push and twist' menu access.

As is the case with all the company's G2.1-series products, the latest Altair features Auralic's interference-busting 'Unity Chassis' design, its copper

inner case held within a substantial aluminium chassis mounted on sprung feet for mechanical isolation. That's the inside story: the outer impression is of a product hiding its complexity behind a simple and elegant exterior, and with a noticeable sense of solidity when you heft it from the

ABOVE: The 4in TFT display reveals the library of albums/songs available or in play (inc. cover art) in addition to allowing the user to navigate the comprehensive system/set-up menu

packaging – it may only be 34cm wide but it weighs a respectable 9.5kg.

STRAIGHT TALKER

As I mentioned, I stuck with the 'Smooth' digital filter for the majority of my listening, and used the Altair G2.1 straight into my Naim NAP 250 power amp, as well as connecting it as a line source into the Naim Supernait 3 in my 'other' system, in both cases using my tried-and-tested Neat Acoustics and PMC loudspeakers for auditioning. Regardless of which set-up was employed, the Altair G2.1 proved a neutral and extremely clean source, presenting high levels of detail while never sounding mechanical or artificial. Indeed, it delivered excellent levels of musical involvement

across a wide range of musical genres, again, regardless of the input that I used.

Whether with streams from online services, low-res Internet radio, or hi-res music served up from my NAS, the experience of using the Altair G2.1 was generally a case of 'move along, nothing to see here': the components into which you play it are going to have much more of an

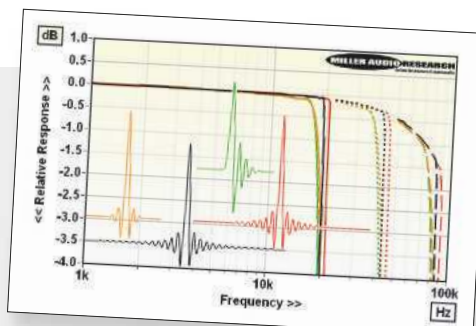
effect on the sound than this unit. True, the performance was very slightly drier when compared to my reference Naim ND555 [HFN Apr '19], which delivers more body and a greater sense of presence and performers being placed before the listeners, but that's hardly a criticism given the difference in price between the two.

Above all, the Auralic Altair G2.1 'communicates'. Play a demanding recording such as the recent Trondheim Symphony Orchestra set of Kleiberg concertos [2L 2L-166-SABD, DXD], and the sheer focus of the sound, and the natural balance of the solo instrument against

FILTER FLIRTING

In common with the earlier Altair G1, this G2.1 variant offers some user-selectable 'sound tuning' in the form of four alternative digital filters – Precise, Dynamic, Balance and Smooth. Seven pre-programmed filter algorithms are baked into the ESS DAC but it will also accept custom versions, typically generated using MATLAB and then downloaded as C code. For the Altair G2.1 the response is flattest with all sample rates via the Dynamic filter [see inset Graph]. The respective time (impulse) and frequency responses with 48kHz media (solid traces), 96kHz (dotted) and 192kHz (dashed) are colour-coded here in black, red, orange and green. These are a mix of linear phase (Precise, Dynamic, Balance) and minimum phase (Smooth) filters that trade response extension and stopband rejection (99dB, 83dB, 14dB and 18dB, respectively) for reduced group delay and pre-ringing.

For example, 'Precise' [black] is a typical high-order linear phase type with long pre/post ringing and moderate group delay but a flat and extended HF response with a steep cut-off and excellent rejection of aliasing images. Time domain performance is traded for excellent frequency domain performance in a filter ideally suited to lower sample rate media. 'Smooth' [green] offers a contrast with its slightly early but gentle HF roll-off and poor alias rejection, but much reduced 'time domain' distortion. The benefits of this type of filter progressively outweigh any 'negatives' at higher sample rates, but let your ears decide! PM



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PHYSICS NOT VOODOO



"There's a lot of hand-made cable here for the money, making it a reliable bet for that first 'big upgrade'."

Paul Miller, Hi Fi News, February 2021

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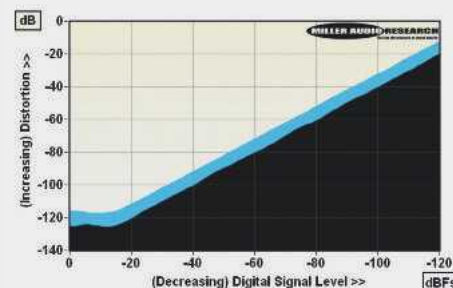
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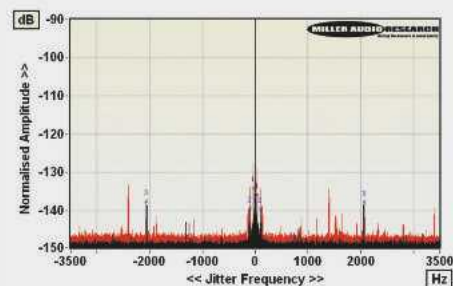
AURALIC ALTAIR G2.1

This generational uplift from Auralic's G1 platform [see *HFN* Feb '21] sees improvements in processing speed, functionality, file format handling and technical performance. The latter is the focus of this report where the Altair G2.1 clocks-up a very high 4.9V output from a remarkably low 200-300mohm source impedance. Not only will this drive any interconnect/amplifier combination but, with a suitable adapter, would also serve as a very effective secondary headphone amplifier. This is a function of Auralic's self-titled 'Orfeo' output stage which, tag-teamed with ESS's tried-and-tested 9038 DACs, maintains a fabulously low 0.0003-0.0003% distortion (20Hz-20kHz) over the top 15dB of its dynamic range [see Graph 1, below]. Although Auralic specifies its own master clocks for the Altair G2.1, the jitter rejection performance of these ESS DACs is already well proven. Here, digital jitter is vanishingly low, with a correlated figure of <15psec across all sample rates and inputs. The lack of any uncorrelated, noise-like, jitter is reflected in the sharpness of the central J-test signal [see Graph 2, below] and this typically bodes very well indeed for the stability and focus of stereo images.

In similar vein, the S/N is a very wide 117dB (A-wtd, re. 0dBV) and resolution good to ± 0.02 dB over a 100dB dynamic range and ± 0.2 dB over a full 110dB midrange channel separation, suggesting an effective 20-bit resolution for the Altair G2.1. Once again both digital and analogue engineering is at play here, the latter also assisting in the super-wide 135dB midrange channel separation, falling to a still-impressive 105dB at 20kHz. The channel balance is good to ± 0.03 dB, as expected with Auralic's precision ladder volume control. From whatever angle you choose to view, the Altair G2.1 has no obvious blind spots... PM



ABOVE: Distortion vs. USB 24-bit digital signal level over a 120dB range at 1kHz (black) and 20kHz (blue)



ABOVE: High res. jitter spectrum via S/PDIF and USB (black, 48kHz/24-bit with markers; red, 96kHz/24-bit)

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	4.91Vrms / 200-300mohm
A-wtd S/N ratio (USB / Network)	117.0dB / 117.0dB
Distortion (1kHz, 0dBFS/-30dBFS)	0.00003% / 0.00012%
Distortion & Noise (20kHz, 0dBFS/-30dBFS)	0.0002% / 0.0003%
Freq. resp. (20Hz-20kHz/45kHz/90kHz)	+0.0 to -0.1dB/-0.7dB/-2.1dB
Digital jitter (48kHz / 96kHz)	14psec / 14psec
Resolution (re. -100dBFS / -110dBFS)	± 0.02 dB / ± 0.2 dB
Power consumption	17W (1W standby)
Dimensions (WHD) / Weight	340x80x320mm / 9.5kg



ABOVE: Wired/wireless network control/streaming supplements access to more music via internal and external (HDD) USB-A drives. A USB-B (DSD512/DXD) input is joined by Toslink, coax and AES (DSD64/192kHz) alongside analogue line and phono inputs. Variable analogue output is on RCAs and balanced XLRs

the rich weight of the orchestra is breathtaking. As, I might add, is the sense of presence and space in the soundstage, and the speed and rhythmic drive on offer.

The same goes for Charlie Haden, Jan Garbarek and Egberto Gismonti's 1980 *Magico* album [ECM E1151]. Here the Altair G2.1 really gets its teeth into the label's typically gorgeous production, allowing the sax to soar above the deep, superbly-resolved bass, while the guitar and piano are also given full licence to be heard to thrilling effect. It's all so effortless, as well as being a richly rewarding listen, and the recordings don't have to be state-of-the-art for this player to work its magic.

JOYOUS EXPERIENCE

Even with the Bill Evans take on 'Alfie' from his *Another Time - The Hilversum Concert* album, recorded (admittedly magnificently) back in 1968 and revived to DSD by the 2xHD label [2XHDRE1069], the sound brims with the easygoing interplay between Evans, Eddie Gomez and Jack DeJohnette in front of a small audience. It's a joyous experience via the Altair G2.1.

The timbres of real voices and instruments are a major strength here, for while mainstream pop

is revealed in all its autotuned awfulness, give it something like 'Little Black Dress' from *The Blessed Unrest*, the 2013 Sara Bareilles album [Epic 88883739832; HDtracks 88.2kHz/24-bit], and it punches out not only every line of the vocal, but also the gutsy accompaniment, with real definition and impact. It's a sound to have you wanting to explore more of the singer's catalogue, fairer than which one really can't say.

It's also as adept when growling out some driving rock as it is when playing more hi-fi-show-friendly music. This review period coincided with the demise of ZZ Top bassist Dusty Hill, which almost inevitably led to a couple of evenings with me immersed deep in Texas boogie. I can tell you that from the slow-burn blues of 'Just Got Back From Baby's' all the way through to the charging guitar solo of 'Cheap Sunglasses', this new Altair did proud the exhaustive *Goin' 50* compilation [Warner Bros 0603497851621].

Its analogue output drove the amplification, and thus the speakers, to suitably raucous effect, while still keeping those good-time rhythms rolling as the trio powered on. I even played the odd track - well all right then, quite a lot of them! - several times, just to immerse myself in all the thunder and snarl. ☺

HI-FI NEWS VERDICT

Describe the Altair G2.1 as a technical tour-de-force, and one might seem to have fallen for all Auralic's proprietary technology, or to damn it with faint praise. Far from it: this excellent digital front-end combines ease of use and flexibility, and then layers on a crisp, clean and gutsy sound as adept at crashing out boogie as it is summoning up all the atmosphere of a classical concerto or intimate jazz trio.

Sound Quality: 87%



ABOVE: Hidden under the top-plate and screening the digital electronics within is a branded, silver-coloured enclosure

Mola-Mola Kula

Originally inspired by Class D maven Bruno Putzys, the innovative Mola-Mola brand returns with a fully integrated version of its separate amp, DAC and phono technologies
 Review: **Andrew Everard** Lab: **Paul Miller**

Never judge a book by its cover... or an amplifier by its industrial design. Take the Kula integrated amplifier from Groningen-based Mola-Mola – at first glance you may raise an eyebrow at this relatively compact, if solidly-built and undeniably stylish, integrated amplifier's £9900 price-tag. Then, complete with optional onboard DAC (£5999) and £1799 MM/MC phono stage, it adds up to just under £17,700 – well, that should raise the other brow into an expression of some shock.

This amplifier certainly looks distinctive with its swoopy, wave-like casework – and the name, the company continuing its Hawaiian trend by signing-off this model after the word for 'school' (presumably of fish, rather than the place of learning). But only by looking beyond this does the concentrated talent *inside* the box become clear. You see, while integrated amplifiers typically offer an entry point to a range, featuring trimmed-down versions of flagship technologies, here we have a one-box solution that brings together all its manufacturer's expertise – uncut, undiluted and uncompromised.

TAKE IT TO THE LIMIT

The Kula doesn't just draw on the company's Makua preamp [*HFN* Aug '17] and Tambaqui DAC [*HFN* Nov '19] but brings them onboard complete with a power amplifier of in-house design, based on its previous work with NCore Class D technology. As Mola-Mola's Ewald Verkerk explains, the company is now some way down the line from its introduction of the Kaluga amplifier [*HFN* Aug '17], based on amplifier whizz Bruno Putzey's NCore design, a development of his work on Universal Class D amplification going back two decades while at Philips.

RIGHT: Our fully-loaded Kula included the phono module [far right] that adapts to multiple equalisation profiles via the app controller; custom PWM upsampler/DAC on three SHARC DSPs [near right]; plus the main switchmode PSU and NCore-inspired Class D amplifier [left]

While the original NCore technology has stood Mola-Mola in good stead, when it came to the development of the Kula, the company decided, as Verkerk puts it, that 'this amplifier deserved much more than just a brushed off, lower power version of Kaluga's amplifier board'. So what we have here is not just the Makua, Kaluga and – if you take the DAC option – Tambaqui, all in one box, but actually a thoroughly revised take on Mola-Mola's entire amplification platform.

Verkerk explains that 'We first set off recalculating and optimising the entire NCore feedback circuitry for optimum audio performance, resulting in significantly lower distortion figures, higher damping factor and improved power supply [noise] rejection capabilities [see PM's Lab Report, p61]. Each individual part of the Kula is supplied by its own dedicated power supply, the main one being tightly regulated and semi-split to power each

amplifier channel separately, ensuring effortless low ends'.

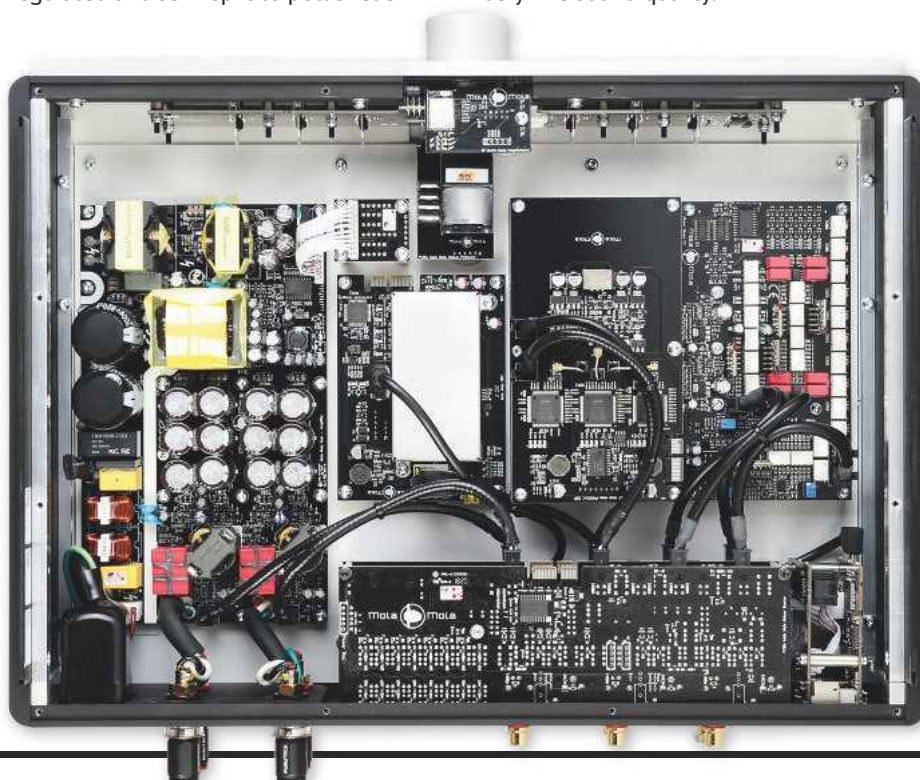
IT'S LOGICAL

Mola-Mola has paid particular attention to maintaining full compliance with strict EMI regulations without compromising audio performance – not a given with switching power supplies and Class D output stages. Designing a 'tight and compact PCB' has been key to this goal, as is illustrated by the logical layout seen in our inside shot [see below].

Even in our fully-loaded sample it's clear to see

what does what, and where, even though this is very far from being a hairshirt 'straight wire with gain' style of amplifier. Mola-Mola doesn't do simple – instead it makes flexible products with real-world facilities, leveraging its technology to offer a wide range of options, not to mention very fine sound quality.

'The Kula just gets out of the way of the music'





For example, while there are three sets of analogue inputs on RCAs, and three balanced on XLRs, you choose between them using little switches on the rear panel, while internal logic decides how those inputs are processed in the preamp. With the phono option installed, you can use the Mola-Mola app, which connects your phone or tablet to the amp via Bluetooth, to set up all the phono parameters – gain, loading, equalisation (with a wide range of presets) and bass and treble roll-off – for a particular input, and assign that to one of six presets on offer.

Meanwhile, if you have two turntables, or play older pre-RIAA records, you can set the Kula up for those too. You can even add polarity inversion of one or both channels, mono summing and just about anything else you'd need to play even the most arcane of recordings.

A wide range of adjustments are also available for other inputs, from renaming, adjusting relative level, designating an input as 'direct', or bypassing the volume control if the Kula is used with a preamp or AV processor. The digital option here is

slightly unusual – yes, it has optical, AES/EBU and asynchronous USB, and can handle datastreams at up to 384kHz/32-bit and DSD512 via the last of these, but there's no coaxial digital input, and the Ethernet connection allows the Kula to function as a Roon endpoint, a brief it fulfils rather well.

The default and a simple Apple Remote, with no more than a 'ring' controller, menu button and play/pause functions, has been something of a stop-gap for Mola-Mola, and the once-optional £500 'main remote' not always appreciated at this price level. But by the time you read this the Kula will be supplied with a custom remote at no extra cost (and existing owners also supported in hindsight). Nevertheless the Mola-Mola app – as stylish as its hardware products, and a delight to use – remains an excellent alternative for smartphone users.

COMING CLEAN

That's certainly the case with the Kula as a whole – at least once you get stuck in and set it up to your taste. The volume and preset

ABOVE: Adorning the now-familiar wave-like casework are small input select buttons and a motorised volume offering exquisitely-fine steps. The Kula is fully accessed via its Bluetooth app

selectors are particularly precise in their operation, the former accompanied by a muted clatter of relays as you operate it without music playing. And, despite PM's reservations about the upper limits of its power [again, see p61] this is just one of those amps with a seemingly effortless ability to drive a range of speakers with real conviction. Moreover the Kula remains equally impressive across every one of its wide range of input options.

What's notable is that, despite all the digital circuitry and high frequency switching in action under the bonnet, the sound is rich, clean and entirely organic, with a smooth and inherently natural-sounding presentation that makes just about any music captivating. During the run-in and familiarisation period I was

listening to some of the early 2021 Proms using Roon and – despite the relatively low bitrate on offer – I found myself thoroughly enjoying them. In particular, the Scottish Chamber Orchestra's performances of the last Mozart

symphonies, conducted by Maxim Emelyanychev, proved a very pleasant way to while away a Sunday evening.

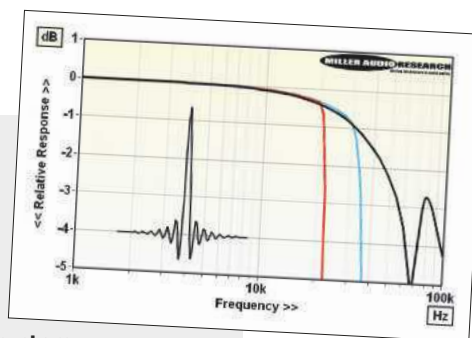
SOLID GROUND

The Kula is one of those amplifiers that's so easy to enjoy you rapidly take for granted all the good things it's doing. If you do concentrate on the sound, rather than the music, then it's not hard to appreciate the solidity and focus of the soundstage it creates with a good pair of speakers, the ease with which it paints instrumental and vocal timbres, and the effortless dynamics ➔

TAKING A PULSE

As we saw in the Tambaqui [HFN Nov '19], Mola-Mola has its own, custom DAC solution that, in the Kula, is executed across three SHARC DSPs [see pic, p58]. All incoming data is upsampled to 3.125MHz, and truncated to 5-bits via a 7th-order noise-shaper that retains the original dynamic range up to 80kHz. Each 5-bits is sufficient to describe one of 32 possible pulse widths that vary in steps of 10nsec (the system clock is 100MHz) up to a maximum width of 320nsec (0.32µsec). This Pulse Width Modulated (PWM) signal is fed into a 32-stage shift register and summed together so that the final DAC output is the moving average of consecutive blocks of 32 clock cycles (ie, one PWM cycle), updating every 10nsec.

Mola-Mola's custom linear phase/apodising digital filter is 'baked into' this process [see impulse response, inset Graph] but the final responses, and 65dB attenuation of stopband images (26kHz re. 22kHz at 48kFs), are tailored in the Kula both by sample rate and the response of the analogue Class D amp module. The response of the latter rolls away gently to -0.5dB/20kHz and -5.3dB/70kHz [black trace], so while the native output of the DAC module is ruler flat to within ±0.02dB up to 20kHz with 44.1/48kHz media and rolls off slightly earlier at 36kHz and 59kHz (-3dB) with 96kHz and 192kHz files, the combined response in the Kula is a composite [red trace, 48kHz; blue trace, 96kHz digital inputs]. PM



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INTEGRATED AMPLIFIER



ABOVE: Three analogue ins on RCAs and XLRs (switched) are routed via optional phono or line stages. Digital module [far left] includes Toslink optical and AES/EBU (to 192kHz/24-bit) plus USB-B and Ethernet (384kHz/32-bit and DSD512). The speaker outputs are on Furutech 4mm terminals wired internally with Kubala-Sosna cable

even when playing at high basic levels. But most of all, it's the way the amp just gets out of the way of the music. Whether playing via the conventional analogue or digital inputs, or feeding it with Roon, the Kula lives up to its manufacturer's claims of both transparency and 'putting the music first'.

A GOOD READ

With the well-crafted recordings on Prince's posthumous *Welcome 2 America* set [Legacy, n/a cat no; 96kHz/24-bit download], the amp slips easily into the groove of the opening track, thanks in no small part to its combination of deep bass reach and speed. Those qualities carry the listener right through this remarkable album, recorded over a decade ago, shelved, and now revealed as some of the purple person's best work.

The resolution here isn't of the kind to enhance every foible of a recording, instead it's all about

communicating the music as directly as possible, as is the case with the cover of 'Sail On Sailor' from the latest Los Lobos album, *Native Sons* [New West NW6516], paying tribute to writers and bands from their native Los

Angeles. This far from the cleanest production job you'll find, but it's a great listen, with the band's cover of War's 'The World Is A Ghetto' sounding jazzy, big and magnificent in the hands of the Kula.

And the Kula is pretty much agnostic when it comes to musical styles, delivering bags of presence with Tiffany Pollack's suitably swampy and reverb-laden *Bayou Liberty* set [Nola Blue records, Bandcamp download], with its home-brewed bluesy rawness. With similar effortlessness, it sounds crisp and detailed with Raffi Besalyan's solo piano set, *The Sound Of Black And White* [Sono Luminus DSL-92249; DXD], delivering a fine impression of the instrument in the spacious studio acoustic.

It's a focused, but not spot-lit, performance, and the Kula does a fine job of bringing out both the detail and the ambience here, creating a glowing, attractive sound that encourages the listener to keep on listening – and exploring the music collection. If the Mola-Mola Kula were a novel, you'd be hard pressed to put it down! ☺

HI-FI NEWS VERDICT

The Mola-Mola Kula is an unashamedly upmarket integrated amplifier, especially in the fully-loaded guise reviewed here, but it lives up to its striking looks and company pedigree with a sound that's not just captivating, but entirely more-ish. Across the musical spectrum this amp belies all its cleverness with a sparkling yet weighty presentation that's effortlessly enjoyable, and hugely impressive.

Sound Quality: 88%



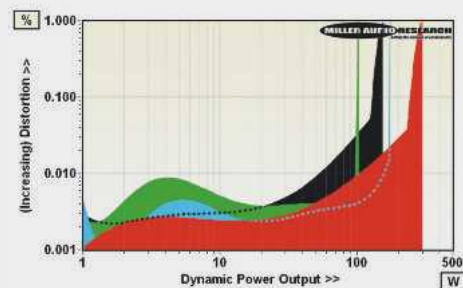
LAB REPORT

MOLA-MOLA KULA

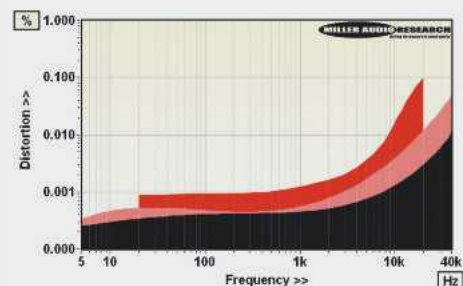
Mola-Mola's NCore-inspired Class D power amp section did meet its 150W/8ohm specification but fell short of delivering 300W/4ohm unless under dynamic conditions where 155W, 300W, 175W and 104W was delivered at <1% THD into 8, 4, 2 and 1ohm loads, respectively. Maximum current is limited to ~10A [see Graph 1]. Gain is a sensibly low +28dB (instead of the +40dB offered by many integrations), the 88dB A-wtd S/N (re. 0dBW) is rather wider than achieved by most analogue Class D amps, and bass/midrange distortion remains very low at 0.0004% up to 10W, increasing to merely 0.002% at 100W [see Graph 2].

Distortion increases more rapidly above 10kHz, however, to 0.015%/20kHz/10W, in line with the tailored response of -0.5dB/20kHz to -3.75dB/60kHz. Incidentally, THD is also higher, watt-for-watt, under dynamic conditions as Graph 1 vs. Graph 2 illustrates. Remarkably, the output impedance remains <0.005ohm (<5mohm) from 20Hz-20kHz, so the Kula's system response [see boxout, p59] is almost entirely immune to swings in loudspeaker impedance. Chalk-up another advantage to designer Bruno Putzy's NCore/Purifi range of Class D amplifiers.

The Kula DAC module is clearly derived from the Makua/Tambaqui [HFN Aug '17 & Nov '19] but could only be tested here via the main outputs (thus including the Class D pathway). At 2V output, low-level linearity is true to within ±0.4dB over a 110dB range even though the S/N is reduced to 84dB. Distortion, too, is remarkably low at 0.00005-0.0005%/1kHz over the top 30dB of its range, increasing to 0.0009-0.003%/20kHz as a function of the Class D amp. Jitter is incredibly low: less than 25psec, all sample rates/all inputs, through the DAC/amp signal path. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 10.2A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	150W / 285W
Dynamic power (<1% THD, 8/4/2/1ohm)	155W / 300W / 175W / 104W
Output imp. (20Hz-20kHz/100kHz)	0.004-0.001ohm / 0.10ohm
Freq. response (20Hz-20kHz/100kHz)	+0.02dB to -0.50dB/-5.0dB
Digital jitter (USB / S/PDIF)	25psec / 25psec
A-wtd S/N ratio (Digital/Analogue)	84.3dB (0dBFS) / 88.0dB (0dBW)
Distortion (DAC, 0dBFS/Amp, 10W)	0.00006-0.002%/0.00025-0.015%
Power consumption (Idle/rated o/p)	57W / 497W (1W standby)
Dimensions (WHD) / Weight	420x110x370mm / 11kg



LEFT: Mola-Mola will be replacing this generic Apple Remote, the latter governing input and volume up/down, with a 'premium' handset this year

Kudos Audio Cardea C20

Arguably the most durable model in the Kudos catalogue, the C20 has witnessed a graceful 12-year evolution

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

As is so often the case, last time I was at a hi-fi show – c'mon, you remember shows – I was amused by the reaction of a visitor. Having listened to a fully active system using Naim electronics and a pair of Kudos Titan speakers, 'Hmmm,' he said to no-one in particular, and with deadpan seriousness, 'Not bad for a stand company...'. Well, stands may have been the beginnings of Kudos, but it's come a long way since then.

And in a way, Kudos the speaker company has come full circle with the Cardea C20. After all, Cardea was the first speaker range company founder Derek Gilligan offered back in 2006. The standmount C10 was the launch model, also now available in an updated form at £3500, while the floorstanding C20 we have here sells for £4000, in the same range of finishes: white, walnut, natural oak and black oak.

HOUSE MUSIC

Those with a long memory may be looking at the speakers before us, and wondering why we're revisiting a model that first saw the light of day over a decade ago [*HFN* Nov '09] and returned – albeit in 'Super' form – some four years later [*HFN* May '13]. In practice so much has changed in the intervening years that this is a real 'Trigger's broom' job [see boxout, p63], the celebrated road sweeper philosopher from *Only Fools And Horses* once explaining that he'd used the same brush for his entire career: 'This old broom', he said, 'has had 17 new heads and 14 new handles'.

What's unchanged, however, is the way Kudos Audio designs its loudspeakers – with a background in music, and specifically PA systems, Derek Gilligan is a great believer in voicing his speakers by ear rather than measurement. And there's certainly a house sound here, a typically immediate, vivid presentation, which doesn't so much draw you seductively into the music as

grab you by the lapels and demand that you pay attention to it.

The Cardea C10 and C20 are simpler than the flagship Titan models [*HFN* Feb '20], which sport direct terminals to allow the crossovers to be bypassed, and the drivers powered directly in an active configuration with an electronic crossover upstream of the power amplification. If you want to do that with Cardea speakers, you'll need to look at the £4000 Super 10A standmount or £5000 Super 20A with their 'patch bay' of 4mm sockets to the rear.

PLAIN AND SIMPLE

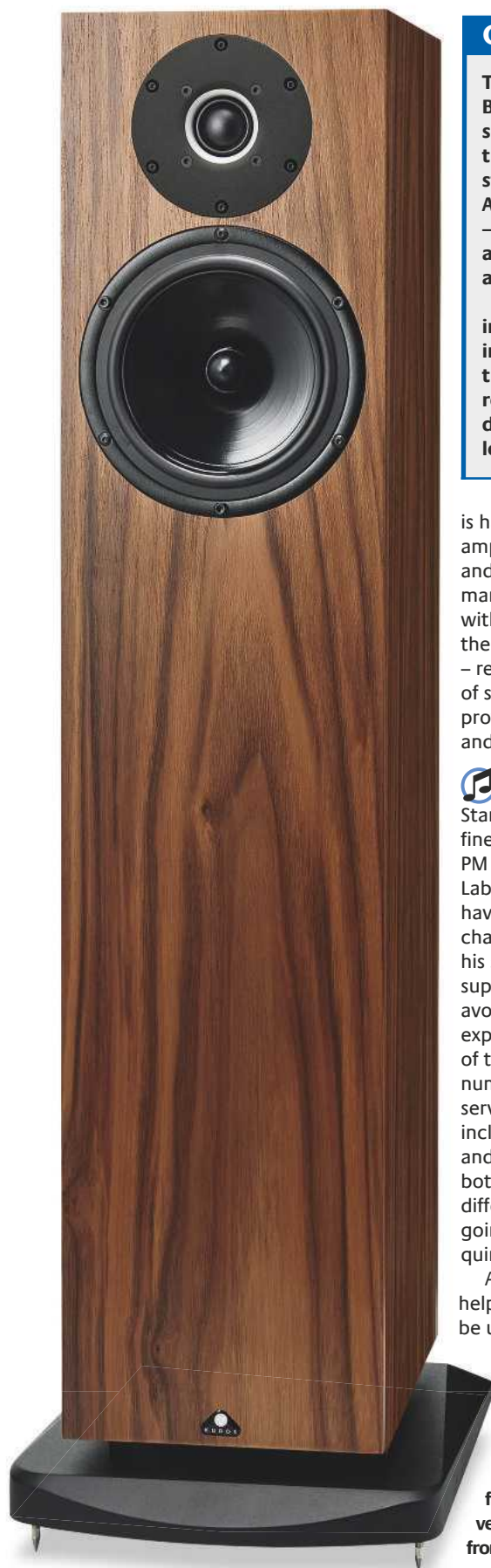
By contrast, the C20 has just a single pair of combination banana/spade/bare wire terminals down near the base of the rear panel [see p65], but even here the design is unconventional. Whereas some speakers either mount the crossover and terminals to the rear panel itself, or even use a moulded 'tray' for the terminals, Kudos mounts them on an inset panel made from the same high-density fibreboard as the main enclosure, which is then torqued into position to provide as solid a platform for the electronic components.

Wired to the crossover using the company's own KS-1 speaker cable – yours for £30 per mono metre – are drive units developed in co-operation with Norwegian SEAS. These comprise a custom version of the SEAS Crescendo K2 29mm tweeter, and a 180mm mid/bass unit with a coated paper cone, and as open a chassis as possible. Both drivers and crossover are designed in accordance with Gilligan's 'keep it simple' philosophy.

With its rated 88dB sensitivity and 8ohm nominal impedance, the C20

RIGHT: The C20's HDF cabinet is available in white, walnut, natural oak and black oak finishes and supported on a spiked plinth from which the downward-firing 'boundary bass' reflex port exhausts





CARDEA CHRONOLOGY

The origins of Kudos as a speaker brand go back to when Derek Gilligan and Bob Surgeoner, the founders of Neat Acoustics, discovered a stand that worked so well with their Neat Petite speakers, they bought the company. Later, when the two went their separate ways, Gilligan took the Kudos brand with him, and started making his own speakers, launching the original Cardea models in 2006. Ask him what's changed to create these rather similar-looking 2021 versions – actually, they were signed off last year, but demand for Kudos loudspeakers apparently held off the official launch while stocks were built up – and the answer is 'almost everything.'

The latest changes are to the crossover, with the use of improved air-core inductors with tighter windings, and an upgraded polypropylene/foil capacitor in the HF arm, drawing on the catalogue of supplier Mundorf. Along the way the speakers have switched to HDF (high-density fibreboard) for the cabinet, replacing the previous MDF, and there have been improvements to both drivers. The mid/bass has gained a phase-plug, while the company's own KS-1 loudspeaker cable, launched early last year, is used for all internal wiring.

is hardly the trickiest of loads for an amplifier [see PM's Lab Report, p65], and at 20kg apiece the speakers are manageable for most of us. They come with their 'floating' plinth – onto which the downward-facing reflex port vents – ready attached, so it's just a matter of screwing in the high-quality spikes provided, levelling and positioning them, and connecting them up.



ABSOLUTE RIOT

Standing 92.5cm tall, they should be fine for the preferred listening position PM comments on in his Lab Report – unless you have an especially low chair – and I'd concur with his suggestion that the supplied grilles are best avoided if you want to experience the full vitality of the presentation here. A

number of amplifiers were pressed into service during my time with the C20, including my usual Naim Supernait 3, and in every case the speakers proved both revealing of the character of the different amplification while also easy-going enough not to emphasise any quirks of these upstream electronics.

A slight toe-in – very slight – might help fix the stereo image if they must be used way apart, but in general they sound best when used in 'guardsman' mode, with eyes firmly front. Also, while that

'The album
flew by, my
smile growing
ever-wider'

LEFT: Both the 180mm doped-paper pulp coned bass/mid unit and the 29mm fabric-dome tweeter are customised versions of SEAS drivers, the latter derived from the popular Crescendo K2 HF unit

downward-venting port makes them less position-sensitive than most, the usual thinking on boundary-proximity should be followed – so avoid corners, or placing them equidistant from side and rear walls and you won't go far wrong. I'd even go so far as to say that setting up these speakers was a pleasure. I wouldn't quite say you can just plonk them down and they'll sound great, but that's not far off the truth.

What is beyond discussion is that the Cardea C20s, while from a brand possibly not appearing on the 'quick, name me five speaker companies' list, are well worth

seeking out, as listening to them is an absolute riot. Just about everything you play through them has more spirit and verve than you'll be expecting, and whether you like listening deep into a recording or just revelling in the boogie

factor to the point of cranking your system louder than is probably sensible, you won't come away disappointed. In fact, you probably won't come away at all, or at least for an extended period, so much will you be enjoying the sound of these C20s.

FUNK IT UP

Playing the latest Crowded House album, *Dreamers Are Waiting* [EMI 3534658], the initial impression of a slow-burning set soon gets to the listener, so well is the innovative songwriting and musicianship, plus of course Tim Finn's glorious voice, conveyed by the C20s. The album has a wonderfully immediate sound, and that's meat and drink to these floorstanders.

Switch to the southern rock of Blackberry Smoke's current album, *You Hear Georgia* [3 Legged Records 3LG14CD], ➞



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and the C20s really unleash the boogie factor, with great slabs of thundering rhythm underpinning the driving guitars and powerful vocals of Charlie Starr. Hey, stop analysing what the speakers are doing and just immerse yourself in the music – that's what they'll have you doing just about whatever you choose to play. So here, from the shuffling funk of 'Hey Delilah' to the winsomely downbeat 'Old Enough To Know', the album simply flies by, the smiles of enjoyment growing ever-wider.

So, just a great rock speaker, then? Not in the least. Play soprano Kate Lindsey's recording of Scarlatti's 'Il Nerone', her soaring voice accompanied by a subtle continuo [from *Tiranno*; Alpha Classics ALPHA 736], and it's hard not to be captivated by the way the vocal

LEFT: Kudos' 1st-order LF/2nd-order HF crossover is connected via a single set of 4mm terminals and internal Kudos KS-1 cabling. Crossover is not split, so neither bi-wiring nor bi-amping is supported

hangs absolutely stable in space, with the instruments delivered with warmth and precision in equal measure. And the same goes when you up the scale of the musical forces with the recent Malmo Symphony Orchestra/Marc Soustrot 'boxing up' of the complete Saint-Saëns symphonies [Naxos 8503301, and a complete bargain at about £15 for the three-disc set].

GRAND SLAM

Unleash the third symphony through the C20s and I defy you not to be thrilled with the crisp detail of the orchestra and the great crashing weight of the organ from which the work takes its soubriquet. The orchestra has power enough in the opening movement, but when those big bass pipes start energising the air in the concert hall, the sheer slam of these speakers down in the bass, and the tinkling piano above, are equally breathtaking. What's more, they manage all this exuberance and brio with total control, not even hardening up when the devil on your shoulder mutters 'Wonder what that would sound like a bit louder...?'. Common sense tells me that speakers this compact really shouldn't sound so weighty, wide-open and totally compelling, let alone do so across a wide range of musical styles and partnering amplification. Clearly no-one told Kudos about common sense. ☹

Common sense tells me that speakers this compact really shouldn't sound so weighty, wide-open and totally compelling, let alone do so across a wide range of musical styles and partnering amplification. Clearly no-one told Kudos about common sense. ☹

HI-FI NEWS VERDICT

The simple verdict? For all their compact size, understated engineering and refined styling, these are quite possibly the most sensationally rewarding way to spend under £5000 on a pair of speakers right now. The brand's 'music first' design philosophy is right up there as soon as you start to use them, they'll work with a wide range of amps, and they're room-friendly enough to be used almost anywhere.

Sound Quality: 88%

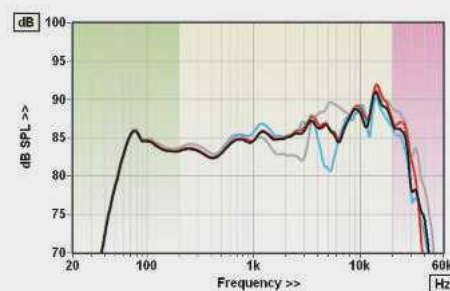


LAB REPORT

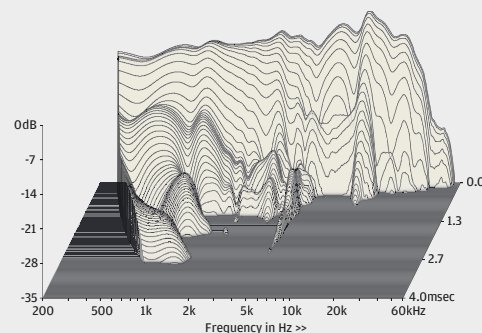
KUDOS AUDIO CARDEA C20

While the evolution of the C20's design is recorded in some detail in our review [see boxout, p63], and on the company's website, the raw specification is limited to nominal impedance (8ohm) and sensitivity (88dB). The former accurately reflects the C20's 'easy-to-drive' status with its benign 7.0ohm/157Hz impedance minimum joined by maximum $\pm 40^\circ$ phase angles, and increase in impedance to 36ohm towards 1.9kHz as the inductance of the 180mm bass/mid takes effect. The 'harshest' load occurs at 330Hz/8ohm/ $+24^\circ$ – this is still relatively 'amplifier friendly' and perhaps predictive of the slightly lower-than-rated 84.7dB/1kHz and 85.5dB (500Hz-8kHz) measured sensitivity.

Measured on the tweeter axis, the response trend shows a marked 'step' in output of +7dB between 3kHz-5.3kHz [grey trace, Graph 1] but this is very successfully ameliorated when tested some 3in above the top of the cabinet – a more appropriate axis for a seated listener [black/red traces, Graph 1]. Here the response errors for the pair reduce to ± 4.4 dB and ± 4.8 dB, respectively, matched to within an impressive 0.7dB up to 10kHz. The trend shows an upward tilt but the grille should be avoided as it carves out a 5.5dB notch at ~5kHz [blue trace]. The top-end rolls away to a respectable ~29kHz [-6dB re. 10kHz; pink shaded area, Graph 1], the soft dome affording a peak at 14.5kHz but no ultrasonic resonance. The 55Hz-2.3kHz bandpass (-6dB, with modes at 185Hz and 940Hz) of the 180mm woofer is lifted by the floor-firing reflex port (22Hz-90Hz, -6dB) to yield a slightly 'peaky' bass alignment and respectable LF extension of 48Hz [-6dB re. 200Hz; green shaded area, Graph 1]. PM



ABOVE: Response inc. nearfield summed driver/port [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Left, black; right, red; w. grille, blue



ABOVE: Cabinet modes are swiftly suppressed leaving very mild driver breakups at 1kHz, 2.5kHz and 6kHz

HI-FI NEWS SPECIFICATIONS

Sensitivity (SPL/1m/2.83V – 1kHz/Mean/IEC)	84.7dB / 85.5dB / 83.6dB
Impedance modulus: minimum & maximum (20Hz–20kHz)	6.96ohm @ 157Hz 35.5ohm @ 1.85kHz
Impedance phase: minimum & maximum (20Hz–20kHz)	-39° @ 3.6kHz +42° @ 900Hz
Pair matching/Resp. error (200Hz–20kHz)	1.4dB / ± 4.4 dB/ ± 4.8 dB
LF/HF extension (-6dB ref 200Hz/10kHz)	48Hz / 28.5kHz/29.4kHz
THD 100Hz/1kHz/10kHz (for 90dB SPL/1m)	0.7% / 0.2% / 0.25%
Dimensions (HWD) / Weight (each)	925x200x270mm / 18kg

NAD C 298

NAD's M33 BluOS streaming amplifier was the first to utilise Purifi's groundbreaking Eigentakt Class D modules. Now they are in a stripped-back 'purist' power amp...

Review: **Mark Craven** Lab: **Paul Miller**

We sometimes hear a hi-fi component described as 'a wolf in sheep's clothing', but the idiom seems particularly apt for NAD's C 298. From the outside, there's little to distinguish this £1700 power amp from market rivals – indeed, its general demeanour is so nondescript it would likely struggle to stand out from flashier competition. But NAD, a company that's no stranger to high-tech design style elsewhere in its stable, has opted to keep the chassis simple and make the amp's story about what's going on inside.

The story is this: the C 298 is NAD's first stereo power amplifier to use Class D Eigentakt technology from Purifi, the Danish manufacturer founded by industry veterans Bruno Putzeys, Lars Risbo and Peter Lyngdorf [see PM's boxout, p67]. NAD previously featured Eigentakt modules in its M33 streaming DAC/integrated amp [*HFN* Aug '20] and then the M28 five-channel home theatre amplifier. In doing so, it moved away from the Hypex Ncore Class D technology (another Putzeys invention) that still features elsewhere in its lineup. The modules are modified under license from Purifi, enabling their optimisation with the C 298's 'highly efficient' switchmode power supply and input stage.

MASTERFULLY PRICED

Both the M28 and M33 are from NAD's Masters series, and both are priced at £4000, making the C 298 comfortably its most affordable Eigentakt design. At the same time, it pushes the envelope of the Canadian company's 'C' series, where the step-down Hypex-based C 268 power amplifier sells for £800, and budget buyers can find the C 316BEE V2 integrated model flying off shelves for £300.

As a pure power amp, the C 298 needs a partner in hi-fi crime, and an obvious

solution would be NAD's C 658 networked DAC/preamp. This retails for £1500, and when added to the C 298 you'd have arrived at much of the functionality of the M33, including streaming via the BluOS platform, Dirac Live room correction, and MQA decoding, while saving some pennies. You would then have two boxes to wrestle with, however, and no colour touchscreen interface to gawp at.

Nevertheless, you'll not be shortchanged in watts as, regardless of NAD's paper specification, the C 298 delivers pretty much the same power output, into every loudspeaker load, as the premium M33 [see PM's Lab Report, p69]. NAD claims 185W/8ohm and a full 340W/4ohm for the C 298, with bridging resulting in a promised 620W/8ohm (mono). But as PM discusses in his Lab Report, these specifications are conservative, continuing a trend noted in other NAD designs.

The C 298's styling is also conservative, utilitarian even. The only finish option

is matt black, and the front view of the amplifier is nearly all fascia, with just a standby/on button, a bridge mode indicator LED and NAD branding to spoil the show.

COOL CUSTOMER

The rear panel is marginally more exciting, with loudspeaker terminals flanked by balanced XLR and single-ended RCA analogue inputs (with a switch to change from one to the other), a stereo line-level output for a daisy-chain connection, plus controls for input sensing and bridging. A 12V trigger input and output are provided for automated systems where the C 298 may well be racked out of sight. Which is arguably where it will look best.

The standard 435mm width results in a lot of internal space going unused [see picture, below], but makes it a fit for other NAD components and third-party hardware. Meanwhile, the absence of external heatsinks and its relatively cool-running nature allows it to be parked



RIGHT: Substantial switchmode power supplies occupy the front of the amplifier [top]. The mainboard hosts an ARM STM32 microprocessor and two of Purifi's Eigentakt Class D modules direct-coupled to the speaker outs [lower right]



anywhere with confidence, as does its modest 11.2kg weight. Just give it some vertical breathing space, as the top of the chassis is dotted with ventilation holes.

Operationally... well, this is a power amplifier after all and therefore no real trouble to live with. Your interaction with it may well boil down to just tapping the power button. But there is a smattering of features worth noting. To begin with, the amp will automatically go into standby mode if it doesn't receive an active input after 15 minutes, but this can be deactivated.

Secondly, you can also set it to wake out of standby when it receives a signal, with three sensitivity options available – low (0.8mV), mid (1.7mV) and high (3.7mV). These are configurable across both the balanced and single-ended connections.

Both these features are governed by pressing the standby button down for a

specific amount of time, which is a bit fiddly. It's easier to get to grips with the C 298's unusual variable input control (should you not want to use it in fixed mode), but it would perhaps have made sense to put this little dial on the amplifier's front panel, and not the back. The power

button, meanwhile, features a pinprick LED to signify its status (amber for standby, blue for on). This can't be dimmed, but is so tiny it shouldn't upset you. Indeed, once you have your source and loudspeakers connected, you'll hardly know the C 298

is there. That is, until you hear it in action...

'It brought out the cut and thrust of the guitar riff'

DOUBLE TAKE

I partnered the amplifier with both my usual B&W 705 S2 standmounts and, for a much harder drive, Triangle's Antal 40th Anniversary floorstanders [*HFN* Sep '21]. It was immediately noticeable how it brought

ABOVE: Softly rounded edges aside, the bluff matt black fascia and ventilated casework comes directly from the 1980s NAD playbook. But don't judge this 'book' by its cover...

out the best in both, such is the tangible grunt and dynamic ability on offer. The smaller loudspeakers relished the kick up the proverbial backside, responding with a performance that caused a visitor to my listening room to do a cartoon-style double take, while the larger towers awoke like giants from a slumber.

Of course, it shouldn't be a surprise that my main takeaway from a power amplifier was its expression of power. This is, after all, a key reason for building a separates system, instead of opting for an integrated design where other features and facilities are packed into the same enclosure. But the C 298 proved to be more than 'just' a power amp in the same way that a Ford Mustang GT is more than 'just' a car. There's serious bang for your buck here, married to a delivery that feels clean and pure. There seems to be little or nothing between you and the music.

POWER PLANT

'Owner Of A Lonely Heart' from Yes's *90125* [ATCO Records 90215; 192kHz/24-bit] told me a lot of what I needed to know about the C 298's clout. It brought a cut and thrust to the track's memorable (and heavily reverbed) guitar riff, before folding the soundstage inwards and nailing the transition from expansive to tight. Snare and kick-drums had that in-the-room quality you get from a power plant with sufficient guts and transient snap.

From this foundation layer, everything else fell into place. Keyboard chords leapt out, while palm-muted guitar notes in the background enjoyed a taut leading edge. The music sounded alive, and once the song finished, the follow-up track 'Hold On' made me jump as Alan White's isolated drum intro arrived without slurring.

It didn't take long to find other examples that showed off the C 298's love of weighty bass and forceful drums. It ➤

COMPACT CLASS D

We first saw Purifi's ET400A Class D module used to great effect in NAD's M33 BluOS streaming amplifier solution [*HFN* Aug '20]. The technology's lineage can be traced back to designer/inventor Bruno Putzeys' original and innovative 'self oscillating' Hypex UcD module and later Ncore derivative. The original UcD circuit combined an input comparator, a power stage and LC filter with feedback between output and input 'correcting' enough of the LC filter's phase shift to ensure stable operation.

Loop gain was a respectable 30dB but this was boosted to 50dB in the later Ncore modules which derived an improved error signal by comparing the UcD amp's real output with a filter simulation of the same audio. This drove the corrective feedback, breaking the link between stability and loop gain, while offering the same load-tolerant frequency response that still sets UcD apart from plain-vanilla Class D amps.

The Purifi Eigentakt circuit is superior still. It includes a filtered, 'global' feedback regime with a control circuit so complex that all its component values are derived using modelling software. The ET400A offers a full 75dB of feedback, unconditional stability, a vanishingly low 0.005ohm output impedance from the C 298 and a reliably flat, extended response [see Lab Report, p69]. **PM**



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CLASS D POWER AMP



ABOVE: Balanced (XLR) and single-ended (RCA) inputs are included, switchable between direct and variable (attenuated between 0dB and -20dB). A line output is offered (on RCAs) in addition to 4mm speaker binding posts. Auto power-on and bridged amplifier operation are two further 'features' available via the rear panel

pounded through the rhythmic, foot stomping of Led Zeppelin's 'When The Levee Breaks' [Led Zeppelin IV; CD Atlantic 8122796446] without overshadowing Robert Plant's spine-tingling harmonica wails, and dug into its reserves to grapple with the deep bass of 'Soul In Motion' by DJ and producer Krust [Full Cycle Retrospect, Vol 1; Full Cycle Records FCY 05DB], maintaining its control at high output as I threw caution to the wind with the Triangle towers.

SEVEN VIRTUES

There's an astonishing sense of dynamism here, particularly when you remember the C 298's price tag. 'Streets Of Fire' from Bruce Springsteen's *Darkness On The Edge Of Town* [CBS CDCBS 86061] was thrilling. The amplifier sat in cruise control during the opening verse, enunciating The Boss' vocal, before firing on all cylinders when the piano and rhythm section joined for the chorus. With tracks like this you really get your money's worth.

With less dramatic recordings, or those without extravagant low-end heft, the C 298 did sound more pedestrian, although its knack for creating a spacious, unmuddled soundstage, and emphasising musical detail, was still in evidence. I kicked back with Patsy Cline's gentle country ballad 'I Fall To Pieces' [The Complete Releases 1955-62; Acrobat Music ACTRCD9064] and the experience was way more than pleasant – the C 298 brought a plump feel to the walking bassline and the clear, transparent nature of its sound allowed me to focus on Cline's despondent lyrics.

I'll not fall into the 'but it's a Class D amplifier' trap. There's no elephant in the room here, just a relatively compact black box sat on a kit rack. Yes, NAD's C 298 might

not bring the mug-of-cocoa warmth and smoothness one might expect (or demand) from a hot-running transistor or tube amp but that's because it's voiced for a very direct sound, presenting the music without gloss. In this instance there's no fear the experience becomes clinical or dry, turning listening from a relaxed pleasure into something more demanding. There's so much excitement to be had from its exuberance, power and rhythmic ability that any craving for something mellower doesn't last for long.

I finished with The City Of Prague Philharmonic's performance of Elmer Bernstein's 'The Magnificent Seven' [100 Greatest Film Themes; Silva Screen Records SILCD1309]. Here, the brass instruments and rat-a-tat snare drums emerged from silence with the speed of an Old West sharpshooter, but there was a light touch to the proceedings too. The C 298 didn't overstate its power, and the sweeping string notes that followed were writ both large and lush. The amp also let the piece's warmth and energy shine through. Magnificent? At this price, I'd say so. ☺

HI-FI NEWS VERDICT

Compared to NAD's glamorous M33, this amp has the look of a black box recorder, but hear it in full flight and you'll be charmed nonetheless. The C 298 is impressively powerful, and combines its heft with speed and detail. The result is a sound that's exciting and revealing, and likely to put all but the most reluctant loudspeakers on the front foot. The C 298 is not quite 'entry-level', but it's still serious value.

Sound Quality: 87%



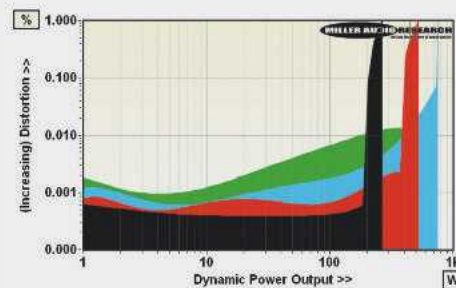
LAB REPORT

NAD C 298

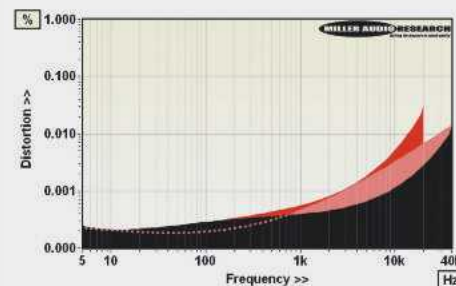
True to tradition, and despite being a Class D amp [see boxout, p67], NAD has engineered some useful headroom into the C 298 which supports peaks of 265W, 526W and 750W into 8, 4 and 2ohm loads with 450W/1ohm limited by current protection (21.2A). Note how there is no abrupt clipping point but, instead, maximum power is 'feathered' across 40W of 'extra' output as it approaches 1% THD into 8/4ohm loads [see Graph 1, below]. This is the modern-day equivalent of NAD's 'Soft Clipping'.

Otherwise, the continuous 235W/8ohm and 475W/4ohm power output is well in excess of NAD's 185W/8ohm and 340W/4ohm rated spec. for the C 298 – this conservative 'paper spec' is good to see, particularly as many Class D amplifiers seem rated very close to the wire these days. Bottom line? The NAD C 298 will go louder and prove more capable of driving difficult speakers than you might expect. The very low sub-5mohm output impedance will also assist in keeping bass tight while ensuring the C 298's response – flat to within $\pm 0.04\text{dB}/20\text{Hz}-20\text{kHz}$ – is unaffected by swings in speaker impedance.

Distortion is fabulously low through bass and midrange frequencies at 0.0004%/1W, 0.0002%/10W and 0.0006%/100W, the inevitable rise at HF delayed here to above 10kHz, albeit only reaching a mere 0.003%/1W, 0.0065%/10W and 0.030%/100W at 20kHz [see Graph 2, below]. Again, these Purifi Eigentakt modules buck the trend of more traditional Class D solutions whose high frequency response and distortion are markedly influenced by speaker load [see HFN Aug '21]. Noise, too, is lower here than typical, the C 298 yielding a respectable 88.1dB A-wtd S/N ratio (re. 0dBW) for an overall gain of +28.7dB. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 21.2A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	235W / 475W
Dynamic power (<1% THD, 8/4/2/1ohm)	265W / 526W / 750W / 450W
Output imp. (20Hz-20kHz/100kHz)	0.005-0.004ohm / 0.001ohm
Freq. resp. (20Hz-20kHz/100kHz)	+0.0dB to -0.04dB/-11.5dB
Input sensitivity (for 0dBW/185W)	104mV / 1418mV
A-wtd S/N ratio (re. 0dBW/185W)	88.1dB / 110.8dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.00019-0.0065%
Power consumption (Idle/Rated o/p)	25W / 430W (1W standby)
Dimensions (WHD) / Weight	435x120x390mm / 11.2kg

Rogers AB3a

Since its birth, devotees of the LS3/5A have craved more bass – does the answer lie in Rogers' active AB3a sub?

Review: **Ken Kessler** Lab: **Paul Miller**

Delayed because of the pandemic, Rogers' AB3a subwoofer is one year off being able to claim it's the 25th anniversary celebration of its passive predecessor, 1995's AB1. Yes, the gap between them has been that long. The postponement doesn't, however, diminish the delight LS3/5A users will show for the arrival of a dedicated *active* subwoofer for one of the most celebrated small monitors in the history of hi-fi. It's here, and it's a honey.

Given that current Rogers or Falcon Acoustics LS3/5As [*HFN* Jul '19 and Dec '18] sell for circa-£2500 per pair depending on finish, while vintage LS3/5As can fetch as high as £10,000-£15,000 if you're either obscenely profligate or certifiably insane, the £3499-per-pair sticker price of the AB3a will hardly cause outrage. What's decided for you is the finish: as standard it's only offered in satin black, a colour which works with whatever LS3/5A you perch on top. Rogers will, though, finish a pair any way you like for an added stipend.

DOUBLE BASS

What you get are sized exactly like the AB3a's quarter-century-old antecedent [see boxout, p71], but the rear-firing driver count has doubled, each cabinet now hosts a 50W amplifier, and the look is vastly more refined. The slick cabinet just happens to raise the LS3/5A to what I've always found to be the perfect height, so *in situ*, each AB3a-plus-LS3/5A stands 3ft/920mm tall, give or take a few millimetres depending on how you adjust the spikes.

Contrary to discussing these vis-à-vis LS3/5As, it's worth pointing out that Rogers describes these 2ft-tall units as 'specifically designed for use with the LS3/5A or similar small monitors'. It's a claim supported by the AB3a's super-flexible adjustments, which I'll get to in a moment.

At the back of each AB3a, beneath a Tygan grille held in place magnetically, are two woofers like the 're-imagined' B110s in Rogers' current LS3/5As. The enclosure is sealed, whereas the original AB1 was ported. Below the woofers can be found

four rotaries for adjusting the phase (0°-180°), high- and low-level gain and low-pass filter frequency (40Hz-240Hz).

These steps are undertaken by ear, but the manual is lucid, so the listener is guided into setting each for peak performance. With judicious listening, some music with clean, rich bass, and a friend to fiddle with the knobs while you sit in the hot seat, you can optimise the low-frequency alignment for ideal room placement. I was lucky as they worked perfectly exactly where I place almost all small, stand-mounted two-way speakers in my room, which happens to be my preferred spot for LS3/5As.

Connections are a different matter. The best set-up for this employs the 'two pairs of leads from one set of terminals' reminiscent of bi-wiring. One goes to the AB3a, connecting via a professional Speakon plug, supplied with the AB3a and 5m of cable. The other, user-provided leads go to the LS3/5A (or other small speaker) from the same set of terminals.

Alternatively, there are also phono inputs to feed the AB3a from a sub or preamp output. This connects to the low-level input, while the Speakon feeds the high-level input. Nevertheless, feeding the LS3/5A and sub from your main amp output remains the preferred method. Niggles? As the on/off rocker is on the back, how about a tiny blue pilot light on the front, at the base, so you know they're switched on?



FIRE DOWN BELOW

Feeling mischievous, I turned the AB3as around, the drivers firing at me. And stone me if they didn't sound *amazing* with a *volte face*. I accept, though, that this is not advised, but, hey, try and stop me. I'm glad I did. Having said that, for this review the subwoofers were auditioned as designated: rear-facing drivers and with current-production LS3/5A loudspeakers.

RIGHT: The AB3a's robust black 12mm birch-play cabinet is supported on an MDF plinth with threaded inserts for the supplied M6 spikes. Top dimensions perfectly match the LS3/5A although other mini monitors can be used





MEMORY LANE

If you don't own the April 1996 issue of *HFN*, let me summarise our review of Rogers' original AB1 subwoofer [inset here]. A key difference lies in the enclosure material – the AB1 prototypes used birch ply, but production models were made of Medite, Rogers arguing that MDF 'simply sounded better'. As many are now learning thanks to cancel culture, what was OK in the past no longer applies, so the new AB3a reverts to the wood of the AB1 prototype and the LS3/5A itself.

With only one B110 woofer, a passive crossover and no electronics, AB1s were far simpler beasts, devoid of adjustability. You simply inserted them in place of the stands you were using. Amusingly, even if you didn't wire them in, AB1s actually made decent, complementary supports, especially if you weighed down the speaker sitting on top with 'bricks' such as the VPI or the *HFN* Flux Dumper. You could wire the LS3/5As off links from the AB1s, which were driven by the amp, or you could bi-wire them. And the sound? A bit 'one-note', but a tad louder and deeper, and for many of us, that was enough.

Although these are LS3/5A-centric, I used them with both Tannoy's Autograph Mini and JBL's 4321M small monitor to test Rogers' claim of compatibility with other speakers. So, stone me again – thanks to the adjustable gain, phase and LPF settings, you can, indeed, use the AB3a with other small loudspeakers.

FREE 'N' EASY

If you are hoping that the AB3a will enable LS3/5As to 1) bang out Twisted Sister at 120dB, and 2) play Kodo drums with the same impact as via a quartet of 18in Hartley woofers, then you're in for a huge disappointment. On the other hand, if 'subtlety' is a virtue in your estimation, then the changes wrought by the AB3a will impress.

First, you must forget the AB1 ever existed. While I still get a kick out of mine, the AB3a is to the AB1 what a 4k OLED screen is to a 405-line black-and-white cathode-ray TV. The AB3a is everything you want from an active subwoofer bar the ability to loosen your home's foundations. It is not a kick-you-in-the-gut device for adding thrills to a home cinema.

Rather, you need to approach the AB3a expecting to free up the sound, if in ways that do not immediately spring to mind. Call them unintended consequences or, better still, unanticipated benefits. And

'The dry percussion gets me every time'

what first made me realise this was the Nimbus Supercut of Miles Davis' *Kind Of Blue* [CBS 62066]. The difference between with AB3a and without revealed itself throughout the entire LP, in various ways. The first was a sense of greater openness, the second was enhanced stage depth, while a third benefit was the exposure of fine details with improved clarity.

As this LP is a trumpeter's creation, you'll be pleased to learn that the punch, extension, clarity and, yes, the sound of Miles' saliva, were a touch more vivid. Please bear in mind that the subwoofers were tuned to their least intrusive settings, such that I was wondering if they were even switched on. I couldn't see or feel any

woofer movement when I removed the grilles from the AB3as to check.

UP SCALE

To reassure myself, I cranked up the level just enough to hear an audible blub-blub-blub, so, yes, they were working. In my system, the crossover was set around 60-80Hz, phase to -60° and level two notches from the minimum (after having dialled in too much level just to hear them working).

Moving on to my definitive bass tester, The Band's eponymous second LP [Mobile Fidelity MFSL 1-419], the dry percussion ➔



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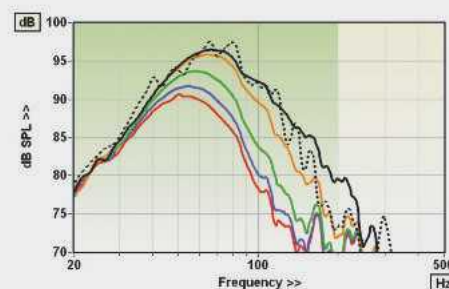
LAB REPORT

ROGERS AB3a (WITH LS3/5A)

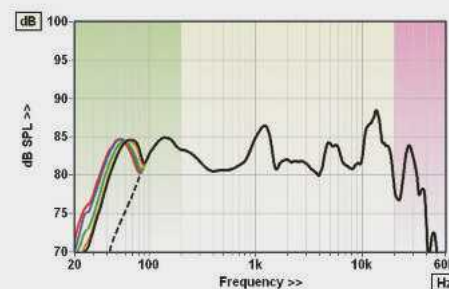
Tested with the latest 15ohm LS3/5A, also from Rogers, the sheer 'adjustability', and placement scenarios, of the AB3a provokes a baffling array of possible response combinations. As a result, I will focus on the corrected, nearfield (free space) performance of this combination. The LS3/5A's 110mm Bextrene bass/mid unit is tuned with a ~5dB uplift at 143Hz (effective bandwidth is 75Hz-334Hz, -6dB) followed by a 2nd-order roll-off which, when used as a satellite, endows this little speaker with a limited 75Hz bass extension (-6dB re. 200Hz). However, when optimally integrated with the AB3a subwoofer, this takes the system down to 38Hz regardless of the 40Hz-240Hz low-pass setting.

That's the headline figure – the detail is at the mercy of LPF, phase and gain (level). For example with the LPF set to 80Hz, and positive (0°) absolute phase, the on-axis -6dB bandpass is 32Hz-86Hz (55Hz peak). In practice, increasing the low pass corner frequency from 40Hz all the way up to 240Hz results in a shift in the AB3a's tuned frequency from 52Hz up to 67Hz and the working bandpass from 32Hz-85Hz to 40Hz-111Hz (all re. -6dB). As important is the progressive +6dB uplift in output across the span of these LPF settings [see Graph 1 – 240Hz, black; 180Hz, orange; 120Hz, green; 80Hz, blue; 40Hz, red]. The dashed black trace is the same measurement taken in a corner location at the widest 240Hz LPF setting. The peaks and dips seen here centred around 40Hz, 50Hz, 65Hz are cancellations and reinforcements that will vary in frequency and amplitude according to distance.

Correcting for level and merging the nearfield outputs of the LS3/5A and the AB3a reveals a -3.5dB dip at 90Hz [Graph 2]. In practice, this could be ameliorated by boundary placement and tuning of the phase control. In theory, with the same turnover frequencies (not exactly so here), then we naturally end up with a +90° phase shift at crossover from the LS3/5A's 2nd-order roll-off and -90° from the sub. This yields 180° and a dip in the overall response. The solution is to steadily invert the polarity of the AB3a's output to 'fill-in' the dip at 90Hz. Good luck! PM



ABOVE: Diffraction-corrected nearfield response for AB3a. LPF set to 240Hz, black; 180Hz, orange; 120Hz, green; 80Hz, blue; 40Hz, red. Dashed, corner position



ABOVE: LS3/5A response inc. nearfield summed driver/sub [green], freefield corrected to 1m at 2.83V [yellow], ultrasonic [pink]. Dashed, without AB3a sub

HI-FI NEWS SPECIFICATIONS

Pair matching (30Hz-130Hz)	+0.5dB
LF extension (-6dB ref 200Hz)	38Hz (with LS3/5A)
THD 40Hz/100Hz (for 85dB SPL/1m)	1.5% / 0.8%
Dimensions (HWD) / Weight (each)	600x190x165mm / 11kg

LEFT: Lifting the Tygan grille from the rear of the sub reveals two mass-loaded 110mm Bextrene 'woofers' driven via an internal 50W Class AB amp. Line (RCA) and high-level (Speakon) inputs are offered with adjustment for level, phase and LPF cut-off (40Hz-240Hz)

au naturel (and the wee Tannoy) with just enough extra weight and warmth to expand the room-filling capability of the sound, with a discernible increase in scale.

RISING STARS

Two sublimely recorded, inherently warm albums such as *The Band* and *Kind Of Blue* are already in possession of a rich, reinforced bass, so I dug out something more bright and treble-oriented, though of equally sublime recording quality. Herb Alpert's open-reel tapes are exceptionally well-recorded (he owns his record label – doh!), and I couldn't resist a burst of *The Beat Of The Brass* [A&M AMC146], with its corny, staccato interpretation of The Mamas And Papas' 1961 hit song 'Monday Monday'.

Normally, such kitsch makes me wanna hurl, but I've warmed to it since owning it on reel-to-reel tape. Here the AB3a revealed another of its deft abilities by shifting the emphasis away from all the treble activity to the band's rhythm section. Again, the effect was subtle, but it was like adjusting the seasoning in a complex dish. The Rogers AB3a, then, is like another twist of the pepper mill, a scant hint of thyme. And that might be the difference between two Michelin stars... and three. ☺

HI-FI NEWS VERDICT

When I raved about the AB1, I took a lot of stick for being too easy on it. That won't apply to the AB3a because it is what you make of it, thanks to the range of adjustments. I won't say the AB3a obviates the use of LS3/5As on their own, but they certainly augment bass and SPLs without affecting the purity of what's on top. This is one clever subwoofer: it does what it says on the box and looks great to boot.

Sound Quality: 84%



from 'Up On Cripple Creek' gets me every time, along with the copious, melodic bass. But I repeat, without employing exaggerated level settings, the sound was distinctly more substantial. There's a snap to Levon Helm's drumming which is truly inimitable, while the entire song – no, make that the entire LP – has a richness that has always characterised The Band's sound.

It's a manifestation of the texture or atmosphere that you find in rural or unplugged blues recordings, including early Muddy Waters or Lightnin' Hopkins, and it's what modern roots music devotees aspire to for authenticity. You get a taste of it with LS3/5As on their own, while always suspecting that there's more waiting in the wings. Switch on the AB3a and it augments an LS3/5A

Elipson Chroma 400

While one Austrian/Czech brand may account for over 50% of 'hi-fi' turntables sold, this hasn't stopped other brands from offering alternative vinyl-friendly packages

Review: **Ed Selley** Lab: **Paul Miller**

With enthusiasm for vinyl showing no sign of diminishing, many companies are now launching record players in a bid to reel in buyers. For the most part this process sees them approach an existing turntable manufacturer and select anything between core components on which to base their own design, to a complete 'turnkey' unit, requiring only the application of branding and a name.

Elipson has taken a different tack with its Chroma decks. Aside from the choice of Ortofon OM10 cartridge mounted on the tonearm used for each model, the turntables share very little with other record players on the market. And neither is the French company drawing on any great design heritage when it comes to analogue replay [see boxout, p75].

KNUCKLE UNDER

The Chroma models replace the brand's Alpha and Omega lines and are divided into the 200 and 400 series. Each of these lineups features a conventional turntable, as reviewed here, that requires a connection to an external phono stage. In addition, both the 200 and 400 series include an 'RIAA' deck with onboard phono stage, and an 'RIAA BT' version that combines the phono stage with a Bluetooth transmitter to connect wirelessly to your system. These built-in electronics cannot be bypassed in either the RIAA or RIAA BT models, so it's the basic Chroma 400 that offers the greatest upgrade potential.

The Chroma 400 is a belt-driven, unsuspended design with a relatively deep plinth comprising a plastic lower body and upper MDF section. This reflects the need for other models in the lineup to accommodate a phono stage and other circuitry within. In all cases, the plinth houses the AC motor, which sits inside a damped housing to reduce vibration.

RIGHT: The pressed steel platter, damped by a felt mat, is belt-driven around its edge by a digitally-controlled DC motor. Flip the switch [lower left] right for 45rpm and left for 33.33rpm

The motor itself offers electronic speed selection (33.33 and 45rpm) although when either is selected via the toggle switch to the left of the plinth, there's a 1-2 second pause before rotation begins that's just long enough for you to wonder if the deck has ceased functioning...

The belt from the motor runs around the outer edge of the upper platter, the subplatter underneath serving purely to spread the contact between the spindle and the plinth. Fitting the belt is a little fiddly, but it does tend to

stay put once in place. A relatively thick felt mat is supplied and it is very much advised to use it [see PM's Lab Report, p77].

A novel aspect of the turntable is its arm. Called the Orbital Torsion Tonearm (OTT), it works by combining horizontal and vertical movements into a single knuckle

that's on the same axis as the armtube. A ring-shaped assembly then extends around the knuckle to support it.

GALLIC CHARM

This orbital yoke is also used to mount the antiskate system, which comprises a length of elastic that descends through the centre of the 'bearing' and is adjusted via a knurled control at the top. In the Chroma 400 models, the armtube is fashioned from carbon-fibre while on the 200 models aluminium is used

instead. The headshell and knuckle sections are plastic and are common to both the 200 and 400 series.

There are some useful refinements to the OTT arm for this generation too. The original model had no armlift, which meant manual cueing only, while the

'The guitar and bass captivated while vocals sounded hearty'





counterweight is now easier to set than before. The arm does have its niggles, however – the lift is undamped so care needs to be taken when dropping the cartridge into position, particularly as the recommended downforce for the Ortofon OM10 cartridge is a relatively low 1.5g.

Minor quirks aside, the Chroma 400 is not short on appeal. As it shares so little of its core design with rivals, it looks and feels suitably distinctive. If you are a 'first-timer' then you'll not know the difference but otherwise the deck, and particularly the arm, might come across as being less substantial than equivalent designs. It is reasonably well made, however.

It also manages to convey something of the Gallic quirkiness of some French engineering without this undermining user-friendliness. Little details such as the rounded edges of the lid and the toggle switch to select speed are key points of contact that feel pleasantly tactile. The

supplied domed aluminium 45rpm adapter is a particularly attractive object [seen under the arm in the picture above], and this can also be purchased separately.

The review sample was finished in the new 'walnut' option that has been added to the range along with a lighter 'oak', and these command a price premium of £50 over the pre-existing black, red and white gloss finishes. Were it me, I'd pocket the £50 and go for a red one as I feel it complements the lines of the Chroma 400 most effectively, but the wood finishes are certainly appealing enough.

FLOW MOTION

Hooked up to a Cyrus Phono Signature phono stage, Chord Electronics CPM2800 MkII integrated amp and Kudos Titan 505 speakers, the Chroma 400 immediately revealed its strengths. The manner in which it tackled 'Ode To The Big Sea' on *Motion*, the 1999 debut album from British 'nu

ABOVE: Walnut-finished MDF plinth and plastic frame encloses both the main bearing and AC motor. Armtube is carbon-fibre but headshell and simple 'orbital' bearing are mouldings

jazz' group The Cinematic Orchestra [Ninja Tune ZEN45] was effortless, especially given the deck's affordable price, the track's distinctive 3/4 time signature flowing from the loudspeakers.

There is a particular section on the track that adds an extra half beat to the drums which can unsettle even some very talented sources, but the Chroma 400 not only took this in its stride but revelled in it. This engaging presentation ensures you are less overtly aware of some of the turntable's limitations. And, make no mistake, it does have its limitations, even if their subjective severity will depend to an extent on the partnering equipment and your personal preferences.

The most noticeable is its bass extension which, frankly, is not especially deep. The pounding opening to 'Swamp Thing' from post-punk band The Chameleons' *Strange Times* [Geffen Records 924 119-1] should offer a proper thwack to the sternum, but the Chroma 400 never really mustered that force. Instead, it delivered a rhythmically inviting sound that made a surprisingly good fist of masking this limited heft. In fact, the agility – the lightness of foot – this deck demonstrated with bass and percussion was consistently impressive.

RIGHT TRACK

Other aspects of the deck's behaviour might be attributed to the partnering Ortofon OM10 cartridge. I'm something of a fan of the OM Series, frequently finding them to be less aggressive in their overall presentation than the 2M models that notionally sit above them in the Ortofon range. In practice, the OM10 lends the Chroma 400 a fundamentally forgiving edge and even fairly hot pressings don't ➡

FRENCH CONNECTION

Turntables are a relatively recent edition to the Elipson range but the company itself predates the LP. Founded in 1938 when it was initially called Multimoteur the company came to prominence in the '50s when it began to experiment with a combination of carefully shaped cabinets made from plaster and natural fibres that were designed to reduce diffraction, and internal reflection and standing waves. These were frequently combined with external reflectors to deliver a diffuse but focused sound, and its ball-shaped BS50 model is still available in updated form. A longstanding relationship with French broadcasters ensured that Elipson loudspeakers were commonly encountered in studios throughout the 1950s-'70s. Company founder Joseph Leon left the firm in 1973 after which period the brand's designs became somewhat more conventional throughout the 1980s-'90s and the broadcasting connection was dropped.

In 2008, Elipson became part of the AV Industry group of companies based in the outskirts of Paris. This saw a revitalisation of the brand, both in traditional directions, with a new range of Planet speakers borrowing directly from the design heritage of those early models, as well as with contemporary thinking. Partnering its series of Chroma turntables, Elipson now manufactures ranges of more conventionally-shaped speakers alongside in-wall and architectural designs that are supported by separates including amplifiers, streaming components and electronics designed for custom installation.

A black Exposure 3510 integrated amplifier is shown on a wooden surface. To its left is a dark blue vase with dried flowers. To its right is a large abstract painting with dark, swirling colors. The amplifier has a sleek, minimalist design with a power button, a selector knob, a row of input buttons (AUX 1/2, TUNER, CD, AUX 2, AI, TAPE), and a volume knob. A circular badge in the top right corner of the image reads "NEW PRODUCT SERIES".

NEW
PRODUCT
SERIES

Our Latest Work Of Art

The NEW **3510** Series

Our new 3510 Series Integrated Amplifier is a masterclass in musicality and power. With 110w RMS, six line inputs and the option to fit a MC or MM phono module or even a plug in DAC, it redefines what is possible in one box amplification. To find out more about our exciting new 3510 Series which also includes a pre-amp as well as power amplifiers, visit exposurehifi.com today.

exposure



TURNTABLE PACKAGE



ABOVE: Stereo RCA sockets are mounted under the left of the plinth while the 12V 'wall wart' DC PSU plugs in on the right. Rear outrigger feet are fully adjustable

unsettle it. It does mean that if you have a phono stage that is also a little on the gentle side, you might find that upper registers feel somewhat recessed, but that wasn't an issue with the hardware used for the listening. The arm/cartridge also faithfully tracked all the records I played during its period under test.

MAJOR SCALE

Where the Ortofon OM10 has a more direct effect on the deck – regardless of partnering equipment – is that fine detail I know to be present in a recording can at times be absent. The interplay between ZZ Top's Billy Gibbons and the recently departed Dusty Hill during their extended instrumental on 'I'm Bad, I'm Nationwide' [*Degüello*; Warner Bros K56701] was certainly not placed with its customary authority.

Nevertheless, the tone of both the guitar and bass – and indeed the track as a whole – was still engaging, beefed-up by the hearty-sounding vocals. It's easier to differentiate between Hill and Gibbons singing than their playing, but both enjoyed a believable presence and scale.

In fact, scale is one of this deck's calling cards. While understanding this will never be the most seismic-sounding sub-£500 turntable you'll encounter, it's still unfazed by material having multiple performers recorded in large acoustic spaces. The fabulous live version of 'San Jacinto' on the remastered version of Peter Gabriel's *Plays Live* [Real World Records PGDLPR1] was faithfully reproduced with a real feeling of both the ambience of the venue and the size of the audience within.

What's more, the Chroma 400 doesn't achieve this by sounding diffuse. Gabriel and his supporting musicians appeared at the centre of the soundstage and were presented in a well marshalled

manner, even if the last traces of detail were omitted. It also ensured the space around the performers was conveyed correctly, creating an immersive listening experience.

It's also worth noting that using the Chroma 400 with a more price-compatible duo of Rega Brio integrated amp and Spendor A1 speakers brought out the positive aspects of the deck's performance while being less focused on its shortcomings. Crucially, the easiness and fluidity that's arguably the Chroma 400's true strength really came to the fore in this system.

ALL RIGHT ON THE NIGHT

The lovely 'All Said And Done' that acts as a sort of palate cleanser on Sturgill Simpson's otherwise cheerfully demented *Sound & Fury* [Elektra 0075678651786] was a genuine delight here. Simpson's distinctive vocal style was faithfully reproduced and the whole piece felt fundamentally right in the way it flowed. Even when the album picked up pace again with its more typical bombast, the Chroma 400's virtues of rhythmic coherence and engagement still entertained. ☺

HI-FI NEWS VERDICT

While Elipson's Chroma 400 might not upset the affordable turntable market, it still possesses virtues that will appeal to many vinyl starters. It offers an engaging rhythmic flow and reveals a compelling sense of acoustic space – enough, perhaps, to win over some enthusiasts who will look past the idiosyncratic design and operation and slight lack of heft that can bedevil its performance.

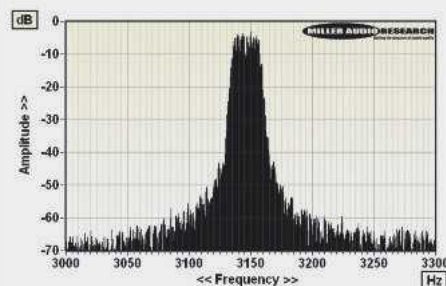
Sound Quality: 76%



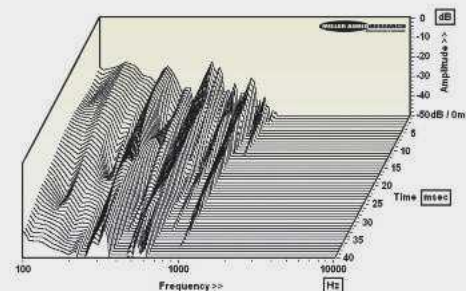
ELIPSON CHROMA 400

Elipson's main bearing with its bronze sleeve and hardened steel shaft is fairly substantial for what is a fairly lightweight plastic subchassis and pressed steel platter, although the mechanical rumble is still slightly below average at -64.9dB (DIN-B wtd, re. 1kHz/5cm/sec). The platter carries no polymer damping, for example, and 'rings' at 850Hz with other modes at 1.29-3.9kHz. Fortunately – by design – both these bell modes and the bearing noise are significantly quelled by the thick felt mat, reducing the through-groove rumble to a more respectable -67.5dB. Speed accuracy is good with a mean error of just -0.14% but low-rate drift is also clearly visible on the W&F spectrum [see Graph 1, below]. While this is a drawback of many DC-powered decks [HFN Aug '20], the Chroma 400 is driven by a synchronous AC motor. However, many listeners are evidently insensitive to low rate drift so Graph 1, and the 0.15% peak wow, possibly 'look' worse than may be experienced in practice.

The partnering OTT (Orbital Torsion Tonearm) offers a low 8g effective mass that's well suited to the high compliance Ortofon OM10 pick-up, but the rudimentary bearing required adjustment in our sample to reduce friction/stiction and free up its vertical movement (~20mg with limited play). The mix of carbon-fibre in the arm tube and injection-moulded plastics for the bulbous headshell and in the bearing housing produces a fairly complex set of bending and other modes [Graph 2]. The main mode is at a low 85Hz (off Graph 2's X-axis) with harmonics, torsional and other structural modes clustered around 150Hz, 290Hz, 550Hz and 960Hz. While this is not the most rigid of cartridge carriers we've tested, the mid/treble is usefully 'clean' above 1kHz. PM



ABOVE: Wow and flutter re. 3150Hz tone at 5cm/sec (plotted ± 150 Hz, 5Hz per minor division)



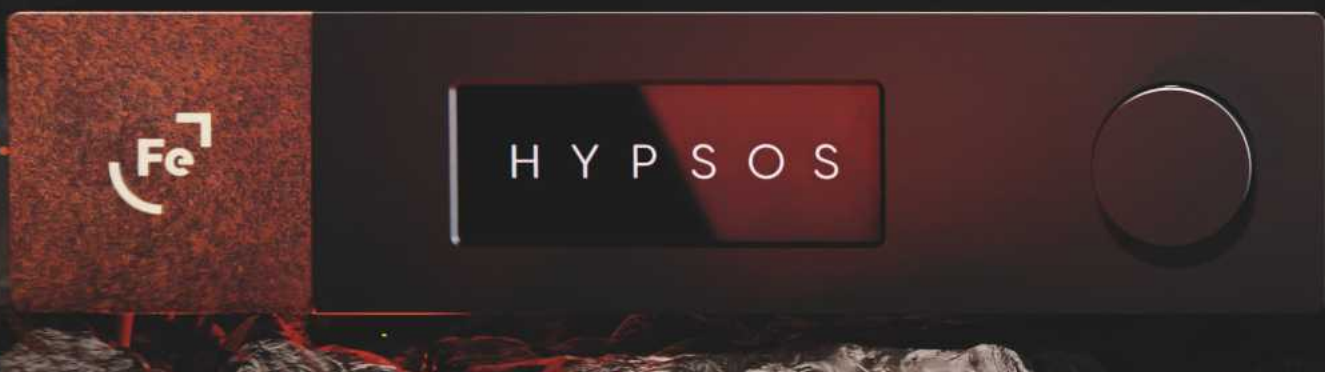
ABOVE: Cumulative tonearm resonant decay spectrum, illustrating various bearing, pillar and 'tube' vibration modes spanning 100Hz-10kHz over 40msec

HI-FI NEWS SPECIFICATIONS

Turntable speed error at 33.33rpm	33.29rpm (-0.14%)
Time to audible stabilisation	3-4sec
Peak Wow/Flutter (Peak wtd)	0.15% / 0.04%
Rumble (silent groove, DIN B wtd)	-67.5dB
Rumble (through bearing, DIN B wtd)	-64.9dB
Hum & Noise (unwtd, rel. to 5cm/sec)	-53.6dB
Power Consumption	4W (1W standby)
Dimensions (WHD, with lid) / Weight	450x120x380mm / 5.8kg

HYPSONS by **Ferrum**

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EISA

EXPERT IMAGING AND
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EISA 2021-22

HI-FI PRODUCTS OF THE YEAR

**Hi-Fi News is the
exclusive UK
representative for the
Hi-Fi Expert Group
within EISA**

The best sound, most advanced technology and desirable features, the ultimate expression of design and, of course, the greatest value for money. Every year the EISA Awards applaud those products that stand above the rest. So read on...

Welcome to the EISA Awards for 2021-2022. Successfully rebranded as the *Expert Imaging and Sound Association* in 2018 [see p27], the world's largest independent CE (consumer electronics) awards panel reflects the collective opinion of 60 of the most respected specialist magazine and web publications from the greater EU community in addition to Canada, India, Australia, the United States, Japan, Russia and Hong Kong.

Just as hi-fi and music-loving enthusiasts relish the discovery of new equipment – everything from turntables and phono stages to digital streaming solutions and power amplifiers, to headphones and sophisticated wireless loudspeakers – the members of EISA's

growing Hi-Fi Expert Group collectively scour the globe for audiophile gems.

Similarly, and on an EISA-wide level, member magazines/websites pool their experience to inform the Association's consensus of the very best in all home and mobile sound and vision products. As last year, judging was extended over many months with numerous products shipped between EISA member countries, fuelling lengthy and highly informed discussions.

Once again, EISA proved that despite local and global restrictions caused by the pandemic, enthusiasts of every stripe remained united in recognising the very best quality products, regardless of nationality or brand origin. For our part, *Hi-Fi News* has always reflected the 'borderless' reality of our hobby so perhaps it's little surprise many of this

year's EISA Award winners, including products from Rotel, Wilson Audio, Hegel, HiFi Rose, Ferrum, Pro-Ject, Monitor Audio and more were originally premiered in our pages!



BELOW: *HFN* editor and President of EISA, Paul Miller, outlines (pre-pandemic) plans for the Association while on stage at the 2019 EISA Gala and Trophy ceremony in Berlin. For the last two seasons, EISA's global network has coordinated very successfully via Zoom!



EISA BEST VALUE TURNTABLE 2021-2022
Pro-Ject Debut PRO

Launched to celebrate the company's 30th anniversary, this very refined version of Pro-Ject's entry-level turntable comes with a raft of improvements, not least of which is a new one-piece alloy/carbon fibre tonearm. The platter is now more heavily damped and non-magnetic, the suspension of both arm and motor have been enhanced, and a new Pick it Pro cartridge comes pre-fitted for near instant set-up and use. Described as 'the ultimate expression of the Debut concept', it sounds assured and involving – it's an absolute knock-out, and a new champion for the entry level.



EISA PHONO STAGE 2021-2022

Hegel V10

Hegel has taken its time adding a dedicated phono stage to its acclaimed series of amplifiers, but it's been worth the wait. The V10 is designed to service a wide range of moving-coil and moving-magnet cartridges, aided by its highly flexible gain, loading and subsonic filter settings that are selected via a matrix of DIP switches underneath the black case. Indeed, the elegant but functional Norwegian styling belies the scope of this vinyl-loving preamp. So it's worth taking the time to dial-up the optimum settings and realise a sound that's both smooth and gloriously insightful, and clearly 'voiced' to partner Hegel's other electronics.



EISAEXPERT IMAGING AND
SOUND ASSOCIATION**EISA AWARDS 2021-2022**

STREAMING AMPLIFIER

EISA STREAMING AMPLIFIER 2021-2022**Cambridge Audio EVO 150**

Compact, clever and capable of driving even demanding speakers to deliver a room-filling sound – whether from your phone, your computer or streaming services – the EVO 150 is all the system many users will ever want or need. It has style on its side, and amazing flexibility including balanced inputs and a phono stage, but the most outstanding feature here is how simple it makes set-up and operation for breathtaking performance. The Cambridge Audio engineers have considered everything, from the way the EVO 150 leads you through installation to the superb StreamMagic app control, making this a system all the family can enjoy, with class-leading sound.



EISA POWER AMPLIFIER 2021-2022 **NAD C 298**

NAD started its story making amplifiers, and has been researching and developing the technology for almost half a century. All that shows in the unassuming-looking C 298 power amplifier, designed for use in everything from conventional hi-fi and home cinema systems to hideaway custom installations. It has single-ended and balanced inputs for flexibility, and switchable signal-sensing for remote operation, while its energy-efficient Purifi Eigentakt amplification technology gives it the ability to drive just about any speaker with impunity. The sound is spectacular, and upgradable too – switch it into bridge mode, and you have a 600W+ monoblock!



EISAEXPERT IMAGING AND
SOUND ASSOCIATION**EISA AWARDS 2021-2022**

STEREO SYSTEM

EISA STEREO SYSTEM 2021-2022**Marantz Model 30/SACD 30n**

Marantz's 30 series has a new style influenced by the design of classic models from the company's past, combined with up-to-date capability within. The Model 30 amplifier and its matching SACD 30n player are a triumph: the amplifier plays it simple, concentrating on the purest possible sound from its all-analogue design, while the SACD/CD/network player brings a whole world of musical opportunity to the party, from discs to streaming and more. 'Modern Musical Luxury' is how Marantz describes this combination, and with its blend of rich, powerful sound, features and gorgeous build quality, this stereo system delivers on that promise.



EISA HEADPHONES 2021-2022**Focal Clear Mg**

Focal's Clear headphones were already a superb performer, but with the arrival of the Mg version the company has raised the bar even further. Changes include a new, pure magnesium driver (hence the name), improvements to resonance control within the open-back housings, and in the alignment of those drivers relative to the user's ear. The result is a headphone sound that retains all the openness of the original, but now offers better speed, clarity and precision. It reveals even more detail in the music and creates a palpably realistic sense of an acoustic spread before you, not enclosed within your head.



EISA STANDMOUNT LOUDSPEAKERS 2021-2022
KEF LS50 Meta

The original, EISA Award-winning LS50 loudspeaker was widely acclaimed, but KEF's engineers have taken it to a new level with numerous detail revisions including the use of Metamaterial Absorption Technology to further control unwanted driver resonances. That may seem like a small internal upgrade, but the result is a magnificent compact speaker capable of a huge soundstage, generous bass and terrific imaging. It's an already impressive speaker now transformed into something truly special and, at the price, is the very best of its genre. If space is tight – or even if it isn't – these remarkable speakers are the ones to have, and the strikingly attractive looks further enhance their user-appeal.



**EISA
FLOORSTANDING
LOUDSPEAKERS
2021-2022**
**Monitor Audio
Silver 500 7G**

The seventh generation of Monitor Audio's Silver Series incorporates a wide range of acoustic innovations, all on show in the magnificent floorstanding flagship of the range, the Silver 500 7G. The C-CAM metal/ceramic tweeter has a new motor and housing, for cleaner, sweeter treble, while the RST II midrange and bass drivers are fashioned from an improved ceramic-coated alloy for greater stiffness. Add in a refined crossover and a beautifully-finished enclosure, into which the drivers are fixed with bolt-through mountings, and you have a speaker as adept with the finest detail as it is developing a massive, powerful view of the music.



FLOORSTANDING LOUDSPEAKERS

EISAEXPERT IMAGING AND
SOUND ASSOCIATION**EISA AWARDS 2021-2022**

WIRELESS FLOORSTANDING LOUDSPEAKERS

**EISA WIRELESS
FLOORSTANDING
LOUDSPEAKERS
2021-2022****System Audio
Legend 40.2
Silverback**

System Audio's elegant active speaker is not only slender, but it's packed with technology to allow the user to achieve the optimum sound and then tweak it to their own taste. Use it with the optional wireless Stereo Hub and you get a choice of automated and manual equalisation to adapt the speaker to your room. System Audio offers a generous pick 'n' mix approach to DSP, including downloadable 'RAM Tweaks' to further reconfigure the sonic balance. However, most impressive of all is this wireless speaker's compelling sound, which majors on resolution, bass power and a fine grasp of rhythm.

**Best
Product**
2021-2022

WIRELESS FLOORSTANDING LOUDSPEAKERS

System Audio Legend 40.2 Silverback

EISA HIGH-END TURNTABLE 2021-2022

Thorens TD 124 DD

It may have ceased production more than half a century ago, but the Thorens TD 124 turntable retains legendary status, and is still much sought after. While the latest version may look much like the original, the 'DD' on the model number shows this is now a direct-drive design, complete with a new and very adjustable tonearm to complete the retro looks, especially when fitted with the SPU 124 pick-up. There's even a pop-up adapter for 'jukebox' singles, but whatever you play on the TD 124 DD it delights with its speed, slam and sheer weight. It may look vintage, but the sound is compellingly up to date.



HIGH-END TURNTABLE



EISA HIGH-END MUSIC PLAYER 2021-2022

HiFi Rose RS150

It's hard not to form initial impressions of the RS150 based on the way it looks, from its build quality to that graphic-filled full-width touchscreen display, but it soon becomes clear there's more to it than meets the eye. This is an accomplished – and extremely flexible – player/DAC that will play everything from Bluetooth streams to hi-res content, and you can even install SSD storage to make it a complete library and player in one unit. The sound is striking, too, majoring on richness and detail that contributes to a very mature presentation. This is a decidedly impressive debut for the Korean brand.



EISA INTEGRATED AMPLIFIER 2021-2022

Rotel Michi X3

This may be the more affordable of two integrated amplifiers in Rotel's revived Michi lineup, but it's undoubtedly the sweet spot of the range, combining 'drive anything' confidence with speed, warmth and the ability to switch from pile-driver to a gossamer touch when required. There's no shortage of power here, but the Michi X3 carries its massive output lightly, being fast, detailed and beautifully controlled, and is all the more rewarding as a result. Add in its flexibility, build quality and sheer style, and you have an amp able to take on all the super-integrated amplifiers now available and show most of them a clean pair of heels.



**EISA HIGH-END
LOUDSPEAKERS
2021-2022****Wilson Audio
SabrinaX**

Wilson Audio's Sabrina was long-established as a remarkable compact high-end speaker, but for this X model the company has made some major changes to further enhance performance. These start with those beautiful cabinets, now made from the inert X-material from which the speaker takes its name, finished in a choice of WilsonGloss paint colours. The tweeter is derived from the company's flagship models, for better detail and 'air', and while the midrange is retained from the original Sabrina, a new woofer delivers tighter, faster bass. The result? An expanded soundstage and extended bass, delivering massive scale with free-breathing atmosphere and ambience – whatever you play.

**Best
Product**
2021-2022

HIGH-END LOUDSPEAKERS

Wilson Audio SabrinaX

EISA HEADPHONE SOLUTION 2021-2022

Naim Uniti Atom Headphone Edition

With an eye to the seemingly unstoppable rise of headphone listening, Naim created this version of its entry-level Uniti Atom, dedicated to headphone use. With amplifier technology trickled down from the company's flagship Statement product, the Uniti Atom Headphone Edition combines wide-ranging network and streaming audio capability with both balanced and single-ended headphone outputs, and it can also be used as a streaming preamp into a power amplifier or active speakers. Whichever you choose, it plays music with authority and immense impact, and will really make the most of partnering equipment.



EISA HIGH-END HEADPHONES 2021-2022**T+A Solitaire P-SE**

T+A made an ambitious entry into the headphone arena, aiming straight for the top with its Solitaire P model and a matching HA200 headphone amplifier. The P-SE is a little more affordable than the original design, thanks to some simplification of the planar magnetic drivers and their motor system, but this is still an unapologetically high-end design, able to deliver a wide-open view of the music while still presenting it with weight, richness and impact. Above all, they impress with the way everything hangs together, from the weight of a double bass to the finest detail in the high treble, making for an entirely thrilling listen.



EISA HI-FI ACCESSORY 2021-2022

Ferrum Hypsos

Power is everything – that's the thinking behind the Hypsos, a hugely flexible DC power supply from Polish brand Ferrum, designed to replace all those plug-top supplies with which so many hi-fi components are now provided. It can deliver clean DC power over a range of 5V to 30V, and comes complete with pre-loaded settings for over 100 popular products. Or you can set up your own output parameters, complete with fine adjustment to find the power setting 'sweet spot'. It represents a potent upgrade for a wide range of devices, not least USB DAC/headphone amplifiers, typically encouraging a sound with greater ease and smoothness – and yes, power!



EISA PHONO CARTRIDGE 2021-2022**Ortofon 2M Black LVB 250**

The latest variation on Ortofon's long-running 2M moving-magnet cartridge design pays tribute to Beethoven 250 years after his birth, complete with a picture of the composer on the side of its body. It fits the bill with a silky, sophisticated presentation especially well-suited to classical, jazz and acoustic music. Refined and composed, it uses a version of the stylus and cantilever found in the company's Cadenza Black moving-coil cartridge. This, along with a new suspension, all contributes to a sound that boasts rock-solid imaging, great stereo focus and depth along with a smooth, lush view of strings and other acoustic instruments.


**Best
Product**
2021-2022

 PHONO CARTRIDGE
Ortofon 2M Black LVB 250

**Best
Product**
2021-2022

DAC

Cambridge Audio DacMagic 200M

EISA DAC 2021-2022**Cambridge Audio DacMagic 200M**

Cambridge Audio has been making DACs since 1994, and it all shows in the latest addition to its DacMagic line, the 200M. It lives up to the precedent of its illustrious forebears with an attractive combination of solid build, ease of use and performance, plus wide-ranging file-format compatibility, all the way up to 768kHz/24-bit and DSD512 (at least via its USB input). Easy to use, it's not only an excellent 'desktop audio' device that'll drive headphones to good effect, but it will also serve up a storm in a main audio system with its crisp, rewarding and expressively-detailed sound.

**EISA BEST VALUE HEADPHONES
2021-2022****Sennheiser HD 560 S**

Sennheiser has long had an enviable position in the audio market, from its excellent headphones to its role as a supplier of microphones for everything from recording to live performances. And in the HD 560 S Sennheiser brings together all that knowledge in a design able to deliver a wide-open sound with exceptional detail and fast clean bass, plus a realistic impression of soundstage. The new drivers use a polymer blend for linear response and an airy treble, while the angled drivers combine with the open-backed design to create a real sense of presence.


**Best
Product**
2021-2022

 BEST VALUE HEADPHONES
Sennheiser HD 560 S


EISA DIGITAL MUSIC PLAYER 2021-2022

Bluesound NODE

Bluesound's multiroom wireless system was revolutionary when it first appeared, its BluOS platform having been designed to play music all the way up to hi-res, with a process of refinement and development ever since. This latest version of its NODE music player is a simple way to bring multiroom to your system, with Wi-Fi, Ethernet, Apple AirPlay 2, aptX HD Bluetooth and USB-A to access audio content from streaming services, Internet radio and your own music library. And the new NODE now also has HDMI ARC, for audio from TVs and gaming systems – all controlled using the intuitive BluOS Controller app or via the popular voice assistants.



EISA WIRELESS STANDMOUNT LOUDSPEAKERS 2021-2022

KEF LS50 Wireless II

Developed from the original LS50W design, using the same Metamaterial Absorption Technology found in the LS50 Meta model, this is much more than just a pair of speakers. In fact, it's a complete wireless hi-fi system, able to play music from portable devices, local network storage and streaming services, all under the control of a cleverly-designed app. Set-up and configuration is simple, meaning you'll have music playing in minutes, while the combination of KEF's Uni-Q driver and plenty of internal amplifier power delivers a focused, involving sound way beyond expectations for speakers so small. They can handle hi-res music or just Bluetooth from your phone, look fabulous whether on shelves or their dedicated stands – and of course have that 'hi-fi without all the boxes' appeal.

EISA HI-FI SUBWOOFER 2021-2022

KEF KC62

On rare occasions it's hard to associate the equipment before you with the sound you're hearing. Take as an example the amazing KEF KC62 subwoofer – it's tiny at just 25cm per side, with a pair of drivers just 16.5cm in diameter, and yet this seemingly miraculous speaker delivers massive, fast and tautly controlled bass down to subterranean depths. So the KC62 is so small you can hide it away almost anywhere, but the performance is all down to clever design – the opposed drivers use Uni-Core force cancelling, each powered by a 500W amplifier, all under the control of digital signal processing. Want even more fun? Try using two of them!



EISA COMPACT SUBWOOFER 2021-2022

SVS 3000 Micro

Other models in SVS's 3000 series use a single, large woofer in a sealed or ported enclosure. Here, however, the US bass specialist has introduced its smallest ever subwoofer driver (an 8in aluminium cone), and fitted two of them within a new, rock-solid cabinet measuring less than 30cm in all directions. The 3000 Micro is therefore destined for use in space-starved home theatres and living rooms, while still delivering the performance that brand fans will expect. Its onboard 800W-rated Sledge DSP amplifier keeps a tight rein on proceedings, allowing this sub to mix control and subtlety with brute force when needed. Factor in the affordable price tag and it's a clear category winner.



Best Product
2021-2022

COMPACT SUBWOOFER
SVS 3000 Micro



Best Product
2021-2022

IN-EAR HEADPHONES
LG TONE Free FP8

EISA IN-EAR HEADPHONES 2021-2022

LG TONE Free FP8

Designed in partnership with Meridian Audio, LG's TONE Free FP8 true wireless earbuds offer a mix of welcome features and impressive performance. Affordably priced, with a 10-hour battery life and instant smartphone pairing over Bluetooth 5.2, these deliver a clear sound with voice calls and full-range clarity with music from their 8mm silicon drivers. Active Noise Cancellation is effective, as is the FP8's bass response, and the earbuds fit comfortably for long listening sessions. When not in use, they can be recharged in LG's smart-looking UVNano case, which sanitises them via a UV LED for peace of mind. This is a forward-thinking design matching style with real substance.

EISA WIRELESS HEADPHONES 2021-2022

Philips Fidelio L3

Wearing the Fidelio L3, the top-of-the-range headphone in Philips' relaunched Fidelio range, is like being wrapped in a tender hug – a stylish and well-built over-the-ear design, it offers an incredible balance of beauty, efficiency and sound quality. The active noise cancellation (ANC) system, based on a hybrid design with dual microphones, works superbly and is completely transparent. Meanwhile, the frequency extension of the headphone's 40mm drivers is surprising, with powerful but perfectly controlled bass, extremely low distortion and a tonal balance that doesn't alter with ANC in play. It's an unfatiguing sound that encourages long listening sessions, something helped by the Fidelio L3's comfortable design and long battery life. You won't want to take it off.



Best Product
2021-2022

WIRELESS HEADPHONES
Philips Fidelio L3



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EISA IN-CAR OEM PREMIUM AUDIO SYSTEM 2021-2022	Maserati MC20 with Sonus faber

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Classical Companion

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Saint-Saëns *Symphony No 3 'Organ'*

There's so much to enjoy – and a lot to go wrong – about recorded versions of a symphony facing in several different directions at once, says **Peter Quantrill**

Saint-Saëns had been organist of the Madeleine Church in Paris for almost 30 years when he wrote the last of his five symphonies – the first two unnumbered – in 1886. But the commission for it came from the London Philharmonic Orchestra, and he conducted the premiere at St James's Hall in London.

'Nature is without aim', he wrote. 'She is an endless circle and leads us nowhere', which was a singularly humanistic outlook for a cradle Catholic and church organist. But then Saint-Saëns – traveller, botanist, astronomer, cartoonist – made a point of holding nothing foreign to himself over the course of a long and immensely productive lifetime.

'I am much too busy to get old', he remarked to the English organist EM Henderson at the age of 77. 'There is simply no end to my interminable career!'

NOTIONS OF AUTHENTICITY

The kind of sound Saint-Saëns had in mind is one of several contested notions of authenticity surrounding the Third Symphony. Another is the

→ **Charles Munch**, in charge of the most French-sounding of American orchestras for this classic 1963 stereo recording

↙ **Iveta Apkalna**, the Latvian organist bringing a subtly assertive presence to Mariss Jansons's second recording



dedication to Franz Liszt, who died shortly before its publication. The symphony's argument proceeds through the technique of developing variation, pioneered by Liszt in his piano music. All the melodies in the symphony are derived from the stepwise motif heard at the outset of the first movement's main *Allegro*, which itself is a variant of the *Dies irae* plainchant melody given a lead musical and dramatic role by Berlioz in the *Symphonie Fantastique*. César Franck and Vincent d'Indy looked at the 'Organ' Symphony and followed suit.

For a new kind of symphony, Saint-Saëns needed a new orchestra, which he achieved with the introduction of organ, piano and the Lisztian triangle. While he waxed hot and cold over Wagner in print, the lush harmonies of the symphony's *Adagio* would be unimaginable without the recent example of *Parsifal*'s Good Friday Meadows.

But Wagner's declared antipode Mendelssohn is the model for the masterly close to the Scherzo, which weaves the leitmotif back into the texture of rippling scales and dancing winds before easing seamlessly into a sublime string-led

meditation: from ballet-stage to side-chapel within a matter of bars.

Secular and sacred environments, French and German musical idioms, organ and orchestra, elements of symphony and tone-poem: all must be held in balance by performers of the Third Symphony. Responsibility for the premiere on disc fell to Piero Coppola, who also conducted the premiere recordings of Debussy's *La mer* and Ravel's *Boléro*.

BOLT-ON ORGANS

The French HMV sound from 1930 is surprisingly full on the download-only Classical Moments remastering, the Paris Conservatoire ensemble at its tautest. There is a characteristically tight expressive screw turned by Arturo Toscanini but the lighter touch of Sir Thomas Beecham's direction (live in 1954, see Essential Recordings boxout, p155) pays dividends in the relaxed virtuosity of the RPO's playing.

With the '60s we reach an array of excellent recordings from the US,

where the 'Organ' Symphony found a second home thanks to suitably equipped concert halls, conductors with the right temperament for the piece and

engineers eager to refine the kind of multi-microphone set-ups demanded by the complex orchestration.

Most strikingly hi-fi of them all is Paul Paray's Mercury recording from Detroit, crisp as a baguette straight from the oven, but (like Beecham) Charles Munch imparts a depth and radiance to the string tone within the context of a swift and hot-tempered reading that retains its classic status today.

Compendious boxes take up shelf space and enjoy a limited life-span of

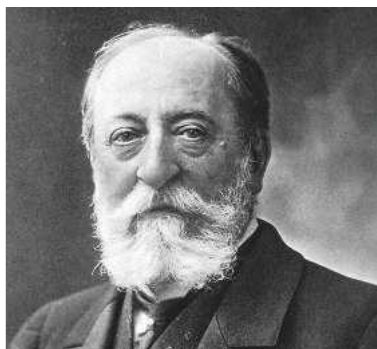
'From ballet stage to side-chapel within a matter of bars'



PHOTO: ANGIE KREMER

availability but anyone in possession of the Warner set dedicated to the Belgian-born André Cluytens should investigate his gripping 1955 EMI account, with the Paris Conservatoire orchestra at the Salle de la Mutualité and the organ part taped by Henriette Puig-Roget a few days earlier on the Cavaillé-Coll instrument then sited at the Palais de Chaillot. Cluytens was a welcome guest at Bayreuth at the time, and it shows, but so does the native rapport between conductor, organist and orchestra.

Among a clutch of early digital recordings, Serge Baudo's version is rarer still, last available in a box documenting the history of EMI Eminence, well worth hunting down for the mingled grandeur and urgency of Baudo's conducting and the skilful integration of the LPO with Jane Parker-Smith's expert handling of the Cavaillé-Coll organ in the unlikely venue of Paisley Abbey.



From the same era, the flair of James Levine and Simon Preston in Berlin (DG) and Charles Dutoit and Peter Hurford in Montreal (Decca) stands up well, but don't overlook Jean Guillou and Eduardo Mata with the Dallas SO (Dorian, download only). It's a brass-heavy but nimbly played throwback to the era of Munch and Beecham. Lighter in texture but conjuring a hypnotic intensity, Peter Maag with Daniel Chorzempa and the Bern SO is another elusive early-digital favourite (once on IMP Classics).

When compared with Beecham's gas mark 9, the delicate textures and subtle phrasing of many modern recordings go hand in hand with pallid instrumental shading and low expressive temperature. Ludovic Morlot in Seattle, Kent Nagano in Montreal, Slatkin in Lyon – all are

→ **Saint-Sulpice**
in Paris, home to the masterpiece of the supreme French Romantic organ builder Aristide Cavaillé-Coll



decently recorded, well-prepared, CD-available recordings using a concert-hall organ in situ but undone by a fey refinement in the face of the score's particular Wagnerisme. Monumental tempi and sticky opulence take Christoph Eschenbach's Philadelphia version too far in the other direction, while I find Yannick Nézet-Seguin in both Montreal (Atma) and London (LPO Live) straight-up vulgar.

RUSH TO THE HEAD

Move away from this dominant Franco-American axis, and the refinement wrought by Jansons (BR-Klassik) and Pappano (Warner) on 'their' orchestras in Munich and Rome reaps dividends. These trenchant, extrovert live-recorded versions take an expansive, serious approach while giving the organ its head in the finale and missing only

the last degree of erotic-religious passion in the *Adagio*.

'Bolt-on' recordings of the symphony (the nadir reached with Pierre Cochereau at Notre-Dame spatchcocked by DG onto Karajan's Berlin Philharmonic at their most glutinous) are now a thing of the past. Perhaps that's no bad thing, but no one lets rip with the piece these days, after the fashion of Munch, Cluytens, Maag or Baudo.

Two Parisian recordings come closest. The first is the unabashed Wagnerism and dynamic refinement of Myung-Whun Chung on DG, evident from the outset in the languorous phrasing of the Bastille orchestra. The second? This is the 'new authenticity' of François-Xavier Roth recorded live in the Roman Catholic church of Saint-Sulpice, with his father Daniel at the bench of Cavaillé-Coll's masterpiece. ☺

← **Saint-Saëns**
began composing at the age of six and didn't lay down his pen until the morning of his death 80 years later

ESSENTIAL RECORDINGS

Zamkochian, Boston SO/Munch

RCA 09026615002 (download only)
'Living Stereo' sound, a little dry but vivid: a fine match for Munch's Franco-American BSO palette and passionate interpretation.

Vaughan, RPO/Beecham

Somm SOMMB32
Reasonably open mono sound for Beecham at his most inspired, building up to a Gothically scaled payoff of tremendous catharsis.

Puig-Roget, PCO/Cluytens

EMI/Warner 9029583048 (download only)
Cluytens' pacing and the Cavaillé-Coll attack are unrivalled at the Wagnerian climax of the *Adagio* and the finale's curtain-raiser.

Weir, Ulster Orch/Y-P Tortelier

Chandos CHAN8822
Both organ and acoustic come closest to the conditions of the symphony's premiere – a fine balance of delicacy and resonance.

D Roth, Les Siècles/F-X Roth

Actes Sud ASM04 (download only)
Long on mood, shorter on detail but fierily driven, with the two-piano texture evoking an aquarium in the place of an altar.

Apkalna, BRSO/Jansons

BR-Klassik 900178
Less 'French' but so refined and lucid in Jansons's 'late', soft-textured reading; the Klais organ a subtle but definite presence.

Vinyl Release

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW

Traffic *John Barleycorn...*

Buy this reissue for the title track, says **Steve Sutherland**, but who was John Barleycorn? The unsparing details will be no surprise to all who have seen *The Wicker Man*...

Police Sergeant Neil Howie steps inside the bakery. He has flown here, to Summerisle, a small, remote Hebridean island, on a one-man seaplane to investigate the whereabouts of Rowan Morrison, a young schoolgirl who's reported missing. He's been to the school, the church, the library, the pub, the graveyard, even to the Laird of the island's manse, but every local he questions is infuriatingly vague, reluctant to divulge any helpful information.

A BLOODY TALE

While the residents prepare for their May festivities, Sgt Howie, a devout Christian with a solid sense of duty, is now going door to door looking for clues. He addresses the baker who, it seems, is busying about adorning his costume for the celebrations ahead. He then shows the Sergeant a large loaf of bread shaped like a man.

'Who is it?' asks the Sgt. 'John Barleycorn', replies the baker. 'The life of the fields.' Old John,

it seems, has been around pretty much since the dawn of time, celebrated in song at least for as long as humans have been practising agriculture.

His name crops up in Elizabethan texts and a 16th-century Scottish ditty called 'Quhy Sowld Nocht Allane Honorit Be' celebrates him in the guise of Allan-a-Maut, aka Alan of the Malt, a character created to personify the process when barley is made into beer and whisky.

The first printed mention of JB by his actual name can be found in a 1624 broadside which begins: 'A Pleasant New Ballad to sing/Evening and morn/Of the Bloody murder of Sir John Barleycorn'. And in 1782 Scots poet

Robert Burns turned his hand to the tale, creating three kings who, 'hae sworn a solemn oath/John Barleycorn should die'. And what they do to him is not for the faint-hearted.

First they, 'took a plough and plough'd him down/ Put clods upon his head...'

'It borrows liberally from Robert Burns' poem'

In other words, they buried him alive and assumed that would do him in. But Spring showers came and he rose from his grave, and the Summer sun strengthened him with spears around his head.

Autumn's chill, though, laid him low, pale and weakened, whereupon his enemies attacked again, taking up sharpened blades and cutting him off at the knees. They bound him to a cart, a captive for all to see, then laid him on his back and pounded him with cudgels. Still not satisfied, they then hung him up in sore agony before they took him to a dark pit full of water and chucked him in, leaving him to drown.

BOUNTIFUL BOOZE

But even then they weren't done: they later hauled him out and, 'wasted, o'er a scorching flame/The marrow of his bones', until a miller arrived who 'crush'd him between two stones'. The poem goes on to conclude: 'They have ta'en his very heart's blood/And drank it round and round/And still the more and more they drank/Their joy did more abound...'

There are loads of fascinating articles that link John Barleycorn's saga to the druids and paganism and the notion of blessing the harvest – offerings to the gods to ensure on-going annual fertility. There's an obvious Christian link here too, as John Barleycorn becomes born again, his blood a gift of redemption, and flowing bountifully for us in the form of booze.

And he crops up again, quite literally, in corn dollies. It was believed that the spirit of the corn lived among the fields and when they were harvested, the spirit would become homeless. So the last sheaf cut was fashioned into a human shape and kept safe through the winter, home to the spirit, until it was ploughed into the first furrow of the new season.


And all of this is what bewitched and inspired Steve Winwood to create the

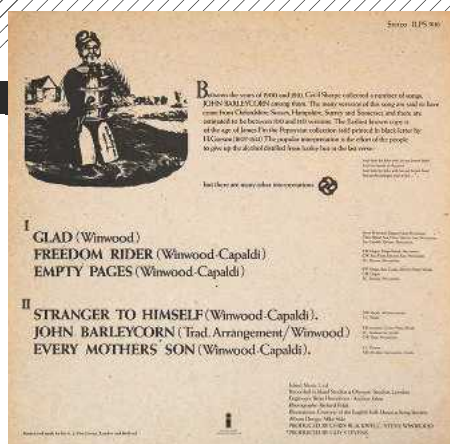
STEVE SUTHERLAND

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...



HEINRICH KLAFFS

 Traffic on stage in 1973 with Steve Winwood singing, label of original LP (inset) and (far right) original inner gatefold sleeve and Steve Winwood pictured in 1970



➔ Priced £15.99, the 180g vinyl reissue of Traffic's *John Barleycorn Must Die* is available at www.thesoundofvinyl.com

title track of the album we're here to talk about. Winwood had recently accidentally resurrected Traffic, the band he'd knocked on the head a year previously, after a disappointing super group forage with Eric Clapton and Ginger Baker, late of Cream, and Rick Grech, nicked from Family, under the collective moniker Blind Faith. Clapton had bailed on the band, all jittery about fame and fortune, so Winwood, now still only 22 years old, decided to fulfil his recording contract with a solo LP on which he'd play all the instruments and which would nominally be called *Mad Shadows*.

TRAFFIC ALUMNI

But playing alone he found no fun at all, so first he hauled his old Brummie percussionist Traffic buddy Jim Capaldi back onboard to add some sparks, and soon after this another Traffic alumnus, sax/woodwind wizard Chris Wood was also back in the fold. Conspicuous by his absence was Dave Mason, who'd been in

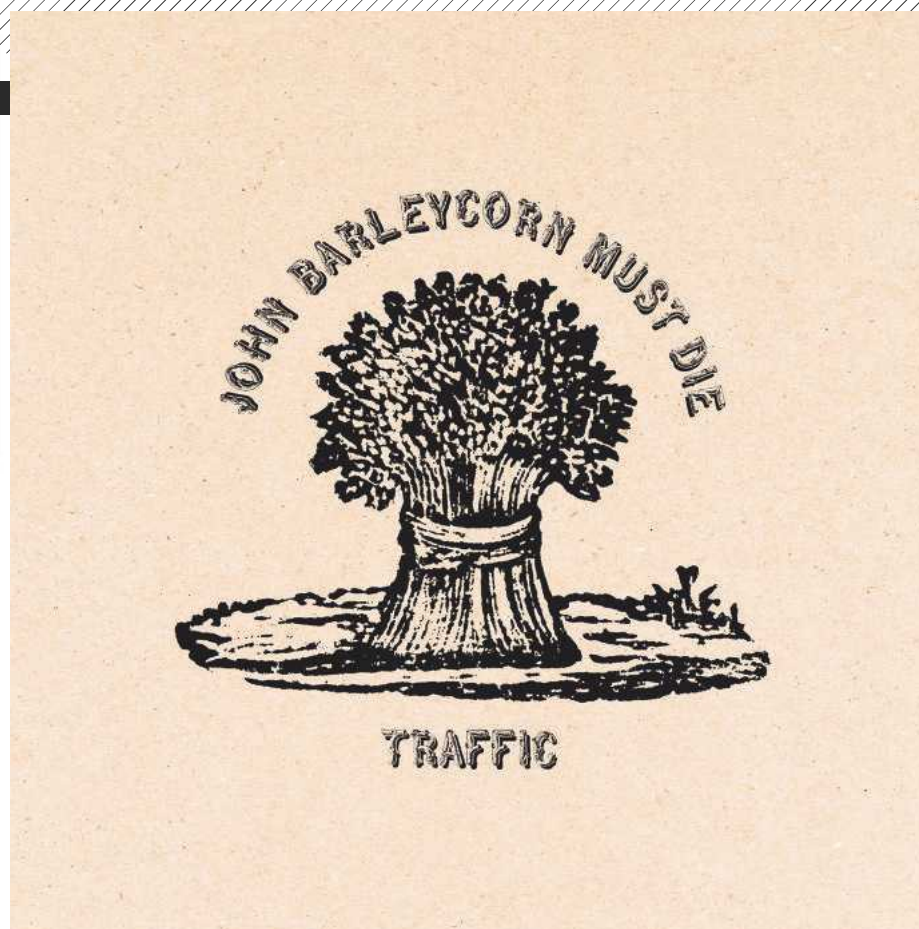


and out of the group in the past few years, largely due to his Claptonesque aversion to commerciality and his inverted snobbery when it came to having hits.

Mad Shadows actually wound up being the title of a Mott The Hoople album while our three reconciled buddies commenced working on what turned out to be Traffic's fourth LP. The eagle-eyed among you will doubtless have spotted the emphasis being heaped upon the title track. Well, to be brutally honest, it's the sole number out of the six that deserves to be considered anywhere near the band's best.

Opener 'Glad' is a jazzy instrumental that meanders between piano and sax to no great avail. 'Freedom Rider' is a limp-along B-side filler that never really takes off, 'Empty Pages' is the sort of soppy, tasteful MOR ballad that Winwood lucratively retired into in the mid '70s once Traffic had run their course. Then, unfortunately, 'Stranger To Himself' and 'Every Mother's Son' kinda drag.

Which leaves the title track alone to fight the album's corner, lyrically borrowing liberally from the Robert Burns poem in a delicate psych-folk acoustic/flute haze that harks back to Traffic's trippy '40,000 Headmen'.



This is a seriously cool and contemporary treatment of traditional material right up there with Fairport Convention's 'She Moves Through The Fair' and 'Reynardine', agelessly, resonantly spooky. Which reminds me: we should resolve the issue of Sgt Howie.

He is, of course, the hapless protagonist of Robin Hardy's 1973 unsurpassed horror movie, *The Wicker Man*, brilliantly played with clenched-jawed intensity by the late great Edward Woodward, his awful sacrificial fate every painful flinch the match of our poor John Barley's. ☹

RE-RELEASE VERDICT

Co-produced by Steve Winwood and Chris Blackman, this July 1970 release came on the Island Records label in the UK [ILPS 9116]. Produced in London's Olympia and Island Studios in the spring of that year, it went on to peak at No 5 in the US *Billboard* chart. Much reissued since, the album is now available as a UMC-Island 180g pressing [7751256] with Mike Sida's original artwork, separated from the 2019 remastered *Traffic – The Studio Albums 1967-74* box set. HFN

Sound Quality: 80%

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Chili Peppers *Blood, Sugar...*

Produced by Rick Rubin, this fifth studio album for Warner Bros marked a change of style for the American group, with less heavy metal and a more melodic bias. And it propelled the Peppers to superstardom, with over 90,000 copies sold in the UK alone
 Words: **Mike Barnes**



The Red Hot Chili Peppers were formed by a quartet of friends in 1983 at Fairfax High School in Los Angeles: singer Anthony Kiedis, bass player Flea (aka Michael Balzary), drummer Jack Irons and guitarist Hillel Slovak. However, Irons and Slovak were also in a band called What Is This? and when they got a deal the pair quit.

Shortly afterwards, Red Hot Chili Peppers landed their own deal with EMI America/Enigma and recruited guitarist Jack Sherman and drummer Cliff Martinez. The latter had served in LA Punk band The Weirdoes and his rhythmic dexterity had been developed by a stint in the final incarnation of Captain Beefheart And The Magic Band.

NEW YORK CUES

The group were keen to ally the energy of punk rock to the rhythms of funk and in this respect took cues from New York 'No Wave' bands such as saxophonist James Siegfried's The Contortions who had an arch, angular take on the type of funk and R&B pioneered by James Brown. There was also trombonist Joe Bowie's jazzier combo, Defunkt.

Kiedis' delivery was influenced by the emerging rap and hip-hop scene, which many had experienced for the first time on Grandmaster Flash And The Furious Five's epochal 1982 single 'The Message'.

Throughout the early part of their career The Red Hot Chili Peppers worked with producers whose own music had influenced them. For their debut album they enlisted Andy Gill, the guitarist in The Gang Of Four, an English group who had concocted an idiosyncratic and hugely influential mix of punk rock and funk.

Unfortunately, during the recording sessions, Kiedis was horrified to see that Gill had described their song 'Police

← **Vocalist Anthony Kiedis and bassist Flea on stage in Amsterdam in 1989**

↑ **Label of original 1991 vinyl release on Warners**

→ **The group in 2011 (l-r) Flea, guitarist Josh Klinghoffer, drummer Chad Smith and Anthony Kiedis**

↗ **Promo shot for 1985's *Freaky Styley*, the band mid-air in front of a Michelangelo painting**

↓ **Flea live on stage in 2012 at Rock In Rio, in Madrid**

Helicopter' as 'sh*t' in his notebook, and thereafter the recording was made in an atmosphere that was rather adversarial.

Released in 1984, *The Red Hot Chili Peppers* was patchy, and received mixed reviews but it was an important statement of intent and it landed just outside the *Billboard* 200. James Stafford on Diffuser FM later described it as 'the little spark that ignited the rap-rock revolution'.

FUNK PIONEER

For the band's next album, called *Freaky Styley*, Sherman was shown the door and Hillel Slovak rejoined. The group then hooked up with another major influence in the form of George Clinton, the funk pioneer from the groups Parliament and Funkadelic.

And unsurprisingly the result has been described as one of their funkier albums.

But it failed to chart, Flea later wondering if the fusion they sought lay too far outside mainstream tastes, being 'too funky for white radio, too punk rockin' for black'.

Michael Beinhorn had come to prominence in the late '70s as a synth player and producer for Material, a New York City collective that

encompassed disco and avant-funk. After a chance encounter with The Red Hot Chili Peppers he produced their 1987 album *The Uplift Mofo Party Plan*. Despite another round of mixed reviews it was their first

album to make it into the *Billboard* 200.

Oddly enough, this is the only time that all four original members of the group played on an album, as Martinez had departed and

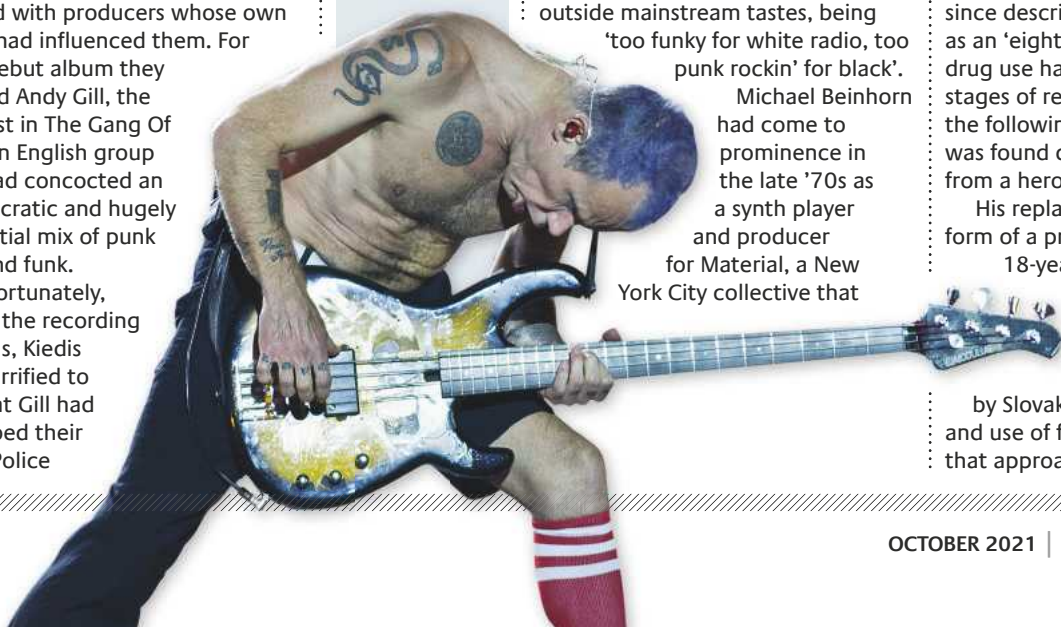
Irons rejoined. Michael Beinhorn has since described making the album as an 'eight-month ordeal', but while drug use had disrupted the early stages of recording, disaster struck the following summer when Slovak was found dead in his apartment from a heroin overdose.

His replacement came in the form of a prodigiously talented 18-year-old guitarist, John

Frusciante. Already a fan, he had seen the band in concert and had been impressed

by Slovak's hard-edged sound and use of feedback, and took that approach 'sideways'. Deeply

'Making the album was an "eight month ordeal"'



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VINYL ICONS

PRODUCTION NOTES

Blood Sugar Sex Magik was the first album Rick Rubin recorded at The Mansion, the name he gave to his ten-bedroom house on Laurel Canyon Boulevard, Los Angeles. The recording console was set up in the living room and Kiedis chose to record his vocals in his second floor bedroom. Frusciante also relished the house, listening to music, honing down arrangements and completing some artwork in his room.

While he used a Marshall set-up and a Fender HOT practice amp, Frusciante generally direct-injected his Fender Stratocaster into the desk for definition and achieved distortion by overdriving the board. He also employed Boss DS-2 Turbo Distortion, Ibanez WH-10 wah-wah and Big Muff fuzz pedals, and a Strat with the frets removed for the solos on 'Mellowship Slinky In B Major' and 'Suck My Kiss'.

Frusciante also played Martin 6- and 12-string acoustic guitars, on



'Breaking The Girl' and 'I Could Have Lied'. Flea, meanwhile, mainly used a Wal Mach II bass, and a five-string Music Man Stingray on 'Funky Monks' and 'The Righteous And The Wicked'. Chad Smith played Gretsch drums and a Tama Bell brass snare.

Rubin encouraged the group to express themselves and experiment with sound. This gave rise to the 'junkyard percussion' section of 'Breaking The Girl', and the idea that they should record their cover of Robert Johnson's 'They're Red Hot' on a grassy hill in the grounds of the mansion at 2am. Passing traffic is audible on the track.

The producer was keen not to apply any pressure to the process and this strategy worked as the album was recorded quickly. In fact the basic tracking was completed in under a month and some 25 tracks or more were finished in seven weeks during May and June 1991.



affected by the death of his friend, Irons also quit. He was replaced by Chad Smith who was influenced by drummers such as Greg Errico from Sly And The Family Stone, and Clyde Stubblefield and Jabo Starks who had played with James Brown.

STRIDENT RAPS

Despite the rigours of recording its predecessor, Beinhorn was back behind the mixing desk for *Mother's Milk* (1989). It broke into the *Billboard* Top 50 and went gold the following year. It defined the style for the group's most successful phase, with its more focused sound, and Kiedis getting into more strident raps.

Frusciante brought a more melodic structure to the songs, which had hitherto largely been worked up from jams, although he felt that Beinhorn's insistence on near heavy metal guitar overdubs rather overpowered the music.

The Red Hot Chili Peppers had always come across like a gang, full of frat boy humour, often gurning at the camera in press shots. And on the cover of *Freaky Styley* they are pictured, apparently suspended in mid-air, in front of the Michelangelo painting 'The Last Judgement'.

This attitude partly explains why Kiedis was unsure of the choice of producer Rick Rubin [*HFN* Jul '16] for the next album, *Blood Sugar*



Sex Magik. Rubin had set up Def Jam records, worked with hip-hop groups like The Beastie Boys and Run-DMC, and had come up with the inspired idea of inviting the latter to collaborate with hard rockers Aerosmith on the 1986 single 'Walk

This Way'. With these credentials he seemed perfect for the job.

Yet Kiedis was concerned that a collaboration wouldn't work as Rubin had also recorded metal bands like Slayer and

Danzig, who he felt were essentially negative compared to the positive energy that The Red Hot Chili



The group's very first promo shot, released in 1984 by EMI America (l-r) Jack Sherman, (guitar) Flea, Cliff Martinez (drums) and Anthony Kiedis

Rear sleeve of the original LP featuring the 'asterix' tattoo on the wrist of guitarist John Frusciante

Poster for an appearance by the band in 1991 at Cow Palace in San Francisco, with Nirvana and Pearl Jam as support acts

Rick Rubin caught on camera at Abbey Road Studios in 2006. Rubin was co-president of Columbia Records before founding Def Jam Recordings in 1984

The group in 1985 (clockwise l-r) Anthony Kiedis, Chad Smith, Flea and John Frusciante

'It defined the style for the group's next phase'



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➔ Frusciante, Flea, Smith and Kiedis pictured in 2006

Peppers put across. But Kiedis overcame his reservations. As he would tell EW.com: 'We had come into ourselves and we knew what we were and what we wanted to do'.

On *Mother's Milk*, Beinhorn had given Smith's snare drum a heavy, reverb'd sound, but Rubin made it smarter and sharper. And the drummer stripped back his style, which helped shape the phrasing of Kiedis's vocal melodies and raps. Flea had been identified as a hot-shot bass player but on *Blood Sugar Sex Magik* he strove to be less 'busy or fancy', generating just as much excitement by leaving more space.

HOLLOW CONQUESTS

Frusciante, meanwhile, uses clean rhythmic phrases interspersed with heavier and more textural outbursts to great effect. He also played acoustic guitar – the first time it had appeared on an album by the group – which was particularly effective on the song 'Breaking The Girl', on which the session engineer Brendan O'Brien added mellotron.

Here Kiedis muses on the hollowness of his many amorous conquests, and on 'I Could Have Lied' he analyses his failed relationship with Irish singer Sinéad O'Connor, introducing a more three-dimensional view of women among some typically lascivious lyrics.

But things turn darker with the balladic 'Under The Bridge', which describes the desperate state of mind brought on by addiction. 'My Lovely Man', meanwhile, is a tribute to Slovak. But the band still jammed up some ideas in the studio, one of which 'Give It Away', a musing on shedding oneself of worldly possessions, was released as a single and went on to become one of the group's most anthemic songs.

Blood Sugar Sex Magik was universally well received and viewed as the culmination of what the band had set out to achieve back in 1983. It was released on September the 24th 1991 (the same day as Nirvana's *Nevermind*) and reached No 3 in the *US Billboard 200*. ☺



ORIGINAL LP

Blood Sugar Sex Magik was released as a double LP in 1991 on Warner Brothers in the US [7599-26681-1] and Europe [7599-26681-1; WX441]. It included two printed inner sleeves, one red and one black – each with a band photo on one side and lyrics printed in white on the other.

The Croatian version came out on Warner Brothers and Croatia Records, which was the successor to the Yugoslavian label Jugoton [7599-26681-1; LP-7-2-F 2037001]. Jugoton had been renamed after the country gained its independence that year.

Presumably due to the popularity of CD when it appeared there were few vinyl releases of *Blood Sugar Sex Magik* in different territories. An exception was the Brazilian version with black inner sleeves and black and white band photos [Warner 675.8030].

The LP was reissued in 1999 in the UK on Warner Brothers without printed inner sleeves [7599-26681-1; WX441]. (All the following releases are on Warner unless otherwise stated.)



20TH ANNIVERSARY LP

In 2011 a limited edition and numbered 20th anniversary double LP was recut and remastered at Bernie Grundman Remastering, California, from the original analogue master tapes and pressed on red 140g vinyl.

Alternate Format Discography

It was released in the US on the 25th of November 2011 for Record Store Day/Black Friday [468348-1] and also in European territories on that date [9362-49869-4]. This came with printed lyrics inserts.

CASSETTE

In the US, *Blood Sugar Sex Magik* appeared in 1991 on cassette with the tracklisting printed in white on clear shells. It contained an insert with band photos that included a photo compilation made up of images of the different group members' tattoos, and with lyrics [45203-4]. The version that was issued in Europe also came in this format [7599-26681-4].

As an indication of the relative popularity of the cassette format at the time, it hit the shops in a number of territories worldwide via other labels in the initial year of release, including a Bolivian version on Discolandia Dueri & Cua. Ltda. [WC-1246] and in Poland via the Polton imprint [PCW-505].



having been launched by Sony in 1992. This boasted a 20-page booklet of photographs, lyrics and credits [7599-26681-8].

AUDIOPHILE VINYL

In 2012 a 180g vinyl pressing, based on the previous year's remastering, was released in the US in red inner sleeves with photos and lyrics [468348-1; 1-528928]. In Europe it had the catalogue number 9362-49541-6. A more recent 180g LP set came out in Europe in 2019 [pictured above] with a newly designed Warners label in lilac [09362 4954163].



OUTTAKES

Although *Blood Sugar Sex Magik* has 17 songs, an estimated 25 tracks were recorded during the sessions. However, the details of these are sketchy, even among group members.

The album has never been physically released in an expanded form. Four of the songs appeared as the B-sides of different singles on a selection of formats. These are 'Sikamikaniko', a cover of Iggy & The Stooges' 'Search & Destroy' and an instrumental, 'Felas' Cock', which can be found on the 3CD stopgap *The Live Rare Remix Box* released in Germany in 1994 [936241405-2].

'Search And Destroy' was also included on *The Beavis And Butt-Head Experience* compilation released in 1993 on Geffen [GEFD-24613]. 'Soul To Squeeze' was a non-album single also released in 1993 and can be found on the band's 2003 US CD compilation *Greatest Hits* [9362-48545-2].

Meanwhile, Jimi Hendrix covers, 'Little Miss Lover' and 'Castles Made Of Sand' (which the group often played live), were made available as iTunes bonus tracks in 2006.

CD AND MINIDISC

The first US and European CDs of *Blood Sugar Sex Magik* [pictured above right] came with a 16-page booklet that featured song lyrics and different configurations of the band photos used for the LP release, including the tattoo compilation [9 26681-2].

Unusually for an album of this stature there have been very few deviations from the standard CD format and the remastering has thus far has only been for vinyl. However, a Japanese paper sleeve edition in a facsimile LP sleeve, with all the inserts, came to that territory in 2006 [WPCR-12310].

The album was issued as a MiniDisc in European territories in 1999 [pictured above], the format





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Inside the Studio

BEHIND THE MUSIC WITH HI-FI NEWS & RECORD REVIEW



Abbey Road Studios

From The Beatles to Kate Bush, Sir Edward Elgar to Kayne West... this year sees the north London studio celebrate 90 years of history and hits. **Steve Sutherland** on Abbey Road

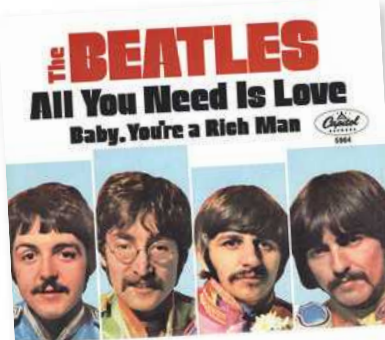
We could begin at 8.54pm on the 25th of June 1967, when the cameras cut to the studio about 40 seconds earlier than expected to discover producer George Martin and engineer Geoff Emerick scrambling to hide a bottle of Scotch whisky beneath the mixing desk. They'd been taking a tot to calm their nerves before the tricky task of mixing the audio for the live worldwide broadcast of The Beatles' contribution to *Our World*, the first ever live global television link.

It's to be broadcast in black and white for two-and-a-half hours via the Intelsat I (Early Bird), Intelsat II (Lana Bird) and ATS-1 satellites to an estimated audience of between 400 and 700 million people in 25 countries around the world. Hence the need for Dutch courage.

↑ A look inside Studio 2, the most famous due to its Beatles connections and (inset) exterior of Abbey Road

→ The Beatles single 'All You Need Is Love' from 1967

→ The 'Early Bird' satellite, launched in April 1965



The Fabs' bit is a little something John Lennon has knocked up called 'All You Need Is Love' and, with a backing track already surreptitiously recorded a few days earlier, the band are now seated in Studio 2 topping it off live for the cameras.

GROOVY GUESTS

The whole psychedelically decorated affair is being directed by the BBC's Derek Burrell-Davis, and the segment opens with the band playing the track for about a minute, before George Martin, speaking from the control room, suggests the orchestra should take their places for the recording as the tape is rewind.

It's a neat piece of staged spontaneity that had actually been filmed earlier, and by the time Martin appears to be issuing instructions, the orchestra are already seated in Studio 1. Now the

KEY RECORDING TIMELINE



1931

Paul Robeson's 'Rockin' Chair' is the first published recording released out of the studios



1969

The Beatles record their final studio album, *Abbey Road*. It's so good it's decided re-name the studio after it...



1973

Pink Floyd spend 38 days in Abbey Road Studio 2 creating their critical classic, *The Dark Side Of The Moon*



show really begins with The Beatles, accompanied by the orchestra, performing the entire song, overdubbing onto the backing track with backing vocals courtesy of a gaggle of specially invited groovy guests including Mick Jagger and Keith Richards from chart-topping best frenemies The Rolling Stones, Eric Clapton, Marianne Faithfull, Hollie Graham Nash and Keith Moon from The Who.



↖ The Beatles caught on camera in Summer 1966

↗ Pink Floyd on the cover of *Piper At The Gates Of Dawn*, recorded in Studio 3

↗ Abbey Road's Studio 3 was originally its smallest studio

↗ Sir Edward Elgar, who conducted the LSO at the studio's opening in 1931

↗ Kate Bush's album *Never For Ever* and Bush with a Fairlight CMI



basis, Abbey Road Studios is indisputably, as it claims on its website, the most famous recording studio in the world. So, no intro necessary – let's rock.

The current complex was originally a nine-bedroom house built in 1829 on the footpath leading to Kilburn Abbey. A century later, the Gramophone Company acquired the premises and converted it into the world's first purpose-built recording studio.

EARLY STEREO

The official studio opening, filmed by Pathé, was held on the 12th of November 1931 with Edward Elgar conducting the London Symphony Orchestra through a rousing rendition of *Land Of Hope And Glory* in Studio 1. But prior to this, about a month earlier, the bass-baritone Paul Robeson recorded several songs here with Ray Noble and his



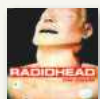
Orchestra and one of them, a cover of Hoagy Carmichael's 'Rockin' Chair' became the first published recording released out of the studios.

That same year The Gramophone Company became EMI – Electric and Musical Industries – in a merger that brought together three labels: His Master's Voice, Columbia and

Parlophone. Each had its own studio in the building, which was now renamed the EMI Recording Studios. Research labs were set up in Hayes, Middlesex. One of the engineers there, Alan Blumlein, was at a cinema when he had a eureka moment over the poor sound quality

accompanying the talkie he was watching. At work, he developed his theories into stereophonic sound which he then patented.

In 1933 he oversaw the production of the first stereo discs and, a just year later, recorded Mozart's 'Jupiter' Symphony at the studio with Sir Thomas Beecham conducting, beginning its international reputation for experimental innovation via the



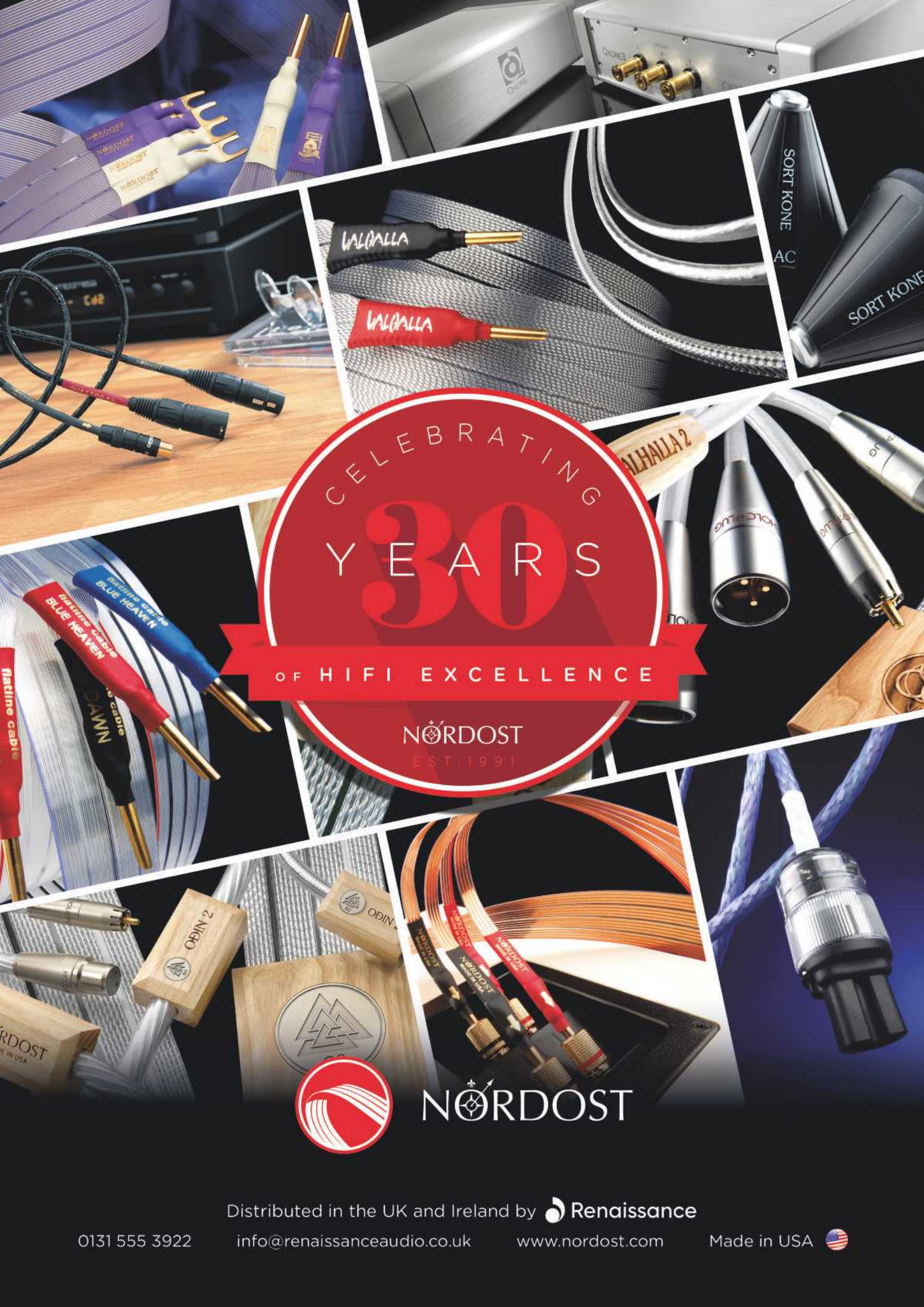
1995
Radiohead switch from RAK Studios to Abbey Road to continue work on *The Bends*. Six songs are chart hits



2006
Kanye West, backed by a 17-piece orchestra, records his hit album *Late Orchestration* live in Studio 1




2021
Elton John's *Sgt Zippo* – his debut LP that never was – finally sees the light of day after a remix at Abbey Road



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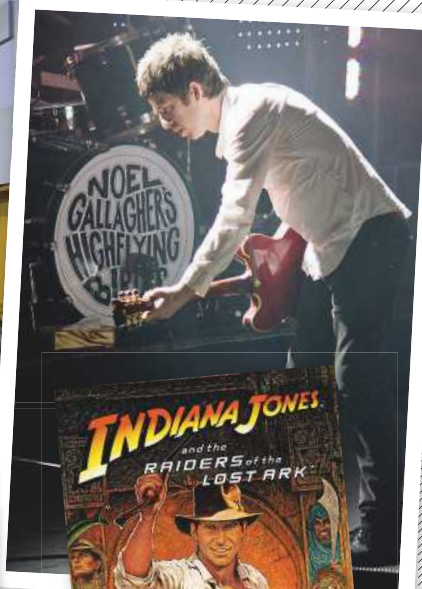
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Record Engineering Development Department (REDD). This soon came to invent Artificial Double Tracking (ADT), pioneered by studio technician Ken Townsend, who went on to become the studio's MD, then Vice President of EMI Studios Group.

MAKING MOVIES

Most of the initial recordings at the complex were classical, followed by jazz and big band, until rock

'n' roll took shape in the 1950s, with Cliff Richard's debut single 'Move It' heralding a new era of artists to follow. These include, over the next half century or so, such luminaries as Oasis (*Be*

Here Now, 1997), Radiohead (*The Bends*, 1995), The Zombies (*Odessey & Oracle*, 1968), Frank Ocean (*Blonde*, 2016), Kanye West (*Late Orchestration*, 2006), Pink Floyd (most of their best albums, including *The Dark Side Of The Moon*, 1973) and Kate Bush (*Never For Ever*, *The Dreaming*, *Hounds Of Love*) among hundreds of others. Not to mention The Beatles, who recorded no fewer than 190 of their 210 songs here, mostly in Studio 2. The studio changed its name to Abbey Road to reflect the title of The Fabs' final LP.

The set-up also became popular for recording movie scores with such famous soundtracks as *Raiders Of The Lost Ark*, *The Lord Of The Rings* trilogy, *Skyfall*, and the Harry Potter series just some of the stunners to emerge from Studio 1.

In addition to the aforementioned trio of recording spaces, 2017 saw Abbey Road further expand with the creation of The Gatehouse. The website describes it as, 'a modern tracking studio which includes a

multi-surfaced live room along with a control room and mixing desk... the perfect space for a small band or vocal act'. Plus there's The Front Room, 'for smaller-scale recording set-ups and writing sessions', and The Penthouse, 'an all-digital modern recording and mix suite'.

Declared an English Heritage Grade II listed site in 2010, Universal Music acquired it two years later after the takeover of

EMI. The rooms are equipped with both modern and heritage recording equipment and there's said to be some 500 microphones in the vaults – among them almost 100 vintage

Neumann tube mics, including 11 U47/48s, 18 U67s, 15 M50s, six M49s and ten KM54s.

The locker also holds some extraordinarily rare microphones, such as the two EMI RM1B ribbons designed by Alan Blumlein himself, and the one-of-a-kind microphones built for members of the British Royal Family rediscovered for the

'It holds some unique mics built for the Royal Family'



Abbey Road Studio 1 is the world's largest purpose-built recording space

Singer Cliff Richard pictured in 1960

Oasis's Noel Gallagher plays with the High Flying Birds in 2012

The 1981 movie *Raiders Of The Lost Ark*, whose soundtrack was recorded in Studio 1

Rapper West on stage in 2017. He recorded his 2006 album *Late Orchestration* in Studio 1

soundtrack of the 2010 historical drama, *The King's Speech*.

Meanwhile, a 60-channel AMS Neve 88RS console has been installed in Studio 2, and a similar desk sits in Studio 1's control room, while Studio 3 is centred around a 96-channel SSL 9000 J-series desk. In addition, Abbey Road owns a vintage tube-based EMI REDD.17 mixer and an EMI TG12410 mastering console as well as two EMI TG12345 desks.

BEATLE GEAR

There is also a huge selection of tape recorders, outboard units and musical instruments at the studio, including a few Fairchild 660 compressors acquired in 1964 and still in daily use. The 660s were used on every Beatles session, predominantly on vocal tracks, but also on drums and piano recordings.

Then there are EMI's RS124 compressors – heavily modified Altec 436B units, which were first employed around 1960. The two Studer J37 four-track recorders that saw use on The Beatles' recordings were sold off, but others are still kept at the studios, among them No 1 of the first four machines that arrived at the studios in 1965.

The full equipment list would fill a book. But hey-ho, we've run out of space. So, we'll end with a quote about Abbey Road from Noel Gallagher, a man who generally knows what he's on about: 'It's where the magic happens'. ☺

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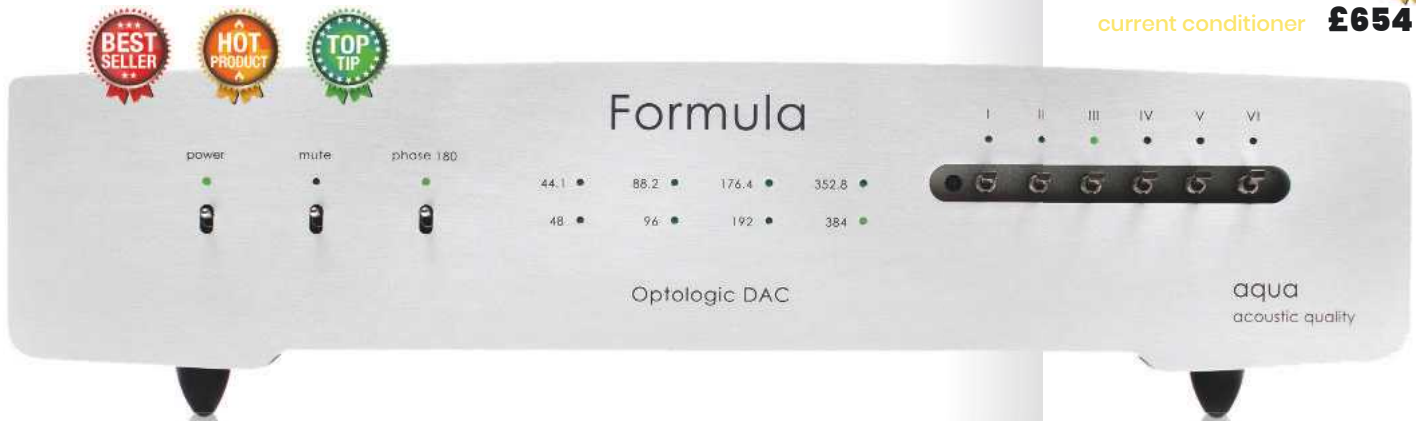
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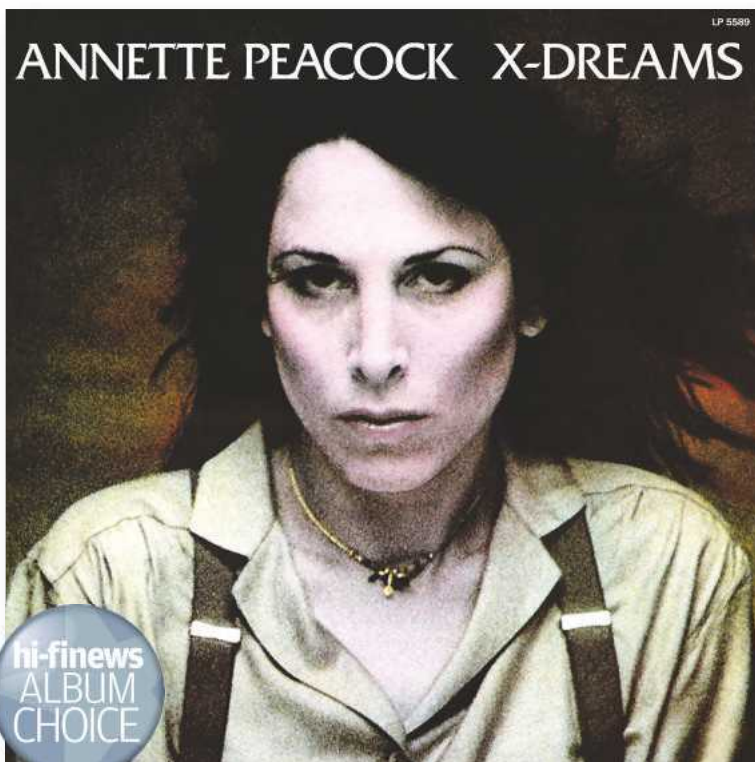
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ANNETTE PEACOCK

X-Dreams

Sundazed LP5589 Orange vinyl

In 1978 *X-Dreams* established Peacock as a jazz vocalist for rock fans. The American singer – imagine Rickie Lee Jones crossed with Captain Beefheart – enhanced her rock credibility with an array of heroes including Mick Ronson and Chris Spedding on guitars, drummers Bill Bruford and Rick Marotta and others who created what is a super-session, but of the abstract. More of a poetry reading than a songfest, *X-Dreams* was considered way ahead of the curve 40-plus years ago; the opener, 'Mama Never Taught Me How To Cook,' yanks this into 2021 with confessional content that's too topical to discuss here. And then there's a cover of Elvis's 'Don't Be Cruel'. One for the adventurous. **KK**

Sound Quality: 90%



BROTHER JACK McDUFF

Tobacco Road

Speakers Corner/Atlantic SD1472 (180g vinyl)

In between rural blues at one end and avant-garde jazz at the other, various genres including soul, disco and R&B nudge each other, with crossover artists delivering eclectic, irresistible and accessible LPs such as this instrumental feast. For this 1967 release, organist McDuff interpreted 'Blowin' In the Wind', 'The Shadow Of Your Smile', the title song and six others in a jazz-funk manner of instant appeal to those who like nothing better than kicking back with a brandy to Ramsey Lewis, George Benson, Wes Montgomery or Booker T & The MGs. The transfer is superb, the sound as fat, warm, rich and fluid as needed to sit you in front of a big-ass Hammond B3. **KK**

Sound Quality: 90%



MADNESS

7

Union Square Music SALVOLP07 (180g vinyl)

As I'm not English, I never 'got' Madness, Suggs' flat twang nor the numbing, relentless reggae/ska bass. However, Madness were huge and this remastering of the third album – is calling it 7 more British wit that eludes me? – delivers an exceptional sonic experience. As a non-fan, I find it samey to the point of my losing the will to live, but those who regard the 1980s as a decade of merit can delight in 'Grey Day', 'Shut Up', 'Cardiac Arrest' and ten others, loving every woofer-threatening note. Facts: producer Clive Langer washed dishes in the restaurant where I worked in the '70s, and the owner's cousin married Suggs. I hope they'll forgive my *ennui*. **KK**

Sound Quality: 90%



WHITESNAKE

The Blues Album

Rhino RCV1 645676 (two 180g blue vinyl LPs)

From the opening salvos, this terrific set, completing the 'Red, White & Blues Trilogy', declares its hard-rock intent – the 'blues' in the title could be misleading because only a handful of the tracks are what, say, Elmore James might find familiar. Instead, this is mainly power chords and vocal swagger precisely as ordered by the fans. The 14 remastered tracks span 1984-2011 from six studio LPs and Coverdale's solo, *Into The Light*, a nicely-sequenced selection, with tortured moments like 'Too Many Tears' reminding us of their way with ballads, while the big hits here include 'Slow An' Easy' from 1984, and 'Give Me All Your Love' from 1987. Play it loud. **KK**

Sound Quality: 85%





COMPACT DISC



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VINYL



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THE MISUNDERSTOOD

Children Of The Sun

Grapefruit CRSEG0860 (two discs)

Subtitled 'The Complete Recordings 1965-1966', this is a must for those who revel in pioneering, star-crossed bands like The Action, The Flamin' Groovies, *et al.* This outfit followed The Walker Brothers as Californians who relocated to the UK, proteges of John Peel. Their catalogue was as rich as The Yardbirds' for inventiveness and in defining psychedelia, with the unusual touch of using pedal steel in a non-Country & Western context. With exceptional original numbers and choice blues covers such as 'Shake Your Money Maker', this group is one of rock's best-kept secrets, the failure to succeed adding poignancy to the band's name. *KK*

Sound Quality: 85%



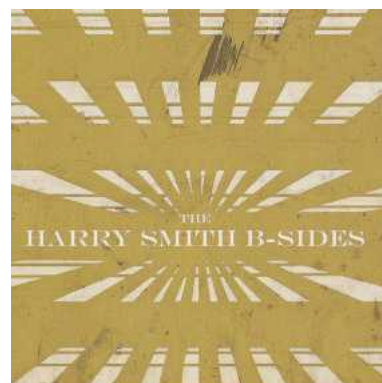
NEIL YOUNG

Young Shakespeare

Reprise 093624888093 (CD + DVD + LP)

Described on the sticker as 'The Earliest Known Film Of Neil Young Live', this is a document to cherish. An acoustic set recorded in Connecticut in 1971, at a time when he could do no wrong, Neil pre-dated the craze for unplugged gigs. And look at the songs he performed!: 'Old Man', 'Helpless', 'Down By The River', 'Heart Of Gold', 'Ohio' and others of that calibre, sounding like a 'Greatest Hits Live' package, with Young in peerless form. As guilty as any for abusing his fans' devotion with overpriced box sets, this is the opposite: it is simply astonishing and, to be frank, it probably deserves Digital Album Choice as much as the Lennon [below]. *KK*

Sound Quality: 90%



VARIOUS ARTISTS

The Harry Smith B-Sides

Dust-To-Digital 80226 00512 (four discs)

Even though I'm trying to cut back, I had to buy this sequel to Harry Smith's archival recordings which – like Alan Lomax's efforts – rescued much musical Americana from being lost forever. Like the title says, this contains the B-sides to the recordings on his monumental 1952 Folkways Records release, *Anthology Of American Folk Music* (a 1997 CD). That covered mainly rural American music during 1927-32; this box, with its detailed 144-page booklet, adds 84 tracks from obscure blues, folk, country and gospel singers. Sadly, political correctness called for three tracks to be omitted, but, hey, that's 2021. For musicologists, this is an *essential* purchase. *KK*

Sound Quality: 80%



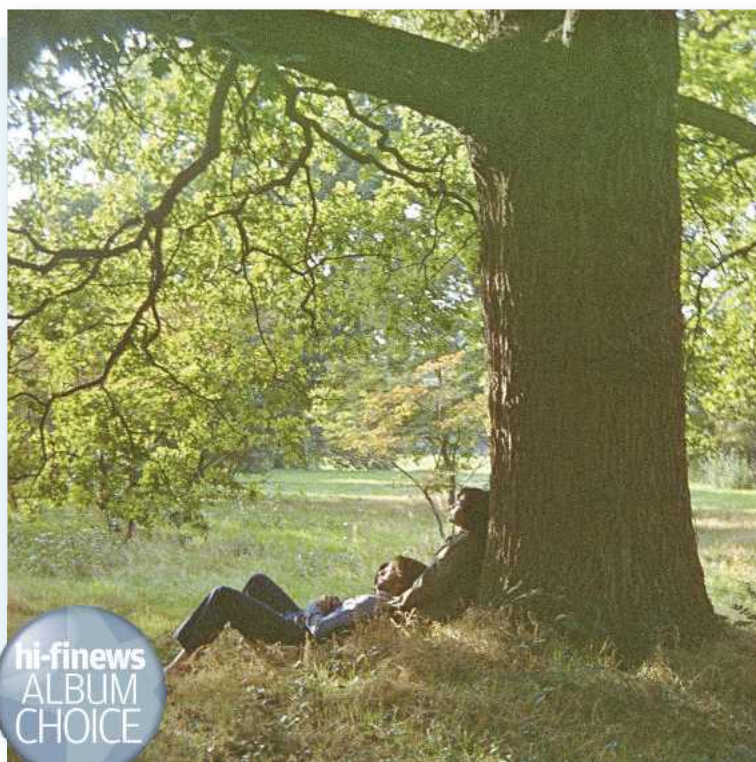
JOHN LENNON/PLASTIC ONO BAND

John Lennon/Plastic Ono Band

Universal 0602507354299 (six CDs + two Blu-ray discs)

After three tedious, unlistenable, Yoko-infected experimental LPs (*Two Virgins*, *Life With The Lions* and *The Wedding Album*) and a dire live set, Lennon produced an album made up of actual songs. This late-1970 release was a monumental *kvetch*, all his life's resentments and anger suddenly exploding like a gigantic zit. 'God', 'My Mummy's Dead', 'Isolation', 'Working Class Hero' – fortunately, the music transcends the message, and this complete remastering sounds fantastic. But do we need *eight* discs' worth of Yoko's archive plundering? Much of this is repetitious filler, but devotees will relish every second. In retrospect, though, this seems to be Lennon's musical mantra for wokeness. *KK*

Sound Quality: 90%





KANSAS

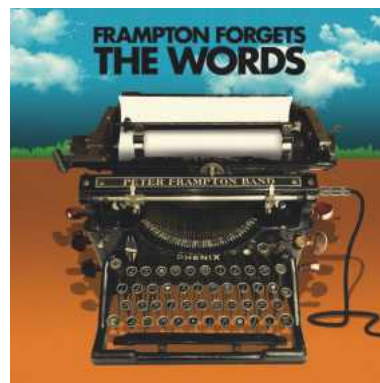
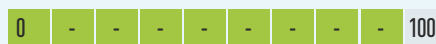
Point Of Know Return Live & Beyond
(96kHz/24-bit, FLAC)*

www.hi-hiresaudio.com; InsideOutMusic n/a cat. no.

It's arguable whether we need another version of Kansas's most successful album, acclaimed by some as the band's best work, but here – 44 years on, and with the inevitable changes of lineup – we have a live version, recorded during the 2019/20 'Anniversary Tour'. And what we get is the whole album played in sequence, bookended by some extra tracks from the band's extended catalogue. So, one just for the fans, then? Not quite: what this album

delivers is some fine musicianship, and – notwithstanding PM's Lab Report [below] indicating upsampling at work to create this 96kHz/24-bit release – an exemplary recording job. Give in to the portentous lyrics and the howling guitars, kick back and enjoy a fine version of 'Dust In The Wind', and the chances are you may well find the whole experience enjoyable, even if you're not nostalgia-tinged. **AE**

Sound Quality: 90%



PETER FRAMPTON BAND

Frampton Forgets The Words (96kHz/24-bit, FLAC)

www.hi-hiresaudio.com; Universal Music Group n/a cat. no.

For those of us who grew up with 1995's exuberant *Frampton Comes Alive!* – yes, talk-box and all – this set is both joyous and somewhat poignant. The title comes from the fact this is an all-instrumental set, following on from 2006's *Fingerprints* and Frampton's diagnosis with degenerative inclusion body myositis. Determined to keep playing while he still can, the good news is that Frampton, now 71, sounds in fine fettle with his trusty '54 Les Paul in his home city of Nashville, this set reflecting his work with artists from George Harris and John Lennon to Bowie and Stevie Wonder. So yes, it's an album of instrumental covers, but what sets it apart is both the quality of playing from both Frampton and his band, and the superb quality of the recording, which gives every performer space around the lead guitar. It's a gentle set, but one to relish and revisit time and time again. **AE**

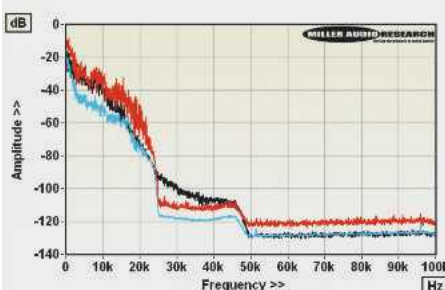
Sound Quality: 85%



OUR PROMISE

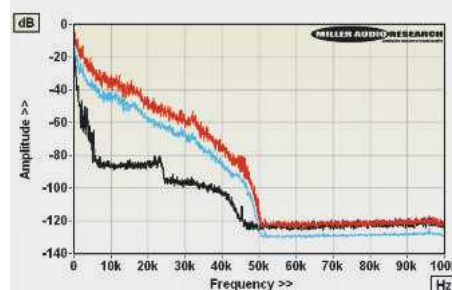
Following our Investigation feature [HFN Jun '11] where we examined the claimed quality of 'high-res' downloads, *Hi-Fi News & Record Review* continues to measure the true sample rate and bit-depth of HD music downloads. The Graphs show peak [red] and RMS [blue] spectra. These unique reviews will be a regular source of information for those seeking new and remastered recordings offered at high sample rates and with the promise of delivering the very best sound quality. (Note: an asterisk in the heading denotes a technical reservation – see Lab text). **PM**

LAB REPORT



All but two of these tracks (7 and 15) are normalised to -0.68dBfs but the album looks to be a 96kHz upsample of 48kHz live streams. Occasional bursts of aliasing noise [black trace] suggest some upstream limiting – but this is a live gig after all! **PM**

LAB REPORT



Normalised to -0.1dBfs with the peak-to-RMS range of most tracks no more than 9dB, it's arguable the 24-bit 'envelope' might have been better used. Lower 48kHz sample rate (synth) input makes its way into the mix [black trace]. **PM**



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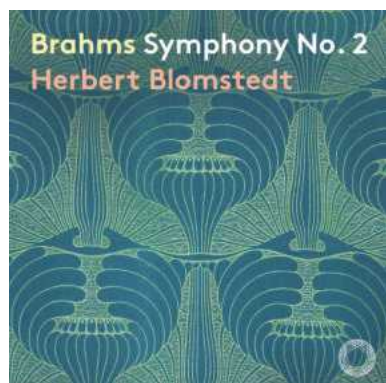
BLU-RAY



VINYL



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GEWANDHAUSORCHESTER LEIPZIG/ HERBERT BLOMSTEDT

Brahms: Symphony No 2; Academic Festival Overture
(96kHz/24-bit, FLAC)

www.hifiresaudio.com; Pentatone PTC5186851

I suggested when this cycle began [HFN Jan' 21] that the veteran conductor would offer considerable contrast over Chailly's revisionist Leipzig cycle, on Decca. And in 2(i), for example – both with repeat – Blomstedt takes 21m 02s vs Chailly's 17m 49s. Not that it feels unduly slow although, overall, I was a little disappointed here – movts. (i) and (ii) anyway. The Overture, however, is really a major achievement. If you want a Symphony No 2 with a monumentality corresponding to No 1, this is it – but for me (and the booklet essayist) it's the contrast which makes the D major so appealing, and I found, for instance, Blomstedt rather putting detail before flow in the *Adagio (non troppo)*. On YouTube there is a very lovely 2009 Leipzig live performance under Masur: do watch it! **CB**

Sound Quality: 80%



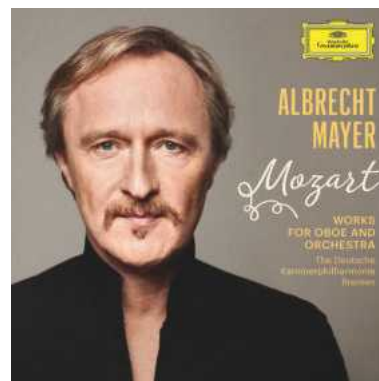
RISE AGAINST

Nowhere Generations (96kHz/24-bit)*

www.hifiresaudio.com; Loma Vista Recordings n/a cat. no.

Raise a wry smile at a band hailed as punk pioneers having started in the early 2000s – all those nights we spent sweating in late-'70s London basements were clearly for nothing! – but Rise Against is still going strong almost two decades later. The band's ninth album combines charging rock with catchy hooks, angsty vocals and, somewhat alarmingly, really crisp production, even if almost every track conforms to the 'quiet opening then slam' stereotype. The album opens with a scratchy snatch from *The Internationale*, and then off we go with the themes of the betrayed generation of the album's title. It all gets a bit late-period Robert Plant on the gentler 'Forfeit', and then we're back to 'faders to stun' again. Yes, the middle-aged protestations of youthful anger are a bit contrived, but within the limited dynamic range there's clearly care in the production here. **AE**

Sound Quality: 80%



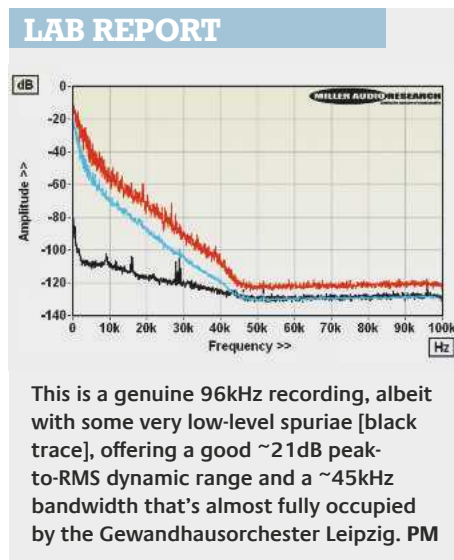
ALBRECHT MAYER, DEUTSCHE KAMMERPHILHARMONIE BREMEN

Mozart transcribed (96kHz/24-bit, FLAC)

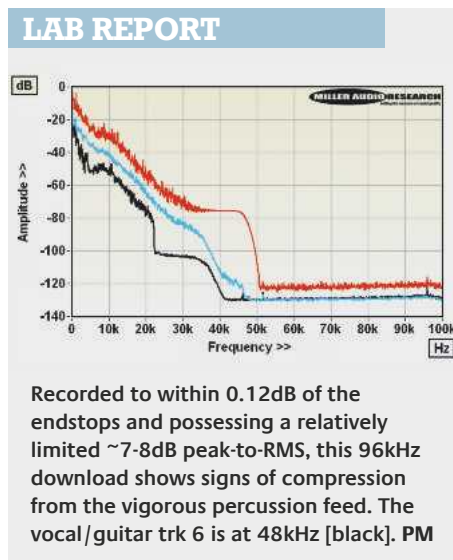
www.hifiresaudio.com; DG 483 8232

Apart from the opening track – a completion of the *Allegro* from an unfinished Oboe Concerto in F – this is a programme of Mozart arrangements, some vocal (eg, *Ave verum corpus*; *Exsultate, jubilate*; 'Ch'io mi scordi di te?') where the Berliner Philharmoniker principal oboist also substitutes oboe d'amore and cor anglais. You might try entertaining friends with this miscellany, or they may throw up their hands in horror – *Ave verum corpus* especially! Really, the main reason I am writing about it is that we have the *Concerto for flute harp and orchestra* – one of Mozart's dullest works – in a lively alternative rescored for oboe and harpsichord (timbrally, this works). The playing is predictably excellent while the immersive recording puts the listener up on stage amid the players. **CB**

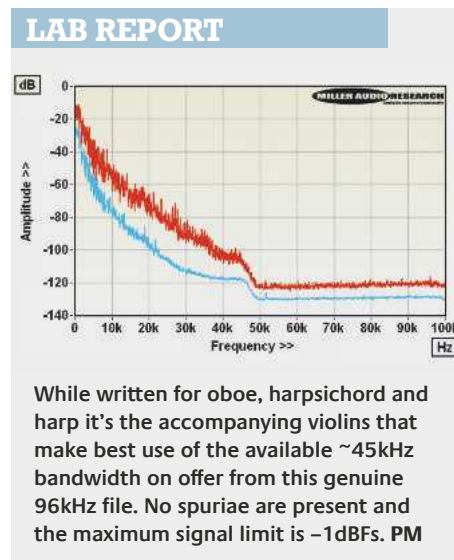
Sound Quality: 80%



This is a genuine 96kHz recording, albeit with some very low-level spurious [black trace], offering a good ~21dB peak-to-RMS dynamic range and a ~45kHz bandwidth that's almost fully occupied by the Gewandhausorchester Leipzig. **PM**



Recorded to within 0.12dB of the endstops and possessing a relatively limited ~7-8dB peak-to-RMS, this 96kHz download shows signs of compression from the vigorous percussion feed. The vocal/guitar trk 6 is at 48kHz [black]. **PM**



While written for oboe, harpsichord and harp it's the accompanying violins that make best use of the available ~45kHz bandwidth on offer from this genuine 96kHz file. No spurious are present and the maximum signal limit is ~1dBfs. **PM**

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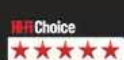
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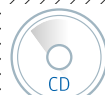
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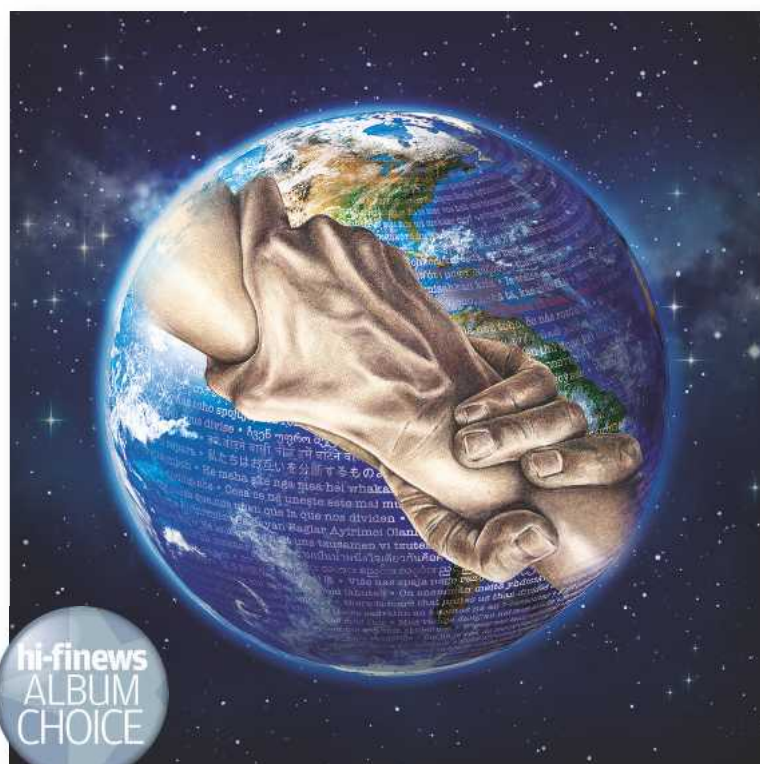
BLU-RAY



VINYL



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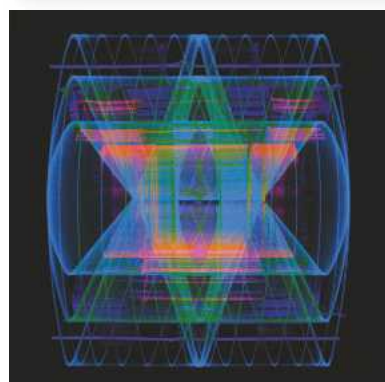
BIG BIG TRAIN

Common Ground

English Electric EERCD0028; LP: Plane Groovy PLG096

Big Big Train are the most adventurous group currently operating under the progressive rock banner. They take the best aspects of the genre from the '70s, mix them up with other influences (they namecheck Elbow, Pete Townsend, Bowie, even Elton John) and create a hybrid of finely wrought big tunes – singer David Longdon has a wonderfully emotive voice – with dazzling instrumental passages, and on 'Apollo', they are augmented by a limber brass section. And it's all integrated without individual grandstanding. These new songs are more personal and reflective than the historical subjects they usually explore, but the prevailing themes of connection and communication coalesce on the 15m epic 'Atlantic Cable'. *MB*

Sound Quality: 90%



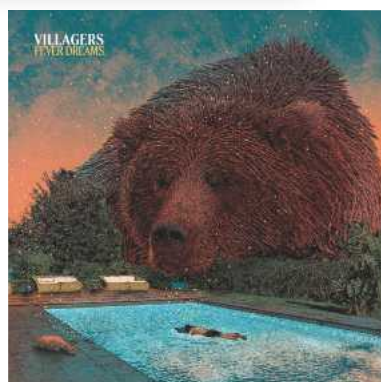
RAVEN BUSH

Fall Into Noise

PRAH PRAH034D (download only)

This debut solo album by Bush (keyboard player and violinist in psychedelic quartet Syd Arthur and nephew of Kate) grew out of his recent compositions for film and dance. It moves between grand melodic themes, ambient drift, kaleidoscopic patterns of electronics, and rhythms transplanted from mid-'90s 'intelligent techno'. The propulsive 'Factory Of Light' sounds like Pink Floyd's 'On The Run' pursued by Vangelis and Jean-Michel Jarre. It's an intricately layered collection with song-like structures and on the single 'The Start Of Something New', brooding keyboards, strings and processed voices hover above chattering beats to haunting effect. *MB*

Sound Quality: 85%



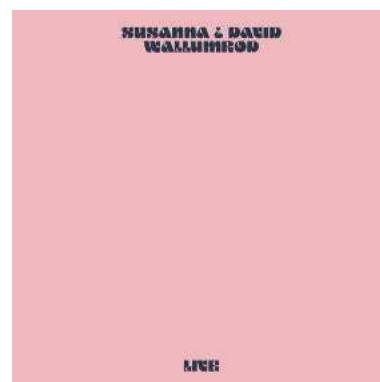
VILLAGERS

Fever Dreams

Domino WIGCD463; LP: WIGLP463

From the off-kilter intro to 'The First Day', Conor O'Brien's Villagers sound sonically different from 2018's *The Art Of Pretending To Swim*. The songs have a familiar feel, albeit rather more oddly shaped than usual, but here he has chosen a particular production sound *du jour* of lo-fi drums and disorientating vocal effects, with finely etched details of tuned percussion, harp glissandi and electric piano – and loopy guitar solos on 'Circles In The Firing Line' – emerging from a reverby haze. But O'Brien's songs can withstand this kind of treatment and it all helps fulfil his desire for them to come across as 'ecstatic, euphoric and escapist dreams'. *MB*

Sound Quality: 80%



SUSANNA & DAVID WALLUMRØD

Live

SusannaSonata SONATACD065; LP: SONATALP065

In recent years Susanna Wallumrød has recorded piano and chamber ensemble albums inspired by Baudelaire and Bosch. But here, in pre-pandemic performances with her keyboardist cousin David, she revisits her approach towards cover versions with The Magical Orchestra in the early 2000s when she recontextualised the songs via typically sparse, slow readings. But although 'Wrecking Ball' is even more spartan and melancholic than Neil Young's original, the duo's animated take on Tom Waits' 'Gin Soaked Boy' nods towards funky R&B and on Joni Mitchell's 'This Flight Tonight' Susanna's voice dances beautifully around David's electric piano. *MB*

Sound Quality: 80%



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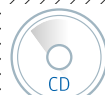
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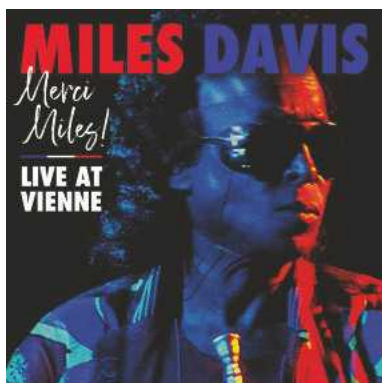
MARIDALEN

Maridalen

Jazzland Recordings Norway 377 935 6 (CD/LP)

This begins with rain falling and birds singing in the Maridalen valley above Oslo. But soon you're in the old wooden church where three young musicians found a place to practice, took the name of the valley for their trio and made a recording. With limpid purity and keen-eared precision, saxophonist Anders Hefre and trumpeter Jonas Lilmork Vemøy harmonise to the sonorous bass of Andreas Rødland Haga, the music rich and full, though there's no chordal instrument. In deliberately shocking contrast, the last track's urban processed sounds, done via a '50s Tandberg tape deck, make you appreciate the rest of the album's natural sonics even more. *SH*

Sound Quality: 90%



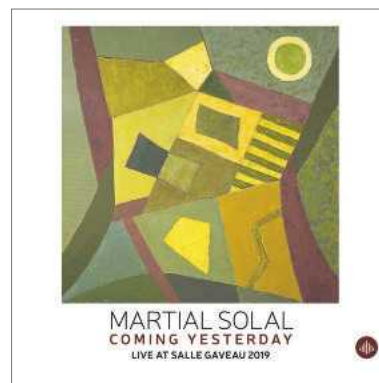
MILES DAVIS

Merci Miles! Live At Vienne 1991

Warner/Rhino 0349784461 (two discs); 2LPs: 0349784462

Though some numbers can be seen on YouTube, the full-length video of this concert from Miles's last European tour was never issued. *So Merci Miles!* offers a first chance to hear the whole soundtrack, including two songs by Prince as well as 'Amandla', 'Human Nature' and 'Time After Time', for example. After Vienna, Miles was recorded live at Montreux with Quincy Jones and George Gruntz, and in Paris in an all-star 'Miles and friends' show that's yet to be issued officially. But here, leading his own sextet with alto saxist Kenny Garrett, 'lead bass' player Foley and a phenomenal rhythm section in telepathic cohesion, he is as brilliant and unfettered as ever. *SH*

Sound Quality: 80%



MARTIAL SOLAL

Coming Yesterday/Live At Salle Gaveau 2019

Challenge Records CR7516

It perhaps seems incredible that Solal, who was born in 1927 and played with Django Reinhardt in 1950, could still be delighting audiences in 2019. But this solo piano concert was a swansong. When it was over Solal decided that it would be his last, because 'When energy is no longer available it is better to stop'. Yet there was no shortage of energy that evening as he shook up favourite standards and stirred in an Ellington medley. As a composer, Solal's jazz concertos reveal the depth of his studies. As a solo pianist, he flits at the speed of thought from theme to theme, style to style. Follow him for an enjoyable and invigorating musical journey. *SH*

Sound Quality: 85%



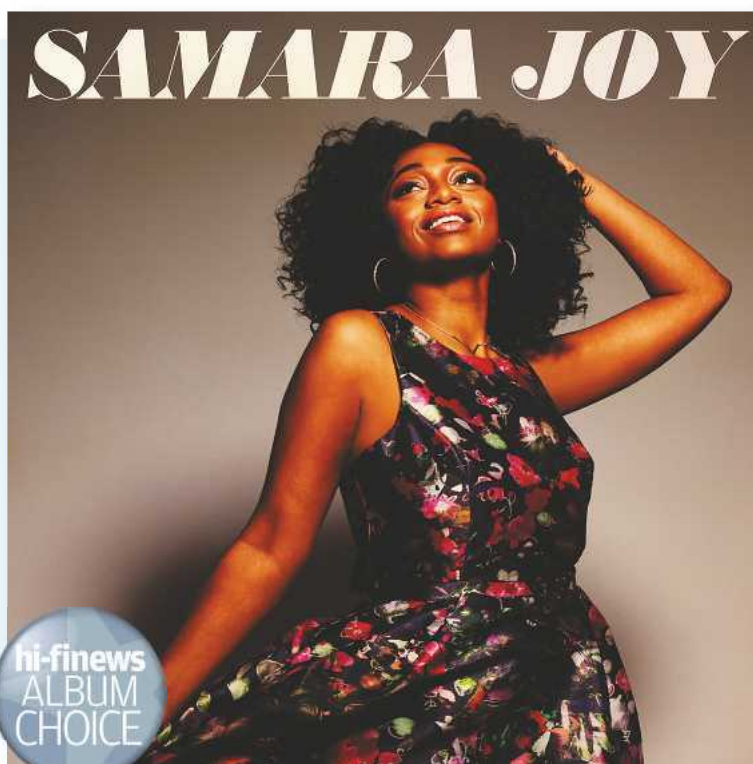
SAMARA JOY

Samara Joy

Whirlwind Recordings WR4776; LP: WR4776LP

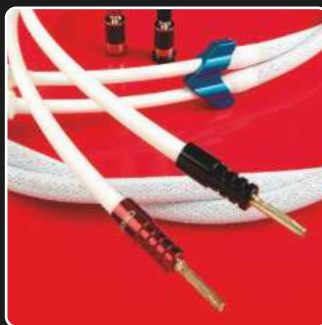
Samara fittingly scooped the Sarah Vaughan vocal award in 2019, having studied Sarah (along with Billie, Ella, and Nat King Cole) at SUNY Purchase. Still only 21, she recorded this set of standards under the aegis of Matt Pierson, noted producer of Brad Mehldau and Sophie Milman. She's backed by the trio of Pasquale Grasso, also on the faculty at Purchase. He uses his astonishing technique to emulate Art Tatum and Bud Powell rather than other guitarists – though on 'Stardust' he sneaks in Charlie Christian's chord solo. His unremitting virtuosity is almost too much, but Samara floats over it. A lovely voice, perfect time, beautiful diction, effortless grace as an interpreter. Above all, she wins your heart. *SH*

Sound Quality: 90%



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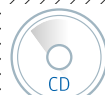
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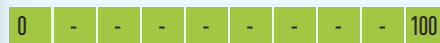
SANDRINE PIAU, STUART JACKSON, KONSTANTIN KRIMMEL, ARCANGELO/ JONATHAN COHEN

Handel: Brockes Passion

Alpha ALPHA644 (two discs; downloads to 96kHz/24-bit resolution)

Richard Eggar's AAM version [HFN Dec '19] came in a 40mm deep slipcase with an extra CD of Handel alternatives and a 215pp hardback book. Alpha's presentation is more modest but you still get a scholarly essay and all texts for the 93 tracks provided. Production was at St Jude's London in Oct '19, Jonathan Cohen directing his 18-strong Arcangelo group from the harpsichord. Jesus is nobly sung, the ornate writing for the Evangelist and Daughter of Zion finely accomplished – other solos are taken by members of the Vocal Consort: eg, alto Alex Potter as Judas. This is a vivid yet intimately scaled account, gripping from start to finish. **CB**

Sound Quality: 95%



MIKA KARES, SZILVIA VÖRÖS, HELSINKI PO/SUSANNA MÄLKKI

Bartók: Bluebeard's Castle

BIS BIS-2388 (SACD; downloads to 96kHz/24-bit resolution)

Complete with spoken introduction (Géza Szilvay) this was recorded mostly live in Jan '20. The two singers – the bass Finnish, the soprano Hungarian – are stationary throughout Robert Suff's production although their interchanges have an intimate, conversational quality. The orchestral sounds are vivid, Bartók's large orchestration billowing out at last as we reach the 'fifth door'. Kares conveys a certain innocence as he surrenders to Judit's insistent requests, while the excellent booklet note touches on the idea of Bartók's early existentialist opera as a kind of self-portrayal. **CB**

Sound Quality: 90%



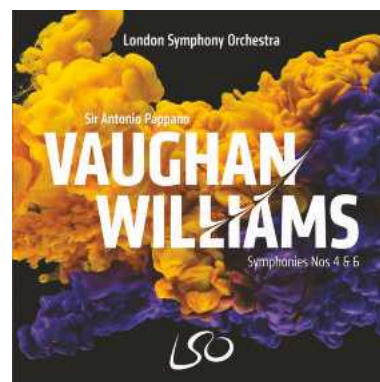
AKADEMIE FÜR ALTE MUSIK BERLIN

Mozart: Serenades K 361, 'Gran Partita', and K 375

Harmonia Mundi HMM 902627 (downloads to 96kHz/24-bit res)

The forthright playing by the two wind ensembles in these Serenades is vividly presented in rich recordings with plenty of separation. Hear these players in the two finales, where they are at their best. But think of Salieri's awe-stricken commentary on the slow movement from K 361 (Peter Shaffer's *Amadeus*) and contrast the rather matter of fact account here – that solo oboe hardly sublime. Maybe the Alte Musik players should have had an independent conductor (as in the 2016 RAM/Pinnock Linn production), and there's an almost ruthless efficiency here, with little relaxation. The earlier work perhaps receives the more adventurous phrasing. **CB**

Sound Quality: 80%



LSO/SIR ANTONIO PAPPANO

Vaughan Williams: Symphonies Nos 4 and 6

LSO Live LSO0867 (SACD; downloads to 96kHz/24-bit resolution)

After the 'London' and 'Pastoral', these two symphonies, with little shred of comfort, must have shocked audiences – the composer himself setting out a blueprint for No 4 in his 1937 BBC SO recording (now on Naxos 8.111048 in a very fine transfer). Pappano's timings are consistently longer. Yet it's a powerful, committed account – a modern replacement for the Mitropoulos/Sony perhaps. No 6, meanwhile, is most closely associated with Adrian Boult (premiere; first UK 78s) and with the regrettable deletion of his gripping 1972 live perf. [BBC Legends] Pappano's will do very nicely, with its seamless movement transitions and fine playing by the LSO. **CB**

Sound Quality: 90%





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Audio Analogue have redesigned their Anniversary range which consists of two integrated stereo amplifiers and a pre-power combination. All dual mono designs producing large sound stages.

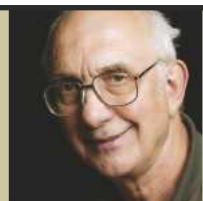
AVM produce an extensive range of modular designed products at all price points. High quality German build and a high-end sound. A new 30.3 Series is now available at more affordable prices.

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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

Apple's Space Odyssey

Working with Dolby, the company is offering a '3D' listening experience for headphone users with a big launch catalogue of music. **Barry Fox** says the technology certainly has its challenges

We all know how the hi-fi world loves a standards battle, and how CD got off the ground because there was no format war – competing manufacturers and content owners collaborated for once.

I've already questioned the practical value of uncompressed 'Hi-Res' sourced from dubious masters, for playback over compressed Bluetooth phone connections [*HFN* Sep '21]. Now consider the even more questionable benefit of heavily processing stereo into spatial surround, with 'height', to be heard through stereo earbuds.

Add to that the fact that the spatial push is coming from Apple and Dolby, two companies that share a love of making grand technical announcements with little to say on the enabling technology.

SIMPLY MAGICAL

Apple started touting Spatial from Dolby Atmos at its mid-year Worldwide Developers Conference. Co-Head of Artist Relations Zane Lowe hailed Spatial Atmos as the way of the future. 'Spatial is an immersive experience with sound moving around you in different directions', he said. 'We have only had that before in the cinema.'

'Spatial Audio with Dolby Atmos and Lossless Audio are coming to Apple Music subscribers... I can put my AirPods in, press play, and have a Spatial experience.'

Oliver Schusser, Vice President of Apple Music and Beats, added that: 'Listening to Dolby Atmos is like magic. The music comes from all around you'.

With any new music format, back catalogues are the key to success. Conductor Gustavo Dudamel spoke of a 'monumental, live performance with my beloved Los Angeles Philharmonic, remastered in Dolby Atmos... [with] rich, remarkable 3D sound'.

Apple promises 'thousands of tracks available in Spatial Audio with Dolby Atmos at launch'. Will this mean that there is going to be a whole lot of up-conversion 'rendering' from stereo to Atmos? How will this be handled? How will the up-converted spatial content sound when played in stereo?

I defy anyone to find any meaningful technical help on this in Apple's briefing notes, or the 'deeper look' which Dolby offers. I quote: 'The Dolby Atmos Renderer reveals every detail of the music with unparalleled clarity and depth'.

Fortunately there is some harder fact available from patents filed by Dolby, in which engineers working on the project talk frankly about the challenge of 'converting multichannel audio content into object-based audio content' and then 'rendering audio for playback through headphones'.

'Some of the processing involved in binaural rendering can have undesirable and negative effects on the timbre of the content, such as smoothing of transients or excessive reverberation added', states Dolby. 'With the growing importance of headphone listening there is greater

need to create binaural rendering metadata at content creation time... instructing the renderer to process parts of the content with different algorithms or settings'.

So the audio being processed is separated into 'components

based on content type, such as dialogue, music, audio effects, transient signals, and ambient signals'. Dolby also acknowledges that when legacy surround, in 5.1 or 7.1, is converted to object-based Atmos there can be 'clear violations of the original intention of the mixer [of the legacy audio content], since the re-rendered audio object is in different channels than initially intended'.

'The trick is to try and predict what will sound wrong'



ABOVE: Apple Music subscribers can now experience Spatial Audio with Dolby Atmos

The problems compound, when legacy 5.1/7.1 surround has been converted to object-based Atmos, and then played through a legacy 5.1/7.1 speaker set-up. Audio objects 'may be rendered in different channels compared to what was initially intended... and may lead to a worse listening experience'.

FALSE POSITIVES

The suggested solution is to 'estimate the risk' of 'faulty rendering... into specific areas or positions in the three-dimensional space' and then 'determine whether the risk exceeds a threshold'.

So the trick is to try and predict what will sound wrong before it sounds wrong. And there was I thinking that the whole point of leaving MP3 and going lossless was to leave the music unprocessed!

As a British recording engineer put it to me recently: 'Atmos is meant for movies, with special effects coming out of individual speakers mounted here there and everywhere. No "binauraliser" I have yet heard has ever benefited any of my recordings – instead they usually mess them up with false stereo localisation and phasiness'. Will Apple's name be enough for it to sell Lossless Spatial? ☹

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Barry Willis

Journalist for top American audio-video publications

While his main interest is high-end audio, Barry Willis also writes about the culinary industry, visual art and theatre for a huge variety of US newspapers and magazines

Listening disparities

One thing a good audiophile system offers is an immersive experience, but **Barry Willis** finds many are indifferent to or unaware of that – they're just looking to find a recording's every detail

Musicians and audiophiles would seem to have much in common, given how much time and effort both pour into a shared passion. Yet our listening habits couldn't be more different.

I discovered this long ago at the home of a film composer friend in Los Angeles. His studio was full of acoustic and electronic instruments, synthesisers, computers, and a mixing console adorned by a pair of 'horror-tones' – from my perspective, wildly inadequate two-way speakers with a screechy top end, recessed midrange, and limited bass: a shortcoming my friend addressed with a cheap subwoofer beneath his desk.

NO FUN FOR HIM

His studio was a technological wonder, but totally wrong from the audiophile perspective. Had his budget been devoted to a standalone playback system, he might have been able to present hugely impressive demonstrations of his creations, but that was not his purpose.

His finished projects went out as digital files for use by others in the production pipeline. After long studio hours the last thing he wanted to do was listen to music for fun or relaxation. Asking him to join me at one of Southern California's big annual hi-fi shows was like asking him to undergo root canal work without any anaesthetics.

His horror-tones were reliable tools that revealed everything he needed to know as a working composer. He listened keenly to pitch, phrasing, pacing, melody, chord progression, interplay of voices and instruments – all characteristics of intense interest to audiophiles too.

What did not interest him was the immersive experience – the totality of a recorded performance and its magical ability to free listeners from their usual

RIGHT: If you are a practising musician, you may not be very interested in high fidelity playback, so much as detailed analysis of what's on your recorded performances



ennui. The immersive experience is the Holy Grail for audiophiles, not the architectural analysis of its bits and pieces as practiced by my composer friend.

Which is not to say that musicians don't appreciate good gear or a nicely set up playback rig that can take listeners on unexpected journeys. It's simply not their primary purpose. If anything, it's an occasional perk of the trade experienced mostly in mastering studios, not at home.

Actors, directors, singers, dancers, choreographers, *et al*, are necessarily

part of my social life as a theatre critic. I've noted their astute attention to the performance of music but scant concern for the totality of its presentation.

They are just as capable of evaluating a performance when it's played over a cell phone

as they might be hearing it through a serious audio system. They seem unconcerned about the obvious sonic limitations of personal electronics. If they can hear it at all, that's good enough.

A local legend musical theatre performer – in normal times she's in six shows a year, and booked 18 months out – fits this pattern exactly. She has

stunning range, perfect pitch, captivating stage presence, and a strong penchant for comedic improvisation, but has never done a professional recording. She does not own a hi-fi system of any kind unless you count her cell phone, laptop, and TV. It's simply not a concern.

AUDIOPHILE ETIQUETTE

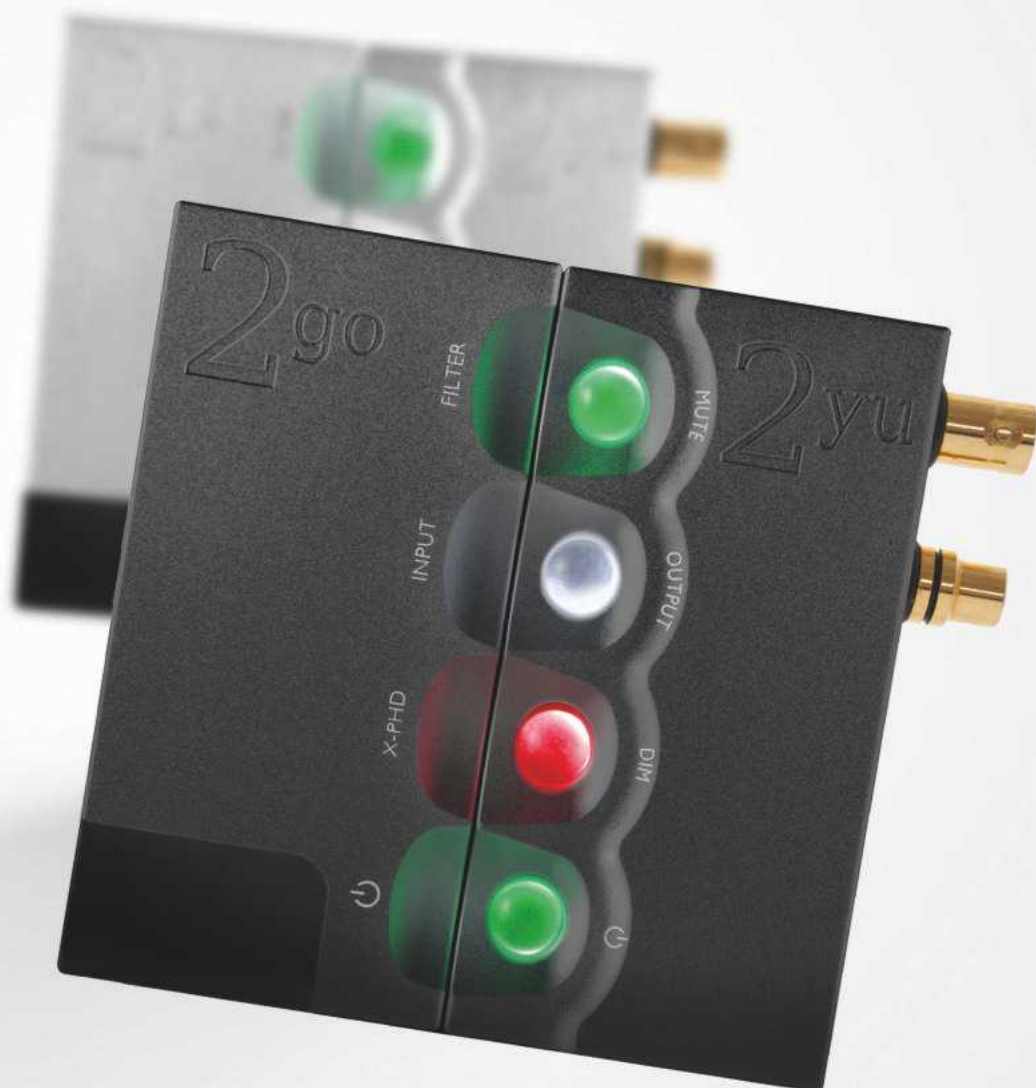
Recently she needed an extra 15 minutes of material to bring a cabaret production up to the desired 90 minutes. We spent a couple of evenings sampling songs through her phone and over my system. She had no inhibition about talking during playback nor about cutting abruptly to the next recording – both behaviours serious violations of audiophile etiquette that would get us kicked out of any demo room at a hi-fi show.

Nor did she care that my system was infinitely better at revealing emotionality. All she cared about was whether the songs she selected were appropriate for her. And she had no inhibition about shoving her phone in my face – 'Listen to this!' – while we were listening to something truly moving and magical.

That sort of social error won't merely get you booted from demo rooms, but could perhaps find you put on a blacklist for hi-fi shows altogether. ☹

'She was quite happy to talk through playback'

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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

Lodged in the web

Do limited editions mean limited choice, wonders **Jim Lesurf**, as he digs into the reasons why some of the discs he'd like to buy are unavailable from small retailers – where they still exist

I am pretty sure that we all regard our favourite performers or artists as 'special' in some way. And we want to be able to hear and enjoy their recordings in the best possible sound. As technology has developed, this desire has unsurprisingly led to older material being re-released in 'improved' form.

This can include recordings which originally appeared as acoustic 78s and have been resuscitated – decades later – on CD or as audio files. Given the development of sophisticated noise reduction systems, such recordings can often sound far better than when they were released on the original shellacs.

BETTER DIGITAL

Given my age it's no surprise that my initial interest in music was shaped during the era of The Shadows and The Beatles, and through the 1960s and '70s. At that time, recordings were mostly made on analogue tape. The tapes were then used to create LP masters. When CD took off, the old tapes were dug out and digital versions of the recordings were issued.

Alas, the people using much of the early digital technology sometimes failed to understand how to use it optimally. As a result, while some early CDs remain impressive, others disappoint. This, and some poor early CD players, contributed to the reputation CD gained for having a 'grainy' quality.

Time passed, and it became clear that it should now be possible to do a much better job of making a digital version of old recordings. It was also apparent that there was an enduring interest in many of the historic performances. So a 'newly improved' version would be sure to sell – even to those who had the original ones.

This in turn led to the concept of the 'Special Edition' which had new

RIGHT: Still open for business (clockwise I-r)

Johnny, Chris and Sian of **Derricks Music** in Swansea, Ashli outside **Spillers** in Cardiff, Phil Barton of **Sister Ray** in London, and Jimmy Shannon of **The Diskery** in Birmingham. All stores featured in the 2012 *HFN-sponsored film Last Shop Standing*



'mixes' and bonus items. The big media companies like these because they can make greater profit with reduced effort. They can also charge a 'collectors' price having created an artificial 'scarcity' value. Buy before the deletions axe falls, or go without altogether.

SHUTTING UP SHOP

Thinking of this has reminded me of when our small local music shop closed down, some years ago. Its demise was a result of the big distributors requiring an ever-larger 'minimum order'. This made it almost impossible for a small shopkeeper to get a specific CD you might want, when the distributor refused to

accept any orders for less than, say, 50 copies at a time. This wasn't a problem for big chain stores, but it made life very difficult for small shops, and their customers. So they closed down.

Nowdays a few large retailers – usually trading via the web – stock up and may hold a big chunk of the available 'Limited

Edition' items. This then makes it even harder for smaller retailers to provide a useful service, albeit fine for the music labels and the Internet companies.

BUY LOCALLY

The results hit me in the face a short time ago. I wanted to buy something that had only been available for a few months. But by the time I looked for it, it was *unobtainium* except from a big web seller who had clearly bought up a lot of stock.

And alongside this it was offering 'used' copies. Which made me wonder: how many of those were being sold by people who'd bought, then ripped the contents, and were then making a profit from selling on the CDs they had copied?

According to *The Guardian*, in the '80s there were around 2200 independent record shops in the UK. Come 2012, when the *HFN-sponsored film Last Shop Standing* was released, highlighting the plight of these stores, there were 269.

So if you still have a local music shop which can obtain the LPs and CDs/DVDs you would like to have, you need to use them. Or both you and even the musicians involved may lose out. ☹

'A big online seller had clearly bought up all stocks'



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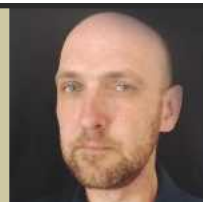


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Mark Craven Contributing Editor

Mark Craven has been editor of *Hi-Fi News*' sister title *Home Cinema Choice* for nearly a decade and has a passion for music, film and everything in between

Smart sounds

The ability to banish obsolescence via a firmware update has real appeal, while it can lead to an enhanced musical experience too. But is more choice always a good thing, asks **Mark Craven**

Being arguably the longest running strand of the consumer electronics industry, hi-fi is steeped in traditions. Sure, it's continually evolving, but around elements that remain constant – the basic principles of speaker design, for example. Cast your eyes on a two-way monitor from the 1950s, and another from the 2020s, and it's easy to trace the lineage.

Indeed, many brands lean into their past. The likes of JBL, Bang & Olufsen, Klipsch and Luxman have been busy launching products that deliberately recall the design and functionality of models from yesteryear. Other companies are eager to remind us of their own milestones, resulting in a recent wave of Anniversary Edition releases from brands including Balanced Audio Technology (25 years), Triangle (40 years) and Denon, which celebrated 110 years.

REMOVAL FIRM

Yet adjacent to hi-fi's rear-view mirror is the adoption of new technologies that are enabling products to change before our eyes (or ears). Thanks to the introduction of digital processors and Internet connectivity, it's possible to upgrade the functionality and tweak the performance of many elements of a modern playback system without lifting a screwdriver. I expect that's something earlier generations of hi-fi lovers – back when Denon was still in short trousers – would have viewed as exciting. As we do now. With hi-fi a part of a wider home entertainment industry where obsolescence is a spectre at the feast, there's considerable appeal in being able to exorcise it via firmware update.

But... just because you can do something doesn't mean you should always do it. The term 'firmware fix' can be a misnomer. I spend a lot of time in

the world of smart TVs, where it's not uncommon for an update to be quickly followed by a 'downgrade', because the update – intended to improve this feature or embrace that format – accidentally weakened some other talent.

And they can be serious. Last year, a network update accidentally caused thousands of Samsung Blu-ray players to become stuck in a bootup cycle, to which the only fix was to send them off for a physical repair. It's enough to make you want to disconnect your Wi-Fi.

PAUSE FOR THOUGHT

Away from firmware updates, which often arrive without the consumer even knowing, digital technologies invite us to make deliberate alterations to our hardware. At one end of the spectrum are the DAC filters that promise subtle sonic changes to those with golden ears, and at the other end are loudspeakers like System Audio's Legend Silverbacks.

Earlier this year I auditioned a pair of these Danish digital divas. The 40.2

model [*HFN* Aug '21] is a four-driver active floorstander, keenly priced and neatly styled, and something of a bargain for a music fan looking to unclutter their set-up. Ask me how this speaker sounded, however, and I'd have to pause, because

there's no straightforward answer.

That's partly because System Audio's speakers can be used in conjunction with a wireless streaming module that supports automated room optimisation. More notably, though, owners have the option of no fewer than seven DSP profiles that can be uploaded to the speakers themselves and bring changes to crossover topology, time alignment and more. Suddenly, the loudspeaker's bass/mid driver can become a dedicated midrange unit. Or maybe you want



ABOVE: The EISA Award-winning Legend 40.2 Silverback speaker from System Audio [see p90]

a deeper bass response or smoother frequency curve. All are at your fingertips.

This is, of course, both innovative and intriguing, and I'd normally say that choice is always welcome. But is it the way we want hi-fi to evolve? There's a reassurance that comes from knowing the loudspeaker or amplifier you've bought performs to the highest ability the manufacturer could conjure. So tell me which DSP profile sounds the best – and I'll stick with that one.

As for 'smart' technology, in James Cameron's sci-fi film *The Terminator*, an AI defence system – Skynet – becomes 'self-aware' and launches a global nuclear war to put humanity out of its misery. I'm not suggesting that your networked DAC is about to do the same, but if it really hates your taste in music... ☹

'The term
"firmware
fix" can be a
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Steve Harris Contributor

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

All Jazzed up

Steve Harris discovers that while streaming services for classical music seem to work well, when it comes to jazz there can be confusion searching for exactly the track you want to listen to

If your biggest musical interest is classical or jazz, the main streaming services don't quite work for you. But there are now two serious classical streaming platforms. Idagio, based in Berlin, started in 2015, while the Dutch-American start-up Primephonic launched in 2017. They now serve 190 and 154 countries respectively.

Primephonic points out that, in 2015, classical music had a global market share of around 5% in downloads, radio and CD, 'But in streaming, its share was (and is) only 1%'. So streaming hasn't attracted classical listeners proportionately, largely because the existing streaming services all based their metadata and search algorithms on a simple structure of just artist name, song title and album title.

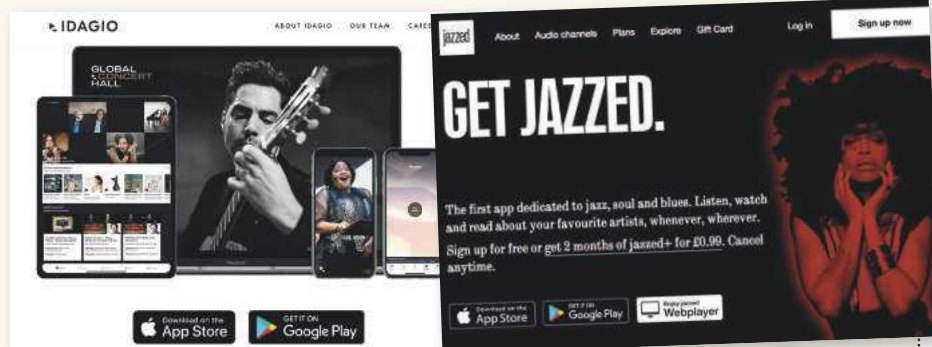
DEDICATED APP

This was fine for pop music, but, as Primephonic puts it, 'Classical music's structure has typically eight parameters: eg, Mozart's (1) Seventeenth (2) Piano (3) Concerto (4), the 'andante' movement (5), performed by Lang Lang (6) and the Wiener Philharmoniker (7), conducted by Nikolaus Harnoncourt (8)'.

Idagio and Primephonic function accordingly and both offer comprehensive search-and-play. You can choose a work, run down a list of artists and performances and listen and compare to your heart's content. Primephonic charges £9.99 per month for 320kbps streaming or £14.99 for 24-bit lossless. Idagio asks €9.99 a month for lossless or €16.67 a month if you want access to its live concert videos as well.

And if you're a jazz buff? In February 2020 came the UK-only launch of Jazzed, which is trumpeted as 'the world's first audio-visual app dedicated to jazz'. There's a Free tier, with access to concerts, music videos and reading

'Jazz ideally needs to be presented with its metadata'



ABOVE: Idagio is one of the best streaming services for classical listeners but for the jazz enthusiast there are complications – hopefully Jazzed's Premier tier will simplify things

material along with ten curated channels of music. Jazzed+ at £5.99 a month gives you more than 50 curated channels, advertisement free, but you're still only allowed six track skips in an hour, and you can't see what's coming.

As I write, we're still awaiting the promised full launch of Jazzed Premium, allowing search-and-play with lossless 16-bit FLAC audio for £14.99 a month.

But a special offer with Jazzed+ already allows search and play, on iOS devices.

Like classical music, jazz ideally needs to be presented with appropriate metadata, though the requirements are different and, perhaps harder to achieve.

You want to know the recording date, the names of all the performers as well as the leader of the band, the composer, and if possible the venue and the original label.

But Jazzed doesn't do for jazz what Idagio and Primephonic have done for classical. You still just get the artist name, the title and the album it came from.

Sheer numbers of tracks can be misleading too. For example, if you search for the great trumpeter Clifford Brown, who was only recording for about three

years before his death in 1956, you are confronted by hundreds of tracks, the same ones appearing multiple times, as they come from a long list of later reissued or recompiled albums, and only the *original* release dates are given.

All this won't matter if you know what you're looking for. But if you're just starting to explore jazz, there's no detailed information to help you through the maze. To know what or who you're listening to, or when they played it, you'll need to have www.discogs.com ready to see at the same time.

BRIGHT AND INVITING

Old fogies like me, or even younger jazz trainpotterers, are probably not the audience that Jazzed is aiming for. It throws the net wide, from rap to soul (with channels celebrating Marvin Gaye and the Philly Sound) and makes everything bright and inviting.

There's strong competition. You can now also find hundreds of tracks by Clifford Brown, or any of the jazz greats, on Spotify, and search for them easily too. And this year, perhaps even by the time you're reading this, Spotify will have joined Apple Music in offering lossless audio streaming. But let's wish Jazzed every success when its Premium tier finally comes on song. ☺

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HFN2021

YOUR VIEWS

Sound Off!

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RAISING A TABOO TWEAKING HI-FI IN A THROWAWAY WORLD

Firstly, thank you for keeping the magazine going during the pandemic. I'm writing to raise a subject that I suspect is taboo – the practice of non-proprietary, aftermarket tweaking.

I have a history of tinkering. I built the *Practical Wireless* 'Texan' amp, and the Powertrans kit of the Linsley-Hood 75W amplifier published in *HFN* back in the '70s. My first half-decent speakers were Wharfedale Unit 3s, later replaced by Malcolm Jones's Tabor design, printed in *HFN* Sep '77.

I saved my teenage pennies to put an SME 3009 II/Shure V15III together with a Micro turntable on a home-built plinth veneered to match the Linsley-Hood. But once I had an income, I bought proprietary kit like anyone else.

Then came the tweaking. I purchased a full upgrade kit from Audiocom for my Marantz CD63SE (new clock, power regulators, op-amps, etc) and this remains in service to this day. Next were my ageing Naim NAC 32.5 preamp, HiCap PSU and NAP 250 power amp, which were 're-capped'.

I'm well aware that the changes these mods bring are highly subjective and open to 'confirmation bias'. That said, the subject falls somewhere into the universe of audio jumble, and the legitimate work of skilled



ABOVE: Original ad from 1973 for the 'Texan' and Linsley-Hood kit amplifiers

engineers restoring discontinued equipment – notably, as Ken has been documenting, the return to active life of reel-to-reel recorders.

Also, we are trying to become less of a throwaway society. So it's not just the keeping of old kit going that is appropriate to our times, but the bringing of it up to date.

Charlie Haswell, via email

Ken Kessler replies: The motives for tweaking equipment fall under two headings: either servicing to extend the life of older equipment, as Mr Haswell notes, or a basic desire to improve performance. I'm OK with both, as unlike vintage cars or watches, hi-fi isn't obsessed with original parts or resale value.



ABOVE: The 1980 'Chrome bumper' version of Naim's NAP 250 amp [*HFN* Jan '14]

Knocked for six

PUTTING RIGHT A ROGERS SPEAKER MUDDLE

In Steve Harris's Opinion piece entitled 'Shadow Cabinets' [*HFN* Aug '21] he mentioned the LS6 being related to the Spondor BC1. I think Mr Harris means the LS3/6. If I remember correctly, the LS6 was one of a range of Rogers' speakers.

M G Miles, via email

Steve Harris replies: Mr Miles is right of course. The late Spencer Hughes designed the BC1 while working at the BBC. He left in 1969 to start Spondor. As an employee, he'd had to offer the BC1 to the BBC first but, as he wrote in a letter to *HFN* in 1980: 'Fortunately the "Pop" era had just started and the main request was for more power, so the BC1 was turned down'. Then the BBC decided that it *did* need a speaker of this type. Hughes' design with slight mods became the BBC LS3/6, which was built for the BBC by Rogers.

The LS6 was indeed a later two-way of Rogers' own design. More recently Graham Audio, which already offers the prototypical LS3/5 as well as the LS3/5A and LS5/9 in its Chartwell range of re-engineered BBC speakers, created its own LS6 model. Meanwhile, Stirling Broadcast offers the LS3/6, re-engineered to be as close to the original spec as possible. Like the Chartwells this is the work of Derek Hughes, who worked with his father at Spondor before becoming a successful speaker designer in his own right.

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OUR HI-FI WORLD THROUGH THE EYES OF WHITWORTH



"TWEAK? I THOUGHT YOU WANTED ME TO TWERK THE HIFI!"

Jibe talking

NAILING THE MEANING OF A SARSTEDT CLASSIC

Peter Sarstedt's 1969 single 'Where Do You Go To (My Lovely)?' is a song that was originally a sharp-eyed jibe at the well-heeled elite but over the years seems to have lost its acerbity and become a radio favourite and sing-a-long evergreen.

How astute then of Ken Kessler in his album review of Carly Simon's *No Secrets* [*HFN* Oct '20], to compare her perceptive 'ode to the louche' 'You're So Vain' with 'Where Do you Go To (My Lovely)?'. Carly's song was surely based on someone or a collection of someones she knew at that time, as was Sarstedt's classic.

Ray Singer, via email

Ken Kessler replies: Having produced it, Mr Singer knows better than anyone the background to Peter Sarstedt's masterpiece. As with the speculation about who was mocked, so has Carly Simon's classic fuelled much conjecture, Warren Beatty being the only *roué* she has identified. Along with Kevin Ayers and Bryan Ferry fashioning themselves as



ABOVE: Producer (and *HFN* reader) Ray Singer (left) in London's The Pool studio

rock's equivalents of Noel Coward, Taki, *et al*, the two songs are rare instances in the rock era when high society comes under scrutiny – sophisticated stuff previously being the bailiwick of Cole Porter, Johnny Mercer and the other creators of the Great American Songbook. Ultimately, we end up at The Eagles' 'Hotel California'. [If you'd like to enjoy more of Mr Singer's work, then head over to his YouTube channel at www.youtube.com/user/SingerRecords.]

SACD? Startlingly good!

WHY IT'S NOT YET TIME TO ARCHIVE ALL THOSE SUPER AUDIO DISCS

I have been downloading music rather than buying CDs for some years now. However, if the music I wanted was issued on SACD, then I bought the SACD and ripped the CD tracks onto my NAS drive. I don't always play the SACD as it means firing up an appropriate player and inserting the disc. I know it doesn't sound much bother, but I'm afraid to say that all too often laziness wins.

One disc I purchased on Ken Kessler's recommendation was *Smiley Smile* by The Beach Boys on SACD. I did play the disc on a Sony universal disc player (basically a Blu-ray machine) and the sound, particularly the track 'My Favourite Vegetables' was startlingly good!

More recently, a reorganisation of my listening space found me pondering as to whether I should store my collection of SACDs in another room. So I played a recent disc, this time Respighi's *Fontane*

di Roma, etc, under John Wilson on Chandos [CHSA 5261]. The sound was stunning. The Respighi is something of an audio war-horse being spectacularly orchestrated, but this is a recent recording and Chandos has done a brilliant job. I have a stereo set-up so was only able to play the two-channel output, but it was remarkable. I have now placed a dozen or more of my favoured SACDs back onto the shelf, and will play them as a matter of course.

Nick Willans, via email

Ken Kessler replies: Once streaming took hold so convincingly, I gave up discussing physical vs cyber media. In the end it always boils down, as Mr Willans observes, to which sounds better, if one has the means to keep multiple formats. If I had my way, everything I love would be on open-reel tape, but we learn to make do. As for SACDs transferred to open-reel – oh, mama!

JITTERBUG

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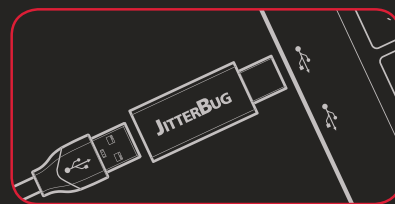
Noise is the problem. Real noise—the kind you can't hear directly. Most often, the word "noise" is used to describe tape hiss or a scratch on a record, but these sounds aren't noise; they are properly reproduced sounds that we wish weren't there.

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My little Czech mate

A READER'S TALE OF TWO CITIES, TWO SYSTEMS AND A PLUCKY SPROUT AMP

I usually move between Bristol, in England, where I live, and Prague in the Czech Republic where I work. In Bristol I have a '90s system of which I am immensely proud: a Thorens TD 160 turntable with Naim Aro arm, Naim CDS player and several 'olive box' amplifiers driving what were the then well-respected Mission 763 loudspeakers. When bought it was a well-considered upper-middle system by anyone's reckoning (and now has its capacitors renewed!).

In Prague I live in a rented apartment with few belongings – who knows where I might be posted next? So I assembled an affordable second system that's easily transportable. It comprises a Mac mini running Audirvana software and my lovely, tiny Chord Hugo DAC feeding a PS Audio Sprout amp [HFN Feb '15]. This drives KEF LS50 loudspeakers [HFN Jul '12]. It all sounds great.

And here's what happened. I met Paul McCartney properly for the first time. I was listening to his familiar eponymous first post-Beatles solo album, now in remastered hi-res. We all know this work to be a home studio effort with variable production, but it does contain the magnificent anthem 'Maybe I'm Amazed'.

Listening to that powerful, but fragile love song, my little digital system in Prague somehow created a soundstage that I had never heard in my 20 years of being punched by my beloved Naim set-up. The still-young McCartney was really

here, in the centre of my apartment, stabbing at the piano and shouting over the guitars with Linda on organ. I understood for the first time what a soundstage really could be. Yes, I have heard breadth and depth plenty of times before, but I'd never felt true presence. Here he was, singing before me with a passion and defiance that only comes from the human voice in confident youth. I was transported back to my own youth, and loss of innocence at the demise of The Beatles and the end of the '60s.

So now I spend my solo time in Prague with my modest system looking for further encounters. And I do find them, though usually with sparse live recordings or in chamber settings. Of course, back home my main Naim system drives an orchestral crescendo or drum attack brilliantly, moving well beyond what can be achieved by the plucky Sprout and the baby LS50s. But intimate it is not. And intimacy and connection is something we humans have all craved in these challenging times.

Rob Davies, via email

Paul Miller replies: Whatever they may lack in either scale or bass extension, a great small speaker working into a 'nearfield' space, can typically 'do intimate' like no other system. The sheer longevity of models including the LS3/5A [p70] and KEF LS50 pays testament to their effectiveness, the latter now evolved into Meta guise [HFN Jun '21] and a 2021-22 EISA Award winner to boot [p88]!



ABOVE: The PS Audio Sprout USB DAC/amplifier measures just 152x45x203mm (whd)

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In praise of private listening

HEADPHONES FOR ALL SEASONS, AND SOMETHING SPATIAL THIS WAY COMES...

I just had a great evening reading the August issue, accompanied by *Brain Salad Surgery* on vinyl and the CD of Yes at Glastonbury (showing my age now, I think). I'm pleased to read that Andrew Everard is starting to appreciate headphones. I agree that a big pair of speakers is hard to beat but there are many times and places where headphones let you enjoy music when otherwise you couldn't. Late-night rock sessions is one example. Public transport is another. Or when you're in the garden and don't wish to annoy the better half or the neighbours. And they come in handy at the office as well!

I now have four pairs, each of which has a dedicated purpose. In fact, I still have my very first pair: Wharfedale DD1s. These have two drivers (one bass, one treble) on each side. They're from the '70s so can't match the outright quality of today's phones. But I haven't found anything that can equal their level of thunderous bass and not sound distorted. But boy are they heavy, so not ones for extended listening sessions.

When I came back to hi-fi a few decades ago, I was recommended a pair of Sennheiser HD 265s, which were a step up in overall quality from the DD1s though they didn't possess quite the latter's bass extension. And my most recent pair of headphones is the Meze 99 Classics [*HFV* Aug '17] which are exceptional without costing the earth.

I have a Meridian Explorer DAC which I use between my headphones and a laptop or a tablet. I still remember my jaw dropping when I plugged the Explorer into my Dell for the first time, thinking 'Wow, they're right. A proper DAC is much better than the built-in computer stuff'. There are times when a direct connection isn't possible, although these days Bluetooth has



ABOVE: Reader Mike's cherished cans (clockwise l-r) the bi-directional Wharfedale DD1 from the early 1970s, Meze 99 Classics, and the noise-cancelling Sony WH-1000XM3 and Bose QC30

improved considerably. Meanwhile, I am on my second pair of noise-cancelling cans for the gym in the form of Bose QC30s. And for public transport I have a pair of Sony's WH-1000XM3, which are wireless noise-cancelling designs. All of my 'phones are closed-back because they're for use when I don't want sound to leak and be a nuisance to other people. The exception is the in-ear Bose QC30 for the gym and on the bike because I don't want sweaty ears!

I should mention that there have been a number of binaural recordings released over the years. Sennheiser even produced a 'dummy head' with a microphone housed in each ear that could be placed in a venue for live recordings. This really works when it comes to capturing ambience. There have also been several BBC radio broadcasts produced in binaural. One that springs to mind is Nigel Kneale's *The Stone Tape*. I recommend Andrew seeks out some of these so as to hear how good a recording intended for headphone listening can be.

Readers of a certain age may recall the Kenny Everett jingle for Capital back in the day: 'Capital Radio – the station

in stereo for people with two ears'. You might say the same for headphones!

Mike Locke, via email

Andrew Everard replies: While I won't be giving up speakers any day soon, and have been listening on headphones for a very long time, recent adventures have given me a new appreciation of headphone listening – at least in moderation. I once worked in an office where listening to headphones became the norm, and what a strange, soulless place it became. When you walked in there was just the odd sound of someone humming along with their chosen tunes, and the usual workplace badinage was reduced to text messages! Mind you, then there was a switch to a multiroom speaker playing various playlists, and that was worse.

Yes, there was – and is – some interesting stuff in binaural. *The Stone Tape* scared the bejaysus out of me one evening, even on repeat listening, and of late I've been enjoying a few hi-res binaural recordings becoming available through NativeDSD (see www.nativedsd.com/channel/binaural). However, I have to say that the experiments so far in 'spatial audio' available via Apple Music have been something of a curate's egg: interesting idea, but the jury's still out!



ABOVE: The Meridian Explorer won EISA's USB DAC Award for the 2013-2014 season

Put a socket on it

JUST WHEN DID HEADPHONES FIRST APPEAL TO THE HI-FI LISTENER?

In his review of the 1969 Leak Stereo 30 Plus amplifier [*HFN* Sep '20], Tim Jarman stated that the addition of a headphone socket, not found on the 1963 Stereo 30, 'reflected that [headphones] suitable for stereo listening had now become widely available'. Actually, Leak might have been wise to include that socket on the 1963 model. By 1962, they were sufficiently common that *Saturday Review*, a US magazine covering politics and the arts, commissioned me to write an article about them ('In Both Ears', July the 28th, 1962).

Judging from my lead paragraph – 'The counter-revolution in audio has begun. The need[s] of the high-fidelity music listener... have brought earphones down from the attic, where they had been lying next to the crystal set' – they were fairly new at the time. But were sufficiently common that I covered models from eight companies (including AKG, Beyer, and Koss) and headphone listening was widespread enough that the Bauer circuit to give a more realistic perspective on stereo recordings via headphones had been developed.

Incidentally, though that was my first article on audio, my first words in the field were published in *HFN*, in a letter to the editor around 1960.

Ivan Berger, via email

Tim Jarman replies: You are correct, Ivan. There were stereo headphones available on the domestic market in the early '60s. However, they were aimed more towards specific applications like monitoring tape recordings – high-quality tape recorders



ABOVE: The first Walkman, the TPS-L2, with samarium cobalt MDR-3 headphones

routinely had headphone facilities when they were still unusual in amplifiers. Some hi-fi marketing of this era focused on the possibilities of music at home as a social lubricant while entertaining (a bit like alcohol!) which, of course, mandated loudspeakers. This image was at odds with that of the dedicated listener wearing a bulky pair of headphones, alone with the music but isolated from others.

Headphones didn't really become socially acceptable until the miniature samarium cobalt designs made popular by the Sony Walkman (Sony MDR-3, etc), when they suddenly became a fashion item. I think a headphone socket on an amplifier is an essential fitment, which is why I was so pleased to report that the Leak Stereo 30 Plus has one.



ABOVE: Leak Stereo 30 Plus amp with headphone socket concealed by a removable 'knob'

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Meridian MCD CD player

It may have been based on a machine from Dutch giant Philips but this was the first CD player from a specialist high-end British manufacturer. How will it sound today?

Review: **Tim Jarman** Lab: **Paul Miller**

Compact Disc enjoyed a halo of glamour in its early years that the more established formats had lost. Talk of laser beams and digital electronics, those holographic rainbows on the disc surface – not to mention all the smart new hardware – brought an interest in top quality listening to a whole new demographic.

But while '80s yuppies were snapping up as many Sony Compact 75s, Hitachi Opus 1s and B&O Beocenter 9000s as the stores could stock, there was a group of listeners unimpressed. The traditional audiophile, used to building up systems of eclectic components from specialist brands, eyed anything bearing a household name with suspicion. They were biding their time, waiting for something more esoteric and hopefully UK-made to appear.

SIMPLY DOES IT

The problem was that the details of the inner workings of a CD player were unknown to all but the top engineers at Philips in Holland and the big Japanese multinationals. Equally, the ability to produce the necessary miniature laser optics and specialist ICs was outside the realm of all but the largest of organisations. As an example, a CD player's error-correction chip was reputed to be the most complex object that a private citizen could buy at the time.

Therefore, it was out of the question for a small firm to build a machine from scratch. Equally, there was little to be found in existing players that could be usefully modified and, in any case, much of the relevant circuitry was locked up in large scale integrated circuits. However, there were two areas of a CD player that were simple and accessible enough to try to improve – the power supply and the analogue filter stages, which follow the DAC. This was how the Meridian MCD came about.

Meridian at the time specialised in well designed equipment which, despite being audiophile focused, still fitted unobtrusively into the domestic environment. Compared to the company's neat preamplifiers and active loudspeakers, some of the early CD players looked like huge, gaudy hulks. But luckily there was one top-performing model that fitted the aesthetic bill perfectly.

The Philips CD101 (also sold as the Marantz CD-63B) was widely recognised as being one of the best sounding CD players on the market. It had just recently replaced the original CD100 [*HFN* Oct '11] – the first CD player available in Europe – and shared its basic form and layout. Internally, the first generation hand-assembled CDM0 transport module had been replaced by the CDM1, which was functionally equivalent but easier to produce (this is can be recognised by its die-cast housing). The PCB that processed the signal had also been

re-drafted to improve the layout and make use – though limited – of newly available surface-mounted components.

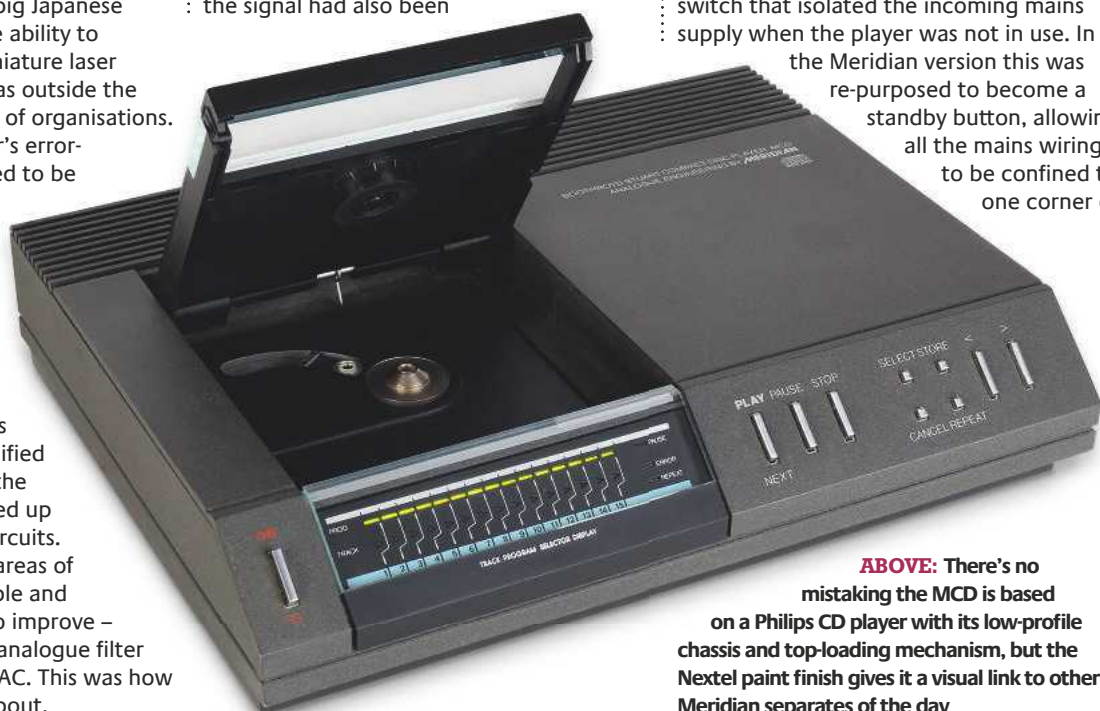
POWER PLAY

This helped to reduce assembly costs, a necessary move as CD player prices had fallen rapidly in the first few years of the format's life. For example, the CD101 cost two-thirds the price the CD100 sold for just two years previously. Each MCD player started life as an ordinary, Dutch-made Philips CD101.

The analogue filter components were then removed and an extra PCB containing the new Meridian circuit fitted in their place. At the same time, the capacitors whose job it was to filter the supply lines to the various chips were changed to different types and a few extra ones were added.

A change was also made to the power switch. The CD101 had a conventional switch that isolated the incoming mains supply when the player was not in use. In the Meridian version this was re-purposed to become a standby button, allowing all the mains wiring to be confined to one corner of

'A circuit from Meridian replaced the analogue filter'



ABOVE: There's no mistaking the MCD is based on a Philips CD player with its low-profile chassis and top-loading mechanism, but the Nextel paint finish gives it a visual link to other Meridian separates of the day



the chassis. Finally, the cabinet top was stripped and resprayed with Meridian's trademark grey Nextel paint, matching the finish of the firm's innovative modular amplifier system. The resulting machine came with a price tag of £400, up from £295 for the stock Philips version.

The MCD appeared towards the end of 1984 and can be regarded as the first CD player having substantial engineering input from a British firm. Soon afterwards Mission introduced its DAD 7000, another synthesis of essentially the same concept but this time based on the drawer-loading Philips CD104 [HFN Apr '14].

FOUR BY TWO

Tweaking the filters of a Japanese machine such as the Hitachi DA-1000 [HFN Sep '16] – a popular OEM model – may well have had a greater effect when it came to the sound, but the audible superiority of the Philips arrangement was well

known. The Philips players had the unique advantage of separate left and right channel DACs with 4x oversampling/digital filtering. The absence of oversampling in all the early Japanese designs obliged the use of sharp filtering at around 20kHz in order to reconstruct a smooth analogue representation of the encoded digital signal [see PM's Lab Report, p161].

NEW ORDER

Such filters unavoidably suffer from ringing around their corner frequency and generate phase distortion – two effects that noticeably colour the sound and adversely affect stereo imaging. Oversampling enabled Philips to design its filters with a characteristic that was much less abrupt, the standard players including a simple third-order Bessel filter that was essentially phase linear within the audio band. Meridian's re-interpretation of the circuit implemented a slightly steeper fourth-order characteristic at the cost of some additional complexity. The digital filter was, of course, unchanged.

The MCD has a similar sort of appeal as any early Philips player of its type. It is trim, pretty and feels solid and sturdy in a

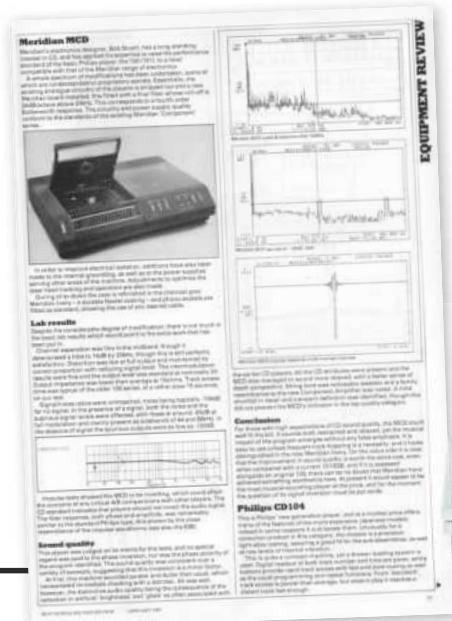
ABOVE: The Meridian MCD player is both simple and intuitive to use though it has no time display, instead sporting a row of green LEDs that show the available track selections

way that few CD players that have come along since have really equalled. It is also simple and logical to use, if one ignores the lack of a time display (no big deal) and a 'skip backwards' key (a real nuisance). However, direct top loading is preferable to waiting for a tray to grind its way open in an old player like this, and means no belts to stretch or gears to break. The CDM1 transport is its usual quiet, efficient self, apart from the odd chirping and slurping noises that they all seem to make when skipping (slowly) from one track to another.

The only obvious effects of the standby switch are to disable the keys and to make the strip of green lights that show the available tracks glow slightly dimmer. The effect on power consumption is a reduction of less than 10%, which is fairly marginal in reality. One can only speculate why this was done; a standard CD101 does indeed sound smoother once fully warmed up but from experience this only takes about ten minutes. Were the machine my own, this is one aspect that I would consider returning to standard spec.

TIM LISTENS

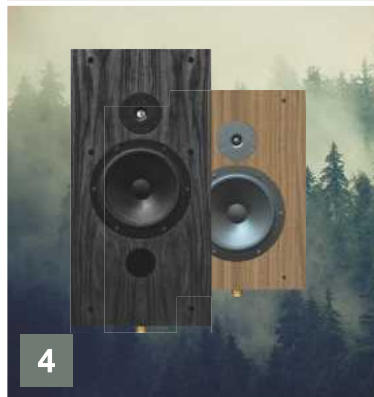
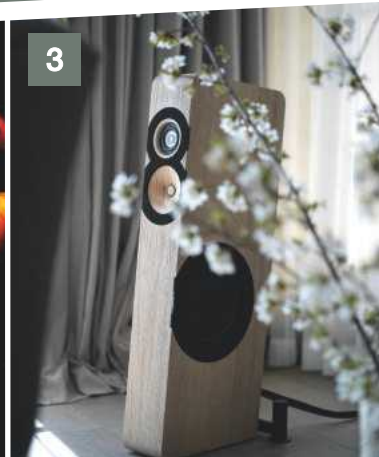
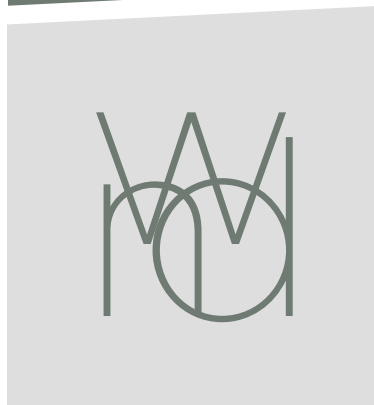
Heard in isolation the MCD sounds recognisably like a Philips design. The pleasingly solid soundstage which is instantly engaging without the need for deep concentration is still there, as is the familiar sweetness of acoustic guitar, cymbals and the like. It is an easy sound to listen to and enjoy, free from distracting grittiness and obvious technical defects. To detect the difference the Meridian ➞



LEFT: Page from the Jan '85 issue of HFN shows test results for the MCD. Period reviews of the player were generally favourable, as they were for the original Philips CD100 (below)



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RIGHT: There is little evidence of modifications when viewing the player from underneath, apart from the revised wiring to the power switch to implement the new standby function

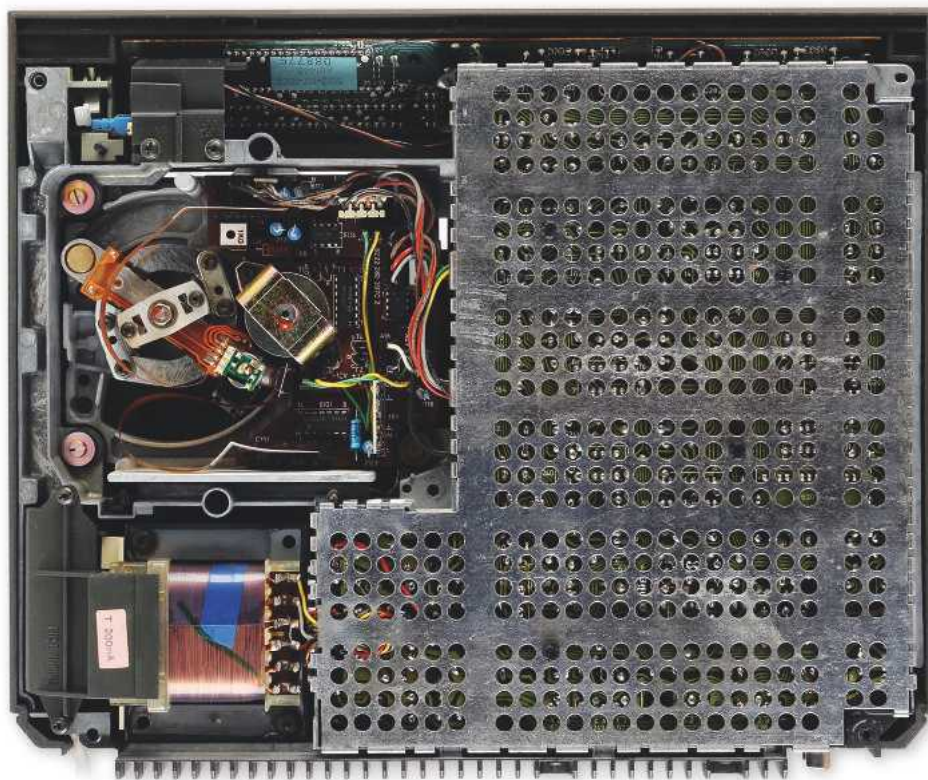
revisions make I found it necessary to listen to the MCD back-to-back with a standard Philips CD101 – a reasonable test, and one I suspect many prospective buyers conducted at the time to discover if the £100 premium was money well spent.

The obvious difference is that the MCD has a brighter, more intensely lit top end. This has the psychological effect of dimming the bass a little, although detailed listening revealed it to be largely unchanged. Given the criticism of CD players doing the rounds at the time of the MCD's launch, mostly that they sounded too steely and hard, this can only be seen as a brave decision, although in practice there is much to recommend the approach.

EXTRA BITE

Compared to the Vaseline-on-the-lens, soft-edged presentation of the Philips CD101, the MCD sounds a bit like an early Sony player that has been substantially tidied up and made to image properly. Tracks such as 'It Don't Matter To Me' by Phil Collins from *Hello, I Must Be Going*, [Virgin CDV2252] revealed a startlingly extra bite to the brass and percussion, both of which sounded like they were trying to jump out of the speakers.

This, set against a (typically Philips) solid spread of sound and a well proportioned bass line, is a voice CD players of this era seldom have. It reminded me of the type of moving-coil cartridge that has a kicked-up top end and a sting in its tail. It doesn't make for a relaxing listen and it makes your tweeters work hard, but it certainly grabs and holds your attention.



The Meridian approach was less of a success with smoother, richer-sounding material. Sade's album *Diamond Life* [Epic CDEPC 20644] has always struck me as tailor-made for the way early Philips CD players sound, no doubt through careful mastering at the production stage. Luxurious, rich and dark, it can be one of hi-fi's greatest pleasures. With the MCD, though, some of the set's tonal balance was lost. The song 'Cherry Pie', for instance, sounded overly pronounced in the

'It was as if the brass wanted to jump from the speakers'

midband and by contrast with the CD101 took on a flat, bland quality as a result.

In isolation, the performance still reached a high standard, but it was clear that the design of a CD player's filters is, like so much in hi-fi, a matter of balancing a set of competing compromises. Experimenting further, I found that 'Your Love

Is King' was harder to place as to which player did the better job. The MCD displayed what I perceived to be improved vocal clarity but at the same time I felt that some of the track's percussion sounds were at times a little bit over lit and splashy.

TRIPLE CHOICE

So the Meridian MCD does sound different to a Philips CD101, but I think to call it a definitive improvement would be tough to justify. It would be like saying that an apple tastes better than an orange: it all depends on what you like. In a system which already sounds a bit warm or laid-back it would be ideal, but in one that tends towards the bright and hard its revised sound would not be an advantage. In the end, though, ☺

LEFT: The later MCD Pro model carried the same concept a stage further, with the complete DAC circuit now relocated to a new PCB in the enlarged base of the machine



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VINTAGE HI-FI



ABOVE: Rear of MCD shows heatsink that forms part of the die-cast Philips chassis. RCA output sockets are not colour-coded, and (black) L/R labels are barely visible

all of this felt a bit like splitting hairs. Both players were at the forefront of CD technology at the time they were launched and the rest of the industry struggled to come up with anything that really got close in terms of sheer performance.

Both machines have aged well too. The MCD has still plenty to offer compared with many a player the last three-and-a-bit decades have thrown up. The Mission DAD 7000 sounds softer than the Philips it is based on, so in effect you have three choices. That's the great thing about hi-fi during this period – there was something for everyone.

BUYING SECONDHAND

The MCD should be no more trouble to own than any early Philips player, but there are a few points to watch out for. Like anything painted in Nextel the finish gets sticky and peels away over time. This is unavoidable and difficult to do anything about as the legends and markings are printed on top of it.

BELOW: Direct top loading is not only quick but avoids the problems with drawer mechanisms that trouble many early CD players as they become older



Meanwhile, the standby mode means that most of the machine is still working hard all the time it is plugged in. This takes its toll on the various ICs, the voltage regulators and many of the smaller components which deteriorate with heat. Bear in mind that any prospective purchase could well have already been switched on for decades and may now need a fairly serious overhaul. As with the Philips version of the player, the electrolytic capacitors in the voltage doubler part of the power supply are especially vulnerable.

Other than that, the good news is that the normal Philips virtues – decent service manuals, long laser life and easy availability of most of the parts from scrap machines – are still present. Common Philips trouble spots such as poor soldering around the regulators, seizing up of the spindle motor and the lid interlock switch playing up all happen to the MCD too, but ultimately these are all simple things for a well-equipped workshop to resolve. ☺

HI-FI NEWS VERDICT

An interesting and different take on the early Philips design, the Meridian MCD is a milestone machine and deserves a place in any collection of early CD players. In an otherwise soft-sounding system it may be just the thing that's needed for really enjoyable CD listening, plus it offers Philips' solidity and durability. The MCD is a genuinely esoteric product without the usual pitfalls. Shame about the Nextel though...

Sound Quality: 84%

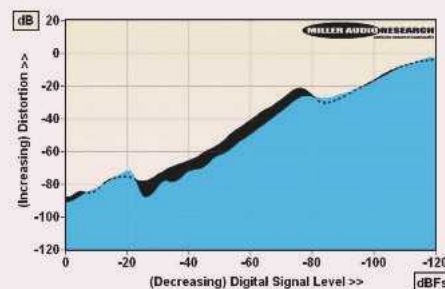


LAB REPORT

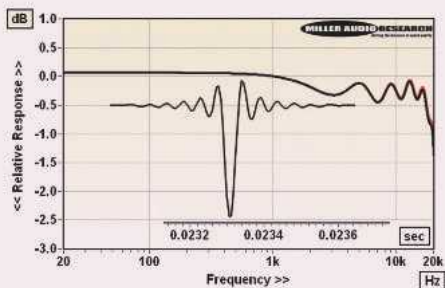
MERIDIAN MCD (Vintage)

Comparisons with Philips' earliest 4x oversampled 14-bit player, the CD100 [HFN Oct '11] is clearly of most interest as Meridian used the CD101 as a 'donor' chassis for its proprietary upgrades while also coating the bodywork in a Nextel finish. At the time, improvements to the PSU and tracking/focus performance of the swing-arm mechanism were cited – the transport being able to read the CD-R discs we use today for lab testing (recordable CD was introduced in domestic guise in 1992). The MCD necessarily retains Philips' first-generation 14-bit/4x oversampled DAC, the TDA1540, and so its 'digital' performance – the ~430psec of (complex) jitter, the excellent +0.5dB linearity error at ~100dBfs, the idle pattern tone at 3.75kHz (~118dB re. 0dBfs) and the 52dB stopband rejection is unchanged. As are, I might add, the ±0.25dB in-band ripples caused by the limited number of taps and truncation of the impulse in its first-generation FIR digital filter [see Graph 2, below].

Distortion, too, at ~0.0025% (0dBfs, 20Hz-20kHz) is linked to the DAC, including the 'steps' at ~25dBfs and ~80dBfs [see Graph 1]. There are differences between the CD100 and MCD, and most are related to Meridian's aftermarket output stage with its 4th-order analogue filter. So the very top-end of the frequency response drops to ~1.3dB/20kHz instead of ~0.6dB while the improved buffer offers a lower, and more cable-agnostic, 13-26ohm output impedance instead of Philips' 48-250ohm. The improved PSU and analogue PCB layout also reduces low frequency crosstalk to below ~100dB while the A-wtd S/N ratio is improved from 104dB to 107.5dB here. The maximum 2.1V output level is not significantly different but the polarity of the output is *inverted* [again, see Graph 2]. PM



ABOVE: Distortion versus 16-bit CD digital signal level over a 120dB range (black = 1kHz; cyan = 20kHz)



ABOVE: Frequency (magnitude) and impulse (time) responses. Note ±0.25dB response ripple

HI-FI NEWS SPECIFICATIONS

Maximum output level / Impedance	2.1Vrms / 12.6-28ohm
A-wtd S/N ratio	107.5dB
Distortion (1kHz, 0dBfs/-30dBfs)	0.0027% / 0.015%
Distortion & Noise (20kHz, 0dBfs/-30dBfs)	0.0023% / 0.0078%
Frequency response (20Hz-20kHz)	+0.07 to -1.3dB
Digital jitter	427psec
Resolution @ -90dB/-100dB	+0.4dB / +0.5dB
Power consumption	16-22W
Dimensions (WHD) / Weight	320x73x267mm / 5kg

Revox B225 CD player

John Atkinson reviews a high-end CD player from a specialist Swiss brand

Audiophiles who have spent large sums of money on LP playing equipment, such as myself, find themselves coming up with a number of excuses when presented with the thorny problem of reconciling the increasingly general acceptance of CD with their own love for vinyl.

One which I have heard often is that 'of course, CD doesn't offer audiophile sound quality, as the companies making the players backed out of real hi-fi some years ago in order to compete in the "vertical music-centre market"'. There may be a grain of truth in this as I feel that optimising any design to give the best sound quality remains an art, with good engineering only getting the designer 80-90% of the way – even if he or she has an unrestricted budget. And designers of products destined for the mass-market have to produce results within budgets that are hardly open-ended.



The entry of specialist hi-fi companies like Meridian, Mission, Yamaha, Nakamichi and Revox into the CD arena, however, will eventually show whether this is a fair attitude to strike or not. In the meantime, I have been living with the £777 Revox B225 CD player, which was introduced in the UK towards the end of 1984.

SLIDE PROJECTOR

A reasonably large machine at 450x109x332mm (whd), the B225 is styled to match the range of Revox components which started with the B251 amplifier and B261 tuner. Beautifully made and finished both internally and externally, the machine has a central tray, bearing a Philips mechanism and optical pick-up, which slides out for loading. This tray also bears an LCD display for track and programming information.

To the left of the drawer are the programming controls, including a 0-9 numeric keypad, while to the right are the usual transport controls, ± pushbuttons for variable output and headphone level, the headphone socket itself, and a power on/standby button (the machine's memories remain powered all the time the player is plugged into the mains).

ABOVE: The Revox B225 was launched in 1984 and bore a price tag of £777

The rear panel has the usual Revox two-pin mains socket, a socket for an optional wired remote control (an infrared unit is available if the CD player is used as part of an appropriate all-Revox system), and two pairs of phono sockets, one pair of fixed level, the other variable.

Internally, two motherboards carrying all the switches run behind the front panel either side of the transport drawer, and daughter boards plug into this, keeping the discrete wiring to a minimum. The lefthand boards cover transport and programming facilities; the two on the right carry the familiar Philips chipset with its 4x oversampling digital filter allied to 14-bit D/A conversion, while analogue filtering, de-emphasis and output are via the ubiquitous 5532 dual-channel audio-quality op-amp. A relay mutes the output while the circuitry stabilises upon switch-on.

Discs can be played in two ways, straight or programmed. Tracks can be accessed in the latter mode either by stepping sequentially through the disc or by pressing a two-digit number corresponding to the wanted track on the numeric

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keypad and pressing 'play'. A red button transfers operation to the programming section, and up to 19 selections can be programmed into the B225's memory. These can be tracks, an unbroken selection of tracks, ie, tracks 4-10 inclusive can count as one programming selection, or timed sections.

This function is performed by changing the display to time mode and entering the desired start and stop times with the keypad. Once set, the programme can be 'previewed' by stepping through with \pm pushbuttons. The only missing function is total disc playing time upon loading, but as this is only of use to CD software reviewers in my experience, I suppose Revox felt justified in omitting it.

SOUND QUALITY

I used the B225 for my regular CD listening over a period of about four weeks. It was also subject to A/B listening tests in comparison with the Meridian MCD player [see p156], both machines having similar D/A converters and transports. (Care was taken to match the output levels of the two using a test disc calibration tone and an AC millivoltmeter.)

Comparisons were also made between CD and LP played via a Koetsu Red/Ittok/Sondek front-end. Speakers were Magneplanar SMGs, driven by my Krell KSA-50/Audio Research SP-10 combination.

I have to admit that I was initially disappointed when first using the B225, with the audio taken from its variable outputs. After some glowing reports on the grapevine, I had perhaps had my expectations built up overmuch. The sound was both a little brighter and clearer than I was used to from my Marantz CD63 or from a Yamaha CD-X1, and stereo imagery, though beautifully precise laterally, was somewhat lacking in depth and differentiation between the separate instrumental images.

There was also some bass range confusion, the CDGCG quaver bass pedal figure near the end of Carol Rosenberger's *La Cathédrale Engloutie* performance on Delos merging into a rather

undifferentiated LF blur when compared with the performance through my usual Marantz player. However, audio from the fixed outputs was subtly but significantly better than from the variable outputs, and all further comments refer to the B225 used like this.

I would have rated the Hogwood set of the *Brandenburgs* as almost a C via the variable outputs, for example, the improvement in sound quality to a rating of B being the order of the difference. Certainly I think Revox's decision to use a pushbutton level control rather than a rotary pot, to ensure a continuity of styling between the B225 and their amplifier and tuner models, was a backwards step when it comes to sound quality.

The A/B testing between the Revox B225 and Meridian's MCD was complicated by the fact that the latter phase inverts, so I cannot be certain that the differences I am about to describe may not also have been due to this absolute phase difference. Initially, I heard a consistent difference between the two machines, but this was actually due to a level difference of around 1dB between two of the discs used (due to a recut?). After that experience, I took care to ensure that I was really listening to player differences, but it was nevertheless a salutary lesson in the pitfalls that lie in wait for the hasty.

However, once that problem had been sorted out, the main subjective

difference apparent between the two machines, apart from the MCD's slightly veiled high end, was basically in the area of 'dimensionality'.


The English player was just that little bit better in portraying the space in which the recording had been made and how the images of musicians fitted into that space. Laterally, the Revox presented beautifully precise imagery, but that imagery was more flat-perspectived

than that of the MCD. For example, the opening to Ella Fitzgerald's superb reading of 'Fascinating Rhythm' on the Verve label's *Songbooks* collection had that little bit

more atmosphere around the drum kit with replay via the MCD. I admit I am talking about subtle differences here, but, given the price of the Revox, I was hoping for an audible improvement over the MCD of a similar order to that possessed by the MCD over most of the inexpensive Japanese competition.

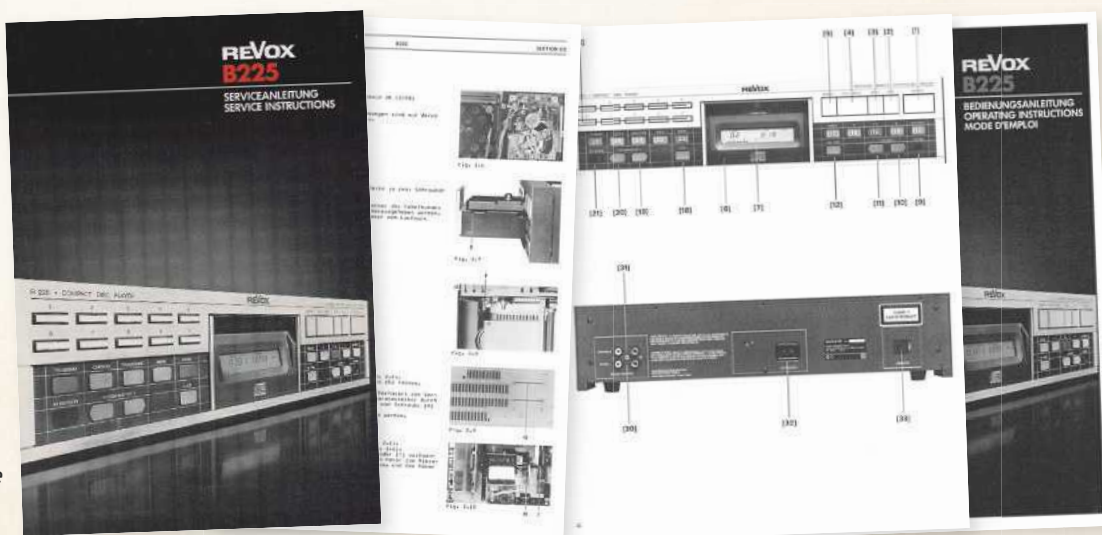
ON THE CARPET

Without the MCD to hand for comparison, the Revox would have been thought an excellent CD player. As it was, however, it was revealed as just 'very good'. In this, I was reminded of the sort of differences to be heard between CD and the best of analogue.

Courtesy of Presence Audio's Brian Smith, I was listening recently to the CD of *Dafos* being played on Audiostatic Monolith Twos, driven 

'The central tray bears a Philips mech and pick-up'

BELOW: Pages from the Revox B225 service and owner manuals, with functions of buttons and LCD information for track and programming explained



FROM THE VAULT

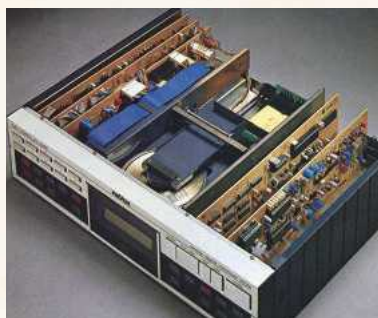
by paralleled Beard P100s. If you hadn't heard the LP, you would think that there was no more quality to be extracted from the recording than by the CD. We then played the LP – Le Stad turntable, FR arm and Decca cartridge – and discovered that, indeed, the CD sound could still be bettered by the 'obsolete' technology. This subjective area of 'dimensionality' seems to be where significant differences lie.

Apart from an exceptional weekend when the static from newish carpets and unprecedentedly dry weather caused a few problems with spurious triggering of play mode with the loading drawer still open, the Revox B225 proved both easy to program and use, and gave no trouble at all. The very fast track access was a joy after the tardy search speed of the Marantz CD63 and Meridian MCD, even though there was a little overshoot and subsequent hunting when the machine was accessing a very short track located near the end of a disc.

CONCLUSION

If CD sound quality alone is your concern, then the British Meridian player represents such good value for money that its recommendation must be mandatory. However, I must point out that the nature of the sonic differences between the Revox and the Meridian machines, for example, is such that in a less revealing or demanding system, the Meridian MCD's slight sonic advantage could well be outweighed by other factors in the Swiss machine's favour.

Firstly, and probably most importantly, Revox has one of the finest records in the business as far as reliability, build quality, and service back-up are concerned. I have a 12-year-old A77 open-reel machine which, with servicing, is still performing to the standard set when it came out of the carton, and I know of several G36 valve models from the '60s still giving excellent results. I am told by dealers that



the British Revox distributors, FWO Bauch Ltd, have a superb reputation for prompt and efficient service, and I have every confidence that a purchaser of a B225 will still be getting the same standard of CD performance well into the 1990s.

Secondly, while the programming procedure may well be daunting on first encounter, with familiarity it proved versatile and unexpectedly easy to use. Personally, such a sophisticated programming facility is beyond my needs, but if you do require

it, the Revox B225 can do it. In particular, the ability to set random cursor positions for programming and repeating sections of music would be useful for musicians learning particular passages, as one isn't limited by the track and index positions of the disc itself.

Last, but by no means least, the appearance, size and styling of this unit render it the natural CD player of choice for owners of all-Revox systems, and I suspect that it is these people who will find the B225 to be an essential purchase. ☺

LEFT: Lid-off shot of the Revox B225 reveals that the player comprised three sections. The first contained the power supplies and disc servos, the second the drive, and the third the audio boards. The once-familiar Philips 14-bit/4x oversampling chipset was employed here

'You will get the same CD performance into the '90s'



Also in HFN this month in 1985

PHASED AND CONFUSED

Ken Kessler takes a look at the topic of Absolute Phase.

POT POURRI

Short reports on the Empire/van den Hul MC1000 MC cartridge, plus Mordaunt-Short MS100 and Sony APM22es speakers.

HAUTE REMOTE

Ken Kessler auditions the Akai CD-A7 CD player.

ONE BOX OR TWO?

Martin Colloms reviews a £1500 CD player/PCM processor from Japan in the form of the Sony CDP-552es/DAS-702es.

THE GREAT BLACK HOPE

Ken Kessler lives with the Marantz 'Black' system – CD-74 CD player and PM-54 amp.

THAT WILL DO NICELY

Sony's new 'Sheet' headphone radio comes under Martin Colloms' microscope.

A FABULOUS BEAST

Alvin Gold reviews a relatively new British turntable, the Manticore Mantra.

POT POURRI 2

Christopher Breunig tries some solid-core mains cables while John Crabbe sets to work auditioning mains plug fuses.

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LAST WORD

OFF THE LEASH!

KEN KESSLER TELLS IT LIKE IT IS...

Ken Kessler puts a new spin on 'lockdown' as he recommends clamps and weights for the turntable



After my column last month on the subject of 'good housekeeping', in which I addressed the gains from speaker stand adjustments, refreshing my cables, and the arrival of carbon fibre spools for open-reel decks, I entered a fine-tuning frenzy. I disconnected my turntables, gave 'em all a good cleaning and experimented with two of the three non-permanent tweaks all LP addicts eventually try: mats and clamps (or weights). Best of all, these start at a fiver on Amazon, so high cost needn't enter the equation.

CAN OF WORMS

As for the third category – upscale cartridge headshells – I passed on them because they are *entirely* arm- and cartridge-dependent. As such, generalisations are of no use. For example, ADC's headshell works better in the arm on the Pro-Ject Yellow Submarine than does the Nagaoka, while the My Sonic best suited the Thorens TD 124 DD [HFN Jul '21]. Moreover, it all changed when moving from an Ortofon 2M Red to a Kiseki Blue to a Denon DL103GW. Headshells, then, are a can of worms I prefer not to open.

Mats and clamps, though, are a different story. What prompted this was the arrival of the above-cited Thorens deck, and its need for either a clamp or a weight (or 'stabiliser' – same thing). The TD 124 DD doesn't lend itself to mat changes because of the pop-up,

large-hole-singles adapter which fixes to its rubber mat. I suppose I could have tried mats or thin platters on top of it, but the deck sounds amazing with its supplied mat, yet it absolutely *begs* a clamp or weight.

LITTLE GEM

My affordable reference for real-world reviews and therefore the test-bed for these accessories is the EAT B-Sharp [HFN Jul '20], especially as it responded to both tweaks. As for the TechDAS Air Force III Premium [HFN Jun '19] for our high-end and LP reviewing, few accessories make any difference as the mat cannot be changed, due to the vacuum hold-down technology of the deck, while weights seem to have no effect. However, I've yet to try either of the two stabilisers made by TechDAS. Part of me suspects it's a

case of belt-and-braces as the hold-down is so effective, but my respect for the deck's designer Nishikawa-san tells me he wouldn't produce the stabilisers if they didn't do anything positive.

Back to the TD 124 DD, and results with weight and

clamp. The weight is from GH Acoustics, dirt cheap at [amazon.co.uk](https://www.amazon.co.uk). It weighs 278g, has a strobe on the top and a spirit level in the centre, so it's a little gem. The underside is rubber, so you can sit it on top of an amp or speaker and not worry about scratches.

For clamps, I found one in a box of accessories called The Acrylic Clamp, but I

surfed for hours without finding out who made it. This is a shame, as it is one honey of a clamp, weighing 204g so it almost qualifies as a weight, while its grip is tenacious. I'm reminded, though, of its opposite, a three-legged EON POD clamp of yore, made of white plastic which weighed nothing. What this raises are questions about the effectiveness of adding weight, adding more clamping force, or both.

Without any question, the Thorens deck repeatedly sounded tighter and more in control with either. The clamp had greater impact on stability and bass control than the weight, but the weight, too, improved performance over no clamp or weight at all. I wished I'd had Thorens' own stabiliser to try with the deck, as it should be a natural fit. That said, I recall that it's substantially weighty, and I have no doubt that the TD 124 DD would benefit from it.

In addition to countless decks supplied with dedicated weights or screw-down clamps, such are offered by Shun Mook, Origin Live, MoFi, Pro-Ject, Thorens, Clearaudio, Michell, VPI and too many others to list here. But this brings me to the lightweight screw-down clamp supplied with the B-Sharp, which you'd think would obviate the need for anything else. Alas, the spindle is so tall that it can only clamp LPs to the platter if they are thick, eg, 180g pressings or greater, or if you change the thin mat for something thicker.

NO EXCUSES...

Suffice it to say, on thin LPs, especially from the 1980s, there was no clamping effect whatsoever, LPs slipping around on the felt mat. Obviously, it couldn't even act as a weight/stabiliser if it doesn't sit on the LP.

Because the B-Sharp, like numerous modern turntables, has phono sockets on the back instead of captive leads, and as its mat is not fixed, the deck is a tweaker's dream. Leaving mats and leads aside for the present, I found it responded beautifully to the Acrylic Clamp, while the GH weight was not far behind. EAT's own optional clamp weighs 800g, so I am not alone in my thinking. At under a tenner, how can you *not* try a record weight?

Next month, we hit the mat(s). ☺

'At under a tenner how can you not try a weight?'

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