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What's remarkable about the new series of LP12 SE upgrades is not that it's taken 35 years to develop them, or that they can be retro-fitted to any Sondek LP12 turntable, but the fact that they retrieve even more music from your vinyl collection than ever before.



Experience a revelation in turntable performance.

For more information and details of demonstration events in your area visit www.linn.co.uk, or call 08000 277 181.

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news

DIAMONDS AREN'T FOREVER!

Diamonds and marble are the materials at the heart of a new, limited-edition hi-fi loudspeaker from British specialist Bowers & Wilkins, made in a production run of just one thousand. The striking design of the Signature Diamond is the result of a cooperative effort between B&W's Senior Development Engineer Dr. John Dibb, and the company's long-term industrial design collaborator, Kenneth Grange CBE (the designer behind the Intercity 125 train, Wilkinson Sword razor and Kodak Instamatic camera, to name but a few). Each pair takes the equivalent of six months of man-hours to make, and the company calls it, "the finest two-way floorstanding speaker we have produced in our forty years of history. The Signature Diamond achieves new levels of musical clarity, image precision and detail retrieval."

The technology which powers the Signature Diamond is enclosed in a 100cm high Matrix™ braced cylindrical and elliptical form enclosure, finished in either white or a Japanese-inspired Wakame veneer [shown right]. As well as expressing an aesthetic purity, the form of the Signature Diamond ensures a minimal acoustic footprint of both edge diffraction and mechanical resonance. On top of the enclosure, the decoupled tweeter pod is carved from Italian Grigio Carmica or Belgian Black marble, and it sports a pure Diamond Dome Nautilus tube-loaded 25mm tweeter. There's a new Kevlar-coned 180mm bass/midrange driver featuring an innovative new noiseless phase-plug, an ear-tuned first-order crossover network made possible by the wide linear bandwidth of the drivers, and a Flowport-equipped downward-firing reflex port. The limited edition of one thousand individually numbered Signature Diamond loudspeaker sets will be available through Bowers & Wilkins stockists worldwide from July 2007, retailing at £11,000 (including VAT). For more information, click on www.bwspeakers.com.



RADIO GAGA

Onkyo's brand new £299.95 T-4555 is a Digital Radio tuner with a difference - buyers will be able to upgrade it to handle any new digital radio broadcast standards that may be adopted in the UK, the company says. Designed to match Onkyo's latest range of amplifiers and CD players, it boasts a proven 'plug-in' modular architecture first used on Onkyo's flagship TX-NR5000E AV receiver in 2004. Should a new additional or replacement standard for digital radio be adopted in the UK at some stage in the future, Onkyo will make available a revised version of the tuner module, and T-4555 owners will then be able to upgrade their tuner to the latest standard by purchasing it and replacing the old one. Convenience features include forty presets assignable across DAB/FM/AM bands, Dynamic Range Control for comfortable late night listening, and auto-scanning. The dimmable front panel display conveys all the necessary info about what you're listening to (RDS data display is fully supported) while gold-plated outputs ensure the best signal transfer to your amplifier/receiver. There's an advanced Frontier Silicon processor for DAB reception and specially-selected audiophile grade Nichicon capacitors. The tuner's main analogue output stage is a low-impedance design that features similar high quality Nichicon audio-grade capacitors, fast-recovery diodes plus an over-specified D-type power transformer. Power consumption is just 0.45w in standby mode and the signal-to-noise ratio is an excellent 94dB on DAB channels and an above average 67dB on FM stations. A well-shielded, robustly constructed chassis is fitted, with a solid aluminium alloy fascia. For more information, call +44(0)1494 681515 or click on www.onkyo.co.uk.



AND THEN THERE WERE TWO...

No less than twenty five years since their last foray into loudspeaker building, Arcam is back in the air moving business! This sneak preview pic taken at the Munich High End Show, shows one of two new loudspeakers. The Arcam Muso is a "compact universal mini monitor" retailing for £280 per pair, and the matching Logo is a "compact high-quality subwoofer", priced at around £500. They are both built to match the stylish Arcam Solo and Solo Movie, and are "exceptionally high quality, built to be totally flexible in usage and placement to suit every listening situation". The all-Arcam designs use the "very latest driver technology" and the Muso sports combined aluminium and steel enclosures. For more information, call Arcam on +44(0)1223 203200 or click on www.arcam.co.uk.

TO THE MANOR BORN

Not content with the rarefied environs of Rodborough Castle, Ultimate Home Entertainment Systems has moved down the road to the nearby village of Painswick, near Stroud. Honeysuckle Lodge is the name of the new premises, where a stunning range of high end Naim hi-fi can be auditioned. For more details, call 0845 678 0787 or click on www.uhes.co.uk.

GO 'QUEST!

Famous US cable brand Audioquest is back in the UK. The Multi-Room Company has been appointed official UK distributor for Audioquest cable products with effect from 1 May 2007. Last seen in the UK a number of years ago, Audioquest is one of the world's leading manufacturers of specialist hi-fi and home cinema cables, having built up an enviable reputation since 1980 by founder and CEO William (Bill) Low. "The range presents one of the most complete portfolios of products for the hi-fi, home cinema and custom installation markets, from analogue interconnects through to HD specific home cinema cables", says The Multi-Room Company. For more information, click on www.multi-room.com.

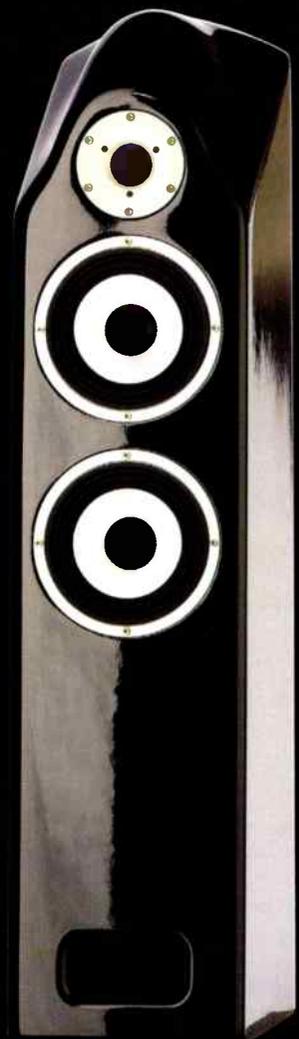
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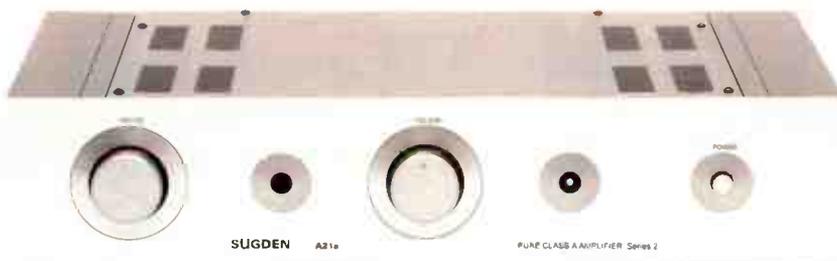
Premiered at May's Munich High End Show was Denon's new 2008 range of audiophile AV products, designed to, "deliver all the relevant new HD technologies in a format-neutral fashion, with better sound quality, greater ease-of use and total connectivity". Star of the stand was the AVR-4308 DAB HD Network Wi-Fi 7.1 AV receiver, costing £2,000. The first AV product to feature Denon's new wave-style industrial design, it is notable for its Wi-Fi audio streaming capability, meaning it can lock onto a computer with music (in AAC, MP3, WAV, WMA lossless and FLAC formats) and play it wirelessly via a router. In addition to this, the behemoth features HDMI 1.3a connectivity, Dolby TrueHD and DTS-HD decoders, Deep Colour and xvYCC support and Auto Lip Sync. Seven channels of 140W RMS are offered, with Denon's Dynamic Discrete Surround Circuit, Denon's proprietary Advanced AL24 for all channels, a new audiophile chassis construction design, Compressed Audio Restorer and DAB tuner – plus Internet Radio V2.0 offering nearly 700 stations! For more information, click on www.denon.co.uk or call +44(0)1234 741 200.



THE KNIGHT'S TALE

Canadian based Hansen Audio Loudspeakers have just announced a new design called The Knight. Priced at £13,000 per pair, it is described as, "an elegant, slim three-way floorstanding dispersion and phase-coherent speaker, using the latest developments in drivers and enclosures". Both the 182mm woofer and midband driver are designed, engineered and manufactured by Hansen Audio to match the 25mm tweeter custom built for them. These drivers all use a Hansen-developed multilayer composite sandwich cone mated to a powerful motor assembly. Acoustically inert, the elegant enclosures are finished in a class 'A' high gloss lacquer, whilst the enclosures themselves were developed using a number of new materials, such as 'Hansen Composite Matrix'. This is an inert material made up of multi layers with each layer using up to six different components. The Knight also introduces the New V2 DAT (Driver Assimilation Technology) crossover using point to point hand solder (silver). For more information, contact Metropolis Music on +44(0)1435 867438.





SECOND COMING

Sugden's classic A21a integrated amplifier has had a makeover - inside and out. The new A21a Series 2 boasts improved performance, higher specification and additional facilities. The signal path has been cleaned up; gone are the mono and tape switch from the front panel, as is the balance control. The preamplifier circuit board has been relocated to the front of the amplifier, and takes advantage of an improved switching circuit reducing long signal runs. The high quality Alps volume control gets has been retained and now has a motor fitted so it can be run by the standard Sugden RC5 remote control handset. The power supply has more current delivery, and the company claims a significant increase in the quality of the case; extra weight has been added with thicker materials used on the front panel and chassis. Price is £1,299 for the standard line level version, and £1,399 for the phono stage equipped model. For more information, click on www.sugdenaudio.com. [STOP PRESS: for an exclusive review, see p14!]

TOUCHY

LG's first touch-screen video MP3 player, the MFFM37, is a slick looking portable that features an interactive LCD display which provides crystal clear images and brings total control to the user's fingertips. Measuring just 51.5mm wide, 90mm long and 9.9mm thick - the average size of a credit card - the LG has already proved its competitive edge in design by winning the internationally recognised Red Dot Design Award. Made in lightweight aluminium, the MP3 player's easy to use touch-screen features a customisable and interactive interface on a 2.4inch LCD display. The LG MFFM37 supports video playback MPEG 4 and most popular audio file formats including MP3, WMA, OGG and ASF. It is equipped with 2GB/4GB of Flash memory, so users can watch up to three hours of video or listen to twenty hours of music with each battery charge as well as carrying out ultra high-speed file transfer capability through its 2.0 USB port. For more information, click on <http://luk.lge.com>.



MEZZO FORTE

Mordaunt Short has a brand new range of mid-price loudspeakers going under the Mezzo moniker. The foundations are the Mezzo 2 standmount and Mezzo 6 floorstander (£400 and £800 respectively), soon to be joined by a complete multichannel range. At the heart of Mezzo is its Aspirated Tweeter Technology (ATT™), directly descended from the high end Performance Series, it employs scrupulously designed structural mouldings with strategically positioned vents which help produce "diffuse field energy". Further down the frequency range, Mezzo uses the latest generation 6.5" CPC™ (Continuous Profile Cone) bass drivers with light and rigid anodised aluminium cones, which promise faithful dynamics. Wood composite was chosen for the cabinet, and then carefully formed and bonded into shape. Internal bracing provides inherent strength while the cabinet's curved shape discourages the build up of standing waves for a cleaner and more realistic sound. The speakers come with easily removable magnetic grilles which sit neatly flush against the baffle, and a choice of either light oak or dark walnut cabinet finishes is offered. For more details, click on www.mordauntshort.com.

APPLES COME TOGETHER

In a surprising move, Apple has announced that many downloads from its iTunes Music Store will soon be available in a new higher quality format with no copyright protection (known as Digital Rights Management). Current iTunes downloads come at 128kbps, which sounds reasonable (and far better than DAB at the same bitrate thanks to the quality of the AAC codec), and there are restrictions on how the files can be copied or used. Apple says the new iTunes Plus format, "is our new DRM-free, highest-quality audio format. The sound is virtually indistinguishable from the original recordings, and we're introducing it with great music from EMI artists such as Paul McCartney, Coldplay, The Rolling Stones, Norah Jones, John Coltrane, Maria Callas, and many more". iTunes Plus arrives as 256kbps AAC, which is the second highest bitrate possible from the Advanced Audio Coding format, and sounds reasonably close to the uncompressed 16bit, 44.1kHz Red Book Compact Disc standard.

Fittingly perhaps, the first release on iTunes Plus is from an ex-Apple Records artist, Paul McCartney, whose new 'Memory Almost Full' album is fully downloadable in the new high quality format with no limitations on use or copying. The deluxe version of 'Memory Almost Full' even has extra songs, a digital booklet, and bonus audio commentary. There are twelve more albums in his catalogue that carry exclusive bonus tracks that aren't available anywhere else, including his solo albums and Wings recordings. At the time of writing, UK pricing was unconfirmed - see www.apple.com/itunes/.



Super Model

David Price finds SME's latest Model 10/Series V turntable/tonerarm combination an arrestingly attractive proposition...

SME's £2,775 Model 10 turntable is something of a breath of fresh air in today's turntable world, offering genuinely high performance from a compact package and the easy option of buying it with a very fine tonearm thrown in, for £3,621 as the Model 10A. It is the Steyning company's attempt to make high quality vinyl replay accessible, to provide world class sound without the concomitant clutter of wires, suspension, separate motor units and other associated ephemera. Basically, it's intended to be plug and play vinyl at its best.

The Model 10 can best be summed up by the aphorism 'small but perfectly formed'. Measuring just 370x250x161mm and finished in sober satin black, it is not going to impress someone who craves vast expanses of shiny metal (Acoustic Solid One, anyone? See p88). Whilst some will think that anyone spending £2,775 on a turntable should get something at least as large as a Michell GyroDec SE (i.e. *sans* acrylic base), others will see the Model 10's small footprint as a positive boon. It certainly looks unassuming on an equipment rack, but as soon as you use it you find its performance to be anything but...

Despite the diminutive dimensions, its build and finish are *sublime*. This isn't hyperbole – I use the word deliberately – because I can confidently say I have never come across anything better finished, at any price. Even classics like Trio's L-07D are as good as, but no better than, the SME. That same 'camera finish' given to the SME Series V tonearm is in evidence here, with the satin black aluminium base almost silky to the touch. The way all the bits fit so accurately, and so slickly, into everything else will be familiar to anyone who's stripped down a Honda motorcycle engine or disassembled a classic Yashica camera. By way of

comparison, the £2,165 Michell Orbe feels considerably less finely finished – and that is already one of the best built in the business!

What makes the SME Model 10 so accessible is the fact that, unlike its bigger 20 and 30 brothers, it has no suspension. Instead, the whole assembly sits on three large polymer isolators, with adjustable feet allowing quick and easy levelling. The subchassis is carried on three polymer loaded towers (similar to Sorbothane but apparently more pliable), and there's an inner platter around which a tight, square section rubber belt is attached and driven from a crowned aluminium motor pulley. The platter is a fully machined 4.1kg aluminium disc with a sticky top surface. On top of this sits a largish, fairly massy record clamp which screws into the 19mm high chrome tool steel spindle. A spiral channel in the bearing surface lifts oil to the top for effective lubrication, and a tooled-steel ball at the bottom

sits in a bronze thrust plate, softer to give effective seating.

The AC synchronous motor is isolated from the deck's subchassis by three long polymer sleeved pins, and driven by the external power supply which has an internal quartz crystal reference that monitors the speed 120 times per revolution in a phase locked loop configuration via an 8bit microprocessor. It provides 33, 45 and 78rpm operation, complete with a 'lock' LED when the deck reaches the right speed. Thankfully, SME have spared us tedious blue LEDs – they come in a classic green! Interestingly – and very welcome for a dyed-in-the-grain hand cuer like me – there's a polished stainless steel stylus guard which runs up from the base and provides a handy platform on which to rest the back of your hand whilst





wielding the arm's finger lift. Finally, a soft dust cover is provided.

The SME arrives in a largish box, and requires self-assembly (unless your friendly dealer will come around and do it for you). Without recourse to the instruction manual, I managed to do it in one hour including fitting and aligning the tonearm and cartridge, although I am already well versed in SME Series V setup [see ARMED FORCE]. The Model 10's compactness and relatively light 16kg weight mean that it's easy to work on, and assembly is basically the matter of removing the transit bolt, fitting the arm and cartridge, then putting the main platter on and plugging in the power supply. The turntable itself has very few adjustments, which is just what SME intended.

The Model 10 was supplied, as requested,

with a Series V tonearm simply because of my familiarity with this particular model. As such, it takes the price from £3,621 (as the Model 10A, fitted with Model 10 arm - a derivative of the 309) to £4,556 (fitted with Series V). For the purposes of the review, you can add another £2,399 for a Koetsu Red K Signature moving coil cartridge - which proved a particularly famous combination. The deck was auditioned with my Michell GyroDec present (also fitted with the same SME V and Koetsu) to act as a 'grounding' for my thoughts. Obviously, the Gyro is not a price rival, but I've heard it against everything from a Trio L-07D to the new Linn LPI2SE, so it's truly a known quantity for me.

SOUND QUALITY

Lovely, in a word. And it was all the more so when I looked away

from my loudspeakers to see not a vast sprawling behemoth of a turntable but a compact record player with a smaller footprint than a Dual CS505. The SME Model 10 needs no excuses made for its dimensions - here is a turntable that's utterly competitive in performance at the price with anything, large or small.

Its basic characteristic is one of clarity - it makes, for example, a GyroDec sound warm and rather opaque. Considering the Gyro does this very trick to most other turntables (sometimes at four times the price, too), that gives you an idea of just how transparent the Model 10A is. Pound for pound, I'd say it is one of the cleanest, most clear sounding devices I've heard. Running the Series V tonearm, the midband was staggering in some respects. Kraftwerk's 'Computerwelt' showed its uncanny ability to get right to the back of the mix, and open it up and throw the nuances right out at you just like they were lead instruments. Importantly however, when it did dig out all that detail, it was presented with order and grace rather than just dumped in front of the nose on your face.

This is the next key point of the SME Model 10 - its wonderful sense of scale. Instead of shoving everything out around the plane of the speakers, the SME is able to hang the recorded acoustic way, way behind

if need be – yet you can still hear all the way into it. Conversely, lead instruments in the mix, or lead vocals, project comfortably ahead of the loudspeakers while other elements hang seemingly miles back. Compared to the Gyro, the SME was substan-

(doubtless down to the amps of that time), yet Roger Daltrey's voice was eerily natural and unsullied. The Fender fretless Jazz bass on Japan's 'Ghosts' conversely sounded a tad dry, but the synthesiser breaks were deliciously warm and fruity (just as

of total solidity. Highly modulated sections of the groove didn't throw the deck into a rhythmic wobble, and it gave the abiding impression of being in total control. The big meaty drum sounds on the 'Avalon' album were a joy through my system, sounding tremendously powerful and self-assured, and when called upon so to do, the SME Model 10 really caught dynamic swings.

Rhythmically it is very accomplished – it's certainly a lively and engaging performer, so much so that you wonder why some people think the Series V tonearm is emotionally uncommitted, but I still wouldn't say that the Model 10 is the most gushingly emotive sounding turntable. Once again, the obvious comparison is the (rather more expensive) Linn LP12SE which really got to grips with the 'feel' of UB40's 'King' better than the SME. What the SME did was give an 'X-ray-like' exposition of everything that was going on in the mix, whereas the LP12 simply unbuttoned its top button and started to boogie. Interestingly, the Michell GyroDec was barely any less rhythmically infectious than the Linn, leaving the SME Model 10 alone as the most matter-of-fact sounding, and – truth be told – the most incisive.

Overall then, the SME is a dizzyingly high resolution device (especially at the price) that has no obvious weak points whatsoever, and a surplus of strong ones. It is massively clear, dimensional and almost 'architectural' in the way it digs out the basic structure of the recorded acoustic and hands it to you in such a conscientious way. It is tonally neutral, but can do very warm or sub-arctic too as the occasion (i.e. recording) demands. It is a little looser in the bass than it might be, but this in no way detracts from the

ARMED FORCE

SME's Series V tonearm needs no introduction to any analogue addict. Introduced in 1986, it was a massive leap up from the (then) current 3009S2 Improved, which had been around since the 1960s. To give you an idea of the performance improvement over the 3009, switching to a Series V would be akin to going from the original 1964 Ford Cortina to a 2007 Jaguar XJ8. All the same, some commentators said that, in gaining the world, the Series V lost its soul. It's certainly not an emotionally engaging performer, but the amount of detail it throws up is gobsmacking, as is its ability to render a recorded acoustic flawlessly in three dimensions. Finally, its bass is probably the best that any pivoted arm will ever achieve, so accurate and powerful is it. The SME V is a glorious product, but one that not everyone can live with. People who've bought one will sometimes sell it, whilst secretly knowing that they're going to change to an inferior arm that's simply more to their taste. This is the key to SME V – it is so matter-of-fact sounding that many vinyl addicts, who love the format for its 'romantic' sound, simply find it too clinical. Personally, I adore it and always will. Every time I hear one, even having heard some stunning designs at twice the price (or more), it always stops me in my tracks.

Funnily enough, I think my affection for it is as much on an intellectual level as a practical one. Rather like Concorde, every aspect of its design (and build) just seems to be right – both at the time it was designed, and now. The tapered, varying thickness armtube is made from diecast Magnesium alloy and internally damped to avoid vibrations, the wiring is all silver litz and the bearings are of superlative quality. The arm is so beautifully designed that, uniquely, set up is a joy. Everything from height and overhang adjustment is performed effortlessly and to extreme precision with the supplied tools. Hand cueing an SME V still feels like no other, so exquisitely smooth is its gait. Finally, the arm looks utterly beautiful; despite being twenty one years old (amazingly!), it seems bang-up-to-date in every way, as does anything whose form is a direct, uncorrupted result of its function.

tially more dimensional in terms of front to back, but interestingly not from side to side. In my experience, the Orbe and Gyro have one of the most expansive (left to right) soundstages in the business. Although it bunched the recorded acoustic of Supertramp's 'School' close to the plane of the speakers, the Michell simply managed to stretch the stereo image much further, almost as if you'd hit a 'stereo wide' switch on your ghetto blaster. The SME threw out a confident left-to-right image, but it didn't quite have the width of the Michell. The result then was a much deeper sound, if not quite so expansive.

Tonally, the Model 10 is not a warm, euphonic deck by any stretch of the imagination, but to say it is clinical is utterly wrong. Rather, we're back to the glassy clarity than just cuts through the mush and tells you what's on the vinyl. Both the Linn LP12SE and Michell GyroDec are considerably warmer than the SME, but the SME is by no means cold or lightweight. Rather, it lets you size up each individual instrument in the mix, without fear nor favour. To wit, The Who's 'Wont Get Fooled Again' sounded just a tad warm in the bass

those early analogue designs should be). The point is that the SME doesn't editorialise at all about the tonality of an instrument, and as a result it has a wonderfully varied palette of colours – it's not the aural equivalent of looking at your holiday snaps in Photoshop with all the colour tones taken up.

So, we have a tremendously clear device with wonderfully capacious soundstaging, inside which is an extremely detailed and tightly framed stereo image. What then of the SME's rhythmic and dynamic prowess? Well, once again it was spot on. The opening drums of Roxy Music's 'Take a Chance With Me' was as powerful as I've heard it from anything this side of a Trio L-07D, with excellent attack transients and a feeling





REFERENCE SYSTEM

Michell GyroDec/SME Series V/Koetsu Red K Signature turntable
 Linn Sondek LP12SE/Ekos SE/Arkiva/Lingo turntable
 Note Products PhoNote phonostage
 Linn Linto phonostage
 MF Audio Silver Passive Preamplifier
 World Audio K5881 power amplifier (modified)
 Yamaha NS1000M loudspeakers
 Quad ESL-989 loudspeakers

SECOND THOUGHTS

As far as I'm concerned, there is nothing quite like an SME product. From their construction, fit, finish, detailing, packaging and even instruction manuals, you know you are looking at something truly special, designed by a company with serious engineering ability. The Model 10 turntable is a perfect example. It is magnificent; stunningly finished and intelligently designed in such a way that you do not require a degree in engineering to put it together with the aid of precision tools; you simply unpack it, remove the transit bolt, fit the platter, plug in and go.

The sound of the Model 10 is exactly as you might expect from handling it - solid and weighty with a vast soundstage that just makes everything around you disappear, leaving you completely immersed in the music as it should be. I set the Model 10 up in the office for measurement and photography before David arrived to collect it for the review, but also took the opportunity to have a listen for myself. I actually ended up using it for most of my evaluation of the Anatek phono stage on page 92 and this proved to be a formidable combination. So formidable in fact, that I was rather surprised to hear just how much better it was than the eminently capable Pioneer PLC-590/SME M2-10 setup that we have been using in the *Hi-Fi World* listening room for a while now. Switching back to the Pioneer and cheaper SME removed the ultimate dynamics of the performance and also softened everything generally, but particularly the bass - proof that direct drive will not always 'out-grunt' a good belt drive. I found the Model 10 an utterly addictive component - one of those that you really don't want to stop listening to, but that inspires you to keep digging through the vinyl in order to check out what it is going to pull out of the grooves that you haven't heard before. I may have even sulked for a while when David finally came to take it away [and I'm not bringing it back in a hurry! - Ed].

And the Series V arm? Well, I have lusted after once of these since it first came out in 1986, when I was but a twelve year old lad with a hi-fi obsession. When I finally heard one, it only intensified my determination to own one eventually, something I still stand by to this day. Whilst I am aware that there are a number of high-end tonearms I have yet to hear, as things stand at the moment I look at SME's "The best pick-up arm in the world" slogan and, even twenty one years on, find myself with absolutely no inclination to disagree with them... AS

overall listening experience, and it doesn't have the supernaturally wide imaging of the Michell, but it still comes out as nothing less than deeply pleasurable thing both to listen to and to behold.

CONCLUSION

Personally, I just couldn't get enough of the Model 10's clarity and detailing - and the lively way it hung it all together. Not only is it such a convincing and largely flawless way of playing music, but I loved it for its diminutive dimensions, sheer accessibility and ease of use - plus of course that gorgeous finish. Then there were those delightful details that make life with it such a pleasure, from the precision of the power supply's speed change buttons to that inspired stylus guard that makes hand cueing such a joy. I've always rated SME tonearms as up there with the very best and, as such, I was suspicious that their turntables weren't going to be as good (because very few manufacturers can maintain exemplary standards across their entire product portfolio, or indeed do). I was wrong - the Model 10 is a gem, and lovers of SME arms would be mad to overlook it, as would anyone who prizes clarity, accuracy, neutrality and control in a turntable, all served up with real zeal.

VERDICT ●●●●●

Beautifully transparent, accurate and controlled sounding turntable with peerless finish plus refreshingly diminutive dimensions.

SME MODEL 10 £2,775
SME SERIES V £1,781
 SME Ltd.
 ☎ +44(0)1903 814321
 www.sme.ltd.uk

FOR

- transparency, detail
- depth, scale
- packaging
- finish

AGAINST

- nothing at the price

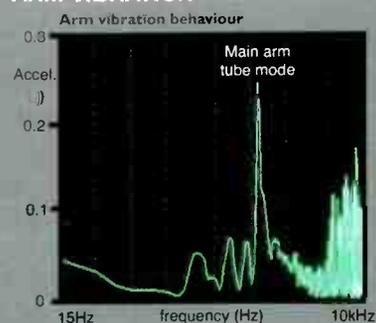
MEASURED PERFORMANCE

The 10A returns a good IEC-weighted wow and flutter figure of 0.081% and gives an even result across the frequency spectrum. This speaks volumes for its drive system and motor, which offers good torque and stability. Speed accuracy was good and very stable during measurement.

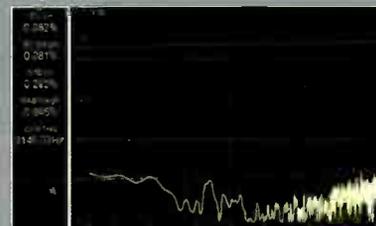
The SME V arm has a large main resonant mode at just over 1kHz but this is a very narrow peak, meaning that the arm tube itself is well damped. Below this, the arm is very well behaved, suggesting its bass should be good - solid and detailed. At the higher end of the spectrum, the V proved to be quite lively, which should imbue it with a similarly lively sound, although it may not be as smooth as some competitors.

Overall, the SME combo should offer bags of dynamics and detail, with good weight and energy to the sound. It is unlikely to sound dull. AS

ARM VIBRATION

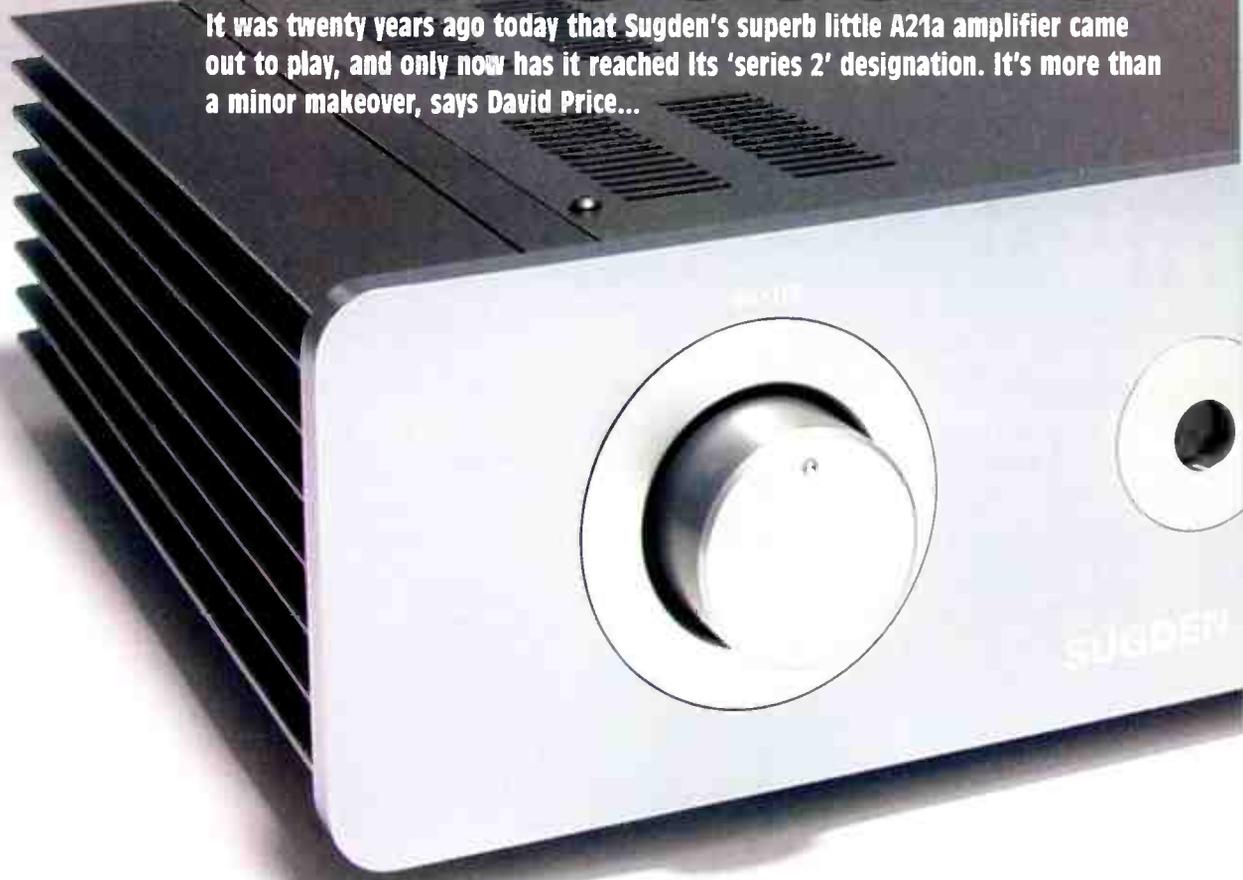


WOW AND FLUTTER



The Second

It was twenty years ago today that Sugden's superb little A21a amplifier came out to play, and only now has it reached its 'series 2' designation. It's more than a minor makeover, says David Price...



There is one product that we here at Hi-Fi World recommend with depressing regularity. Depressing for us, because it suggests to readers that we can't be bothered to think of anything else. The sad truth is though that it is surely one of the most capable 'standout' designs of the modern hi-fi age. Its circa £1,000 retail price buys you sound that – in some respects – is unsurpassed by many designs at five times the cost.

Don't think for a minute that the Sugden A21a is a brilliant all rounder though. Its very limited output power means it will roll over and die (metaphorically speaking) with difficult, power hungry loudspeakers. Unlike every other modern solid-state amplifier on sale, you'll have to build your system around it, choosing speakers to suit its unusual proclivities. If you're able to do this, however, then great sonic rewards beckon...

For this reason, the little A21a hasn't really changed much since it got its 'a' suffix in 1987. Whilst in sonic terms, its wonderful glassy clarity hasn't gone out of fashion, there are various other aspects of

the amplifier's design that were no longer contemporary, not least some facilities. Taking a critical look at what's really needed in today's mid-price integrations, Sugden began a two year process of evolutionary change [see IN THEIR OWN WRITE boxout, P.17].

The 'plane Jane' styling of the old model has gone, and it now has the same front panel finish as the Masterclass and A21SE models – and very nice it looks too with a choice of titanium or graphite finishes. The chassis and top plate are now fifty percent thicker, and the fascia is a chunky 10mm thick piece of aluminium. Control knobs and adornments have also been included from the more expensive Masterclass series. The amplifier now comes with remote volume control, using a high quality Alps volume control driven by a motor, as opposed to the CMOS electronic switching devices used by some rivals. An optional, internally-fitted MM/MC phono stage can be specified for £100 extra, or this input can be used at line level, making five in total. Loudspeaker terminals are three-way designs accepting 4mm plugs, bare wire and spades.

Surprisingly perhaps, the quality

of finish is superb. Sugden is a brand I associate with no-compromise sonics, so I wasn't expecting such a beautifully hewn product – one that gives away nothing to any product from Britain, Japan or elsewhere at the price. Indeed, sitting next to the exquisite SME Model 10 on my equipment rack, it didn't feel cheap, which is no small feat! Inside the story is the same – it's beautifully laid out with immaculate wiring, superbly finished circuit boards and simple, crisp topography. The front panel controls move with silky precision and, compared to the JungSon JA-88D, which being full Class A at £800 is a kind of Sugden rival, the A21a blows it away for build and finish. Like the JungSon, it does run very hot, but you never get the impression that things are going to go up in smoke like Cheech and Chong!

SOUND QUALITY

In my review of the £2,000 Sugden A21SE back in May 2005, I said it was one of the best integrated amplifiers I have ever heard at any price, and the A21a Series 2 isn't far off, despite being only half as expensive. What I got from the SE, I got from the A21a S2, albeit a tiny bit less. Still, it

Coming



the A21a S2 is a joy with almost any type of music

puts it pretty close to perfection as far as solid-state amplifiers go – for me, this is one of the few transistor integrations I would actually want to use on a regular basis, and I'd use it with glee.

When I first wrote for *Hi-Fi World* in 1994, I had never heard a valve amplifier (lest we forget, they were still viewed as an extreme, fringe pursuit back then and virtually impossible to audition at any dealer in this country). Unsurprisingly perhaps, I soon caught the bug and have never looked back. When I do 'look back', aside from a few Class D designs such as the NuForces and the Channel Islands reviewed recently, plus the occasional Naim, I am not really minded to go back to solid-state. However, the A21a Series 2, like the A21SE before it, is one of the few things that would get me reaching for my chequebook...

What this amplifier gives you is tremendous 'hear through' clarity – clarity that is sufficient for even the most transparent and demanding loudspeakers. It's one of the few integrations at any price that are less coloured than most high end loudspeakers, meaning you can use it with the very best transducers (providing they're sensitive enough) and get superb results.

The common myth is that Class A transistor is somehow warm and euphonic, but this is a complete misconception. Class A, Sugden-style, has glassy transparency – it's like the

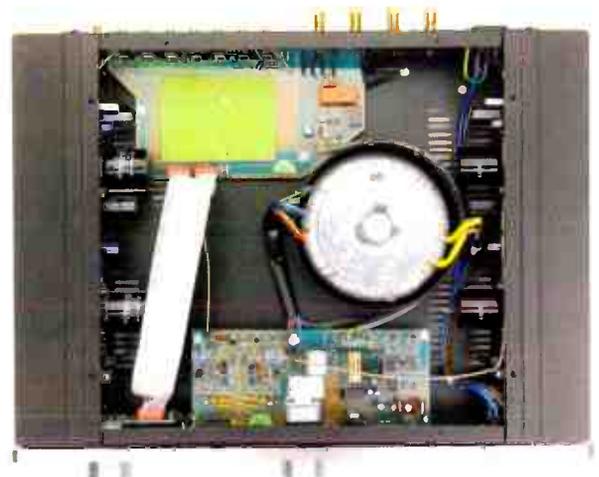
proverbial sunny but frosty autumn morning, the reflections of the sky on that absolutely still millpond. You're not getting lots of fat, sumptuous bass bloom or rose tinted treble – quite the reverse, as if anything the Sugden sounds quite 'brightly lit' across the upper midband. This isn't to say it's bass light or tiring in the treble, because it isn't. Instead, you get a vivid midband that sounds uncannily distortion-free.

The best exemplar of this is piano driven music, and Kate Bush's 'Feel It' is a perfect case in point. Anyone who's heard this classic track from her first album ('The Kick Inside') will know how beautifully recorded it is (at Abbey Road, naturally!), and hearing it through the A21a S2 showcases it at its very best. From vinyl – and to hear the Sugden at its best I'm afraid you need the resolution of a serious vinyl source – those piano cadences chime like Big Ben. The harmonics coming off the recording are intoxicating and the Sugden is one of the very few transistor amplifiers I've ever heard that can capture this. Even the £1,500 Channel Islands D100 power amplifiers, which impressed us all, sound muffled and somehow compromised by comparison.

Okay, all well and good. The problem with the A21a is when you give it something with serious bass transients, right? Well what better torture track than Alex Reece's 'Feel The Sunshine', classic drum'n'bass

at its best? The old A21a would show serious discomfort with this, especially at high levels, with the bass letting go and turning into a marshmallow-like mess. Not so the Series 2, which – although not quite Naim Nait 5-like, showed no pain when asked to drive my 91dB efficient Yamaha NS1000Ms. In fact – and this is amazing to find myself writing this about a Sugden – the bass actually sounded quite tight.

Things down below aren't quite as vice-like as the Naim, but they're not in any way embarrassing. Best of all, basslines are truly tuneful, the amplifier making up in musicality with what it lacks in absolute visceral power and grip. Speaking of which, the A21a S2 actually managed some! Again, it's not exactly a 584W Rotel RB-1092, but it proved itself perfectly



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able to tell the Yams' big bass drivers when to start and stop, and even gave some detailed information as to how loud to go in the process. I never thought I'd use an A21a for drum and bass, but I did, and it sounded lovely, with that sublime midband there to behold but without any of the (feared) nasties in the bass.

As for the Sugden's treble, it is not as creamy or silky as my World Audio K5881 tube power amplifier, but it sounds totally unlike any Class AB transistor amplifier I've heard. Rush's 'Subdivisions' showed its hi-hat sound to be delicate, detailed, subtle and crisp. There was no grain, hardness or zing, but likewise no Japanese high end amp-style sugar. It's a lovely thing to behold and, once again, your loudspeakers' tweeter will be the limiting factor, not the Sugden, however expensive your speakers may be.

The upshot is that the A21a S2 is a joy with almost any type of music. True, you can't use it as a PA amp, but for most sensible audiophiles who value their hearing, with reasonably sensitive loudspeakers, it's a far more sensible purchasing proposition than the old Series one. Its tremendous innate clarity and

sometimes slightly forward. Still, it's an expansive stereo image from left to right, and it locates instruments very confidently – far more so than the old A21a. Also, the Sugden can't quite catch that last few percent of dynamic accents, but this is only compared with products at twice the price or more. In general, it is so fast and open that it comes over as a very punchy and pacy performer.

CONCLUSION

Keen readers of this review may have cottoned on to the fact that I rather liked the new Sugden A21a S2, and so once again I find myself feeling a tad apologetic. By way



IN THEIR OWN WRITE – DAVID PRICE TALKS TO SUGDEN'S PATRICK MILLER.

DP: WHAT'S SPECIAL ABOUT THE NEW AMP?

PM: The A21a Series 2 is not just the old amp with a mild make over. It was a large design project for us that took twenty two months to complete. Because the A21a was so popular with our retailers and distributors, it was important to retain all the strengths without altering the way it played music. We therefore looked at each part of the A21a and set about redesigning it without altering the fundamental circuitry.

WHY CHANGE IT?

The original A21a was introduced in 1987 and has remained almost unchanged. We were getting reports that there was growing resistance to the dated looks and lack of a remote control. Since the introduction of the A21SE in 2005 the A21a was looking out of place and had room for performance upgrades. As you may have noticed we are not a company that introduces a new product every other month to chase sales.

WHAT ARE THE MODS?

We now have a new power supply with a more efficient transformer and better regulation. It now has higher current delivery in to 4 Ohms. Removing certain functions in the preamplifier, then relocating and relaying it has reduced the signal path considerably. The distance from input to output is much shorter with several large passive components being removed. The effect on the input signal is clearly noticeable. The quality of the case and case materials have been substantially upgraded and it has put on a significant amount of weight to bring it in line with its stable mates. We still operate our own custom engineering shop, and all elements of fine finishing are carried out in house. All circuit boards are populated by us, by hand and all electrical and mechanical design work is our own. We are very proud to say designed and manufactured in England.

VERDICT ●●●●●

Class A without tears, this new incarnation adds power and control to the A21a's traditional transparency and musical ease. Gorgeous.

SUGDEN A21A S2 £1,299

J.E.Sugden & Co Ltd.

+44 (0)1924 404088

www.sugdenaudio.com

REFERENCE SYSTEM

- SME Model 10/Series V/Koetsu Red K Signature turntable
- Note Products PhoNote phono stage
- Marantz CD63 KI DP CD player
- MF Audio Silver Passive Preamplifier
- World Audio K5881 (modified) power amplifier
- Yamaha NS1000M loudspeakers
- Mission 752 loudspeakers

musicality means that however poor the recording is, the Sugden digs deep into it and lets the good things get out to your speakers. T Rex's 'Metal Guru' – a bit of a dirge by any standards – proved surprisingly listenable, and I found myself sat there in awe of the genius of Marc Bolan, rather than the incompetence of the recording engineer. Supertramp's 'School' had me pinned to the sofa, revelling in that stunning Ken Scott production that sounds as fresh today as it did in January 1974.

Aside from basic watts per channel figures, there is nothing to criticise about the A21a S2 at the price, but in absolute terms it isn't quite as dimensional as it could be. Things don't hang quite so far back as they do with more expensive pre-power combinations, the Sugden preferring to 'bring the fight' to around the plane of the speakers, and

of riposte, I would urge anyone who has only ever heard Class AB transistor amplification to go and hear this, and then make

your mind up about my motives. Likewise, those who've ended up with lesser tube amplifiers in their despair with solid-state might find this just what they've always wanted. It inhabits a strange 'nether world' between solid-state and tubes, and sounds like neither. The old A21a attempted to bring the best of both worlds and did an impressive job, but the new one does it with far fewer signs of distress. As such it's a gem, and unless you think you need to swim around in kilowatts of solid-state power, you really should take a listen.

MEASURED PERFORMANCE

The A21a Series 2 is similar in performance to the original A21a, producing just 20 Watts into 8 Ohms over short periods; it was tested with tone bursts to avoid its overload protection. This is much as before, but power into 4 Ohms has risen to 32 Watts, twice as much as its predecessor. As loudspeakers commonly use 4 Ohm bass units these days, improved power output here is a help. Otherwise, the A21a Series 2 looks much like before. Sensitivity seems to have sunk a little, but it is still high at 200mV, meaning the amplifier continues to work with any source, even old valve tuners like the Leak Troughline. Lower gain has reduced measured noise levels.

The amplifier still produces more distortion at higher levels than is common nowadays, especially into a low 4 Ohm load where THD reaches around 0.4% near full output. However, second harmonic dominates most of the time, as our analysis shows, and upper harmonics fall away smoothly in a natural decay pattern similar to that of musical instruments, which makes its presence difficult to detect. Interestingly, damping factor is on

the low side at 16, much like Naim amplifiers. This tends to make bass a little more obvious from most loudspeakers.

The A21a Series 2 offers much the same performance as before, but with greater current delivery into low loads.

Power	20watts
CD/tuner/aux.	
Frequency response	5Hz-32kHz
Separation	80dB
Noise	-95dB
Distortion	0.02%
Sensitivity	200mV
Damping factor	16

DISTORTION

THD 23456789 Input RMS Frequency
 CH1 0.0207323 % 2.0528 V 9.9926 kHz
 CH2 OFF OFF OFF
 % THD CH1 vs FREQUENCY-Hz
 0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0

Concert Haul

New from Jamo comes its substantially built C80 series of loudspeakers. Adam Smith takes a listen to the entry-level C803 standmounters...

The Danes have had some great success stories in hi-fi, with a number of successful manufacturers having carved themselves a solid niche in the industry. From smaller operators like Densen, through Dali and Dynaudio (what is it with the letter 'D?') and right up to good old Bang & Olufsen, Denmark has produced some immensely worthy equipment over the years, each item offering a little special something that incorporates the Danish traditions of stylish, yet functional design.

One of the most successful has to be Jamo, manufacturer of loudspeakers for nearly forty years. In fact, it was in 1968 that the cabinet maker Preben Jacobsen founded the company, along with his brother-in-law, Julius Mortensen, with the first production facility being built in 1970. Jamo themselves have been piloted in several different directions over the years, before finally being acquired by Klipsch in 2005 and relaunched under the moniker "Danish Sound Design", leaving them to concentrate on their original speciality, namely loudspeaker design.

This is a task that they have embraced with considerable enthusiasm if their latest catalogue is anything to go by, as it contains details of over twenty different ranges, plus accessories such as an iPod dock and a digital media receiver. The C80 series slot in around the middle of the whole lineup, and at the top of the 'Concert' range.

The C80 range itself comprises seven models; four stereo loudspeaker pairs, plus a centre channel, dipole rear channel speaker and a matching

active subwoofer, so you can build yourself a comprehensive cinema system with these items if you so desire. The C803s are the babies of the stereo pairs and are the only standmounting design in the range.

Your £700 buys you a very well finished pair of loudspeakers that are available in Black Ash and the supplied Dark Apple finish. The C803s are biwireable and ours were supplied fitted with links that use the 4mm socket portion of the speaker terminals. As our loudspeaker leads all use 4mm plugs, this caused a small sweariest outburst from yours truly as I tried to fit the leads into the sides of the terminals, without much success. However, I then discovered that Jamo also supply conventional biwire links that fit around the screw part of the terminal to offer you the best of both worlds - very thoughtful and I take back those bad words I uttered!

The C80 series incorporates several different Jamo technologies, including Decoupled Tweeter Technology (DTT), which physically decouples the tweeter from the loudspeaker's front baffle in order to minimise the interference effects of

vibrations transmitted from the baffle to the tweeter. This is combined with a front plate waveguide that offers a controlled sound dispersion pattern from the tweeter for consistent performance.

At the other end of the frequency scale, the bass driver utilises a Hard Conical Cone (HCC) made from a 'sandwich' of paper between two layers of woven fibreglass, which Jamo say, "enables the C80 series mid/bass units to reach far beyond midrange frequencies before any significant audible cone 'break-ups' occur". Jamo also use an intriguing technique called "Active Impedance Correction" which involves winding an extra coil of opposite polarity inside the voice coil of the woofer and using it to negate the change in inductance experienced by the main coil as it moves in and out of the magnetic gap. This, they say, decreases audible 'roughness' by reducing third order harmonic distortion.

So, with all these technologies in



place, how would the C803s sound? In order to check I sat them atop our Sound Organisation Z1 stands and wired them up to a Luxman L-550A amplifier, Eastern Electric MiniMax CD player and Pioneer PLC-590/SME M2-10/Ortofon Rondo Bronze turntable combo to find out...

position. The C803s' flat midrange response ensures an even-handed treatment of vocalists and all sorts of instruments, giving an enjoyable sense of body to proceedings.

A big help in this respect is the scale of image generated by the Jamos - huge! Shut your eyes and you really could be listening to a pair of floorstanders, such is the sense of impact and body that the C803s impart upon music. Aiding this in no small part is the bass, which is impressively deep for such small cabinets.

of a good tweeter. However, as measurement shows [see MEASURED PERFORMANCE] the high frequencies do start to roll off just below 20kHz, which does steal a little of the sparkle from the very top end. The crash cymbal used in the right channel of Stevie Wonder's 'Higher Ground' seemed to have shrunk a little when I played this track through the C803s, whereas it usually sounds large, powerful and the notes from it fade with a wonderful decay. As mentioned, 'Jack of Speed' impressed greatly in terms of the snare drum but, here also, the accompanying cymbals were a little distant.

CONCLUSION

I can still remember the first pair of loudspeakers I ever listened to that had a ruler-flat response from 100Hz to 20kHz. They were the early 1990s Goodmans Mezzos (bigger brothers to the Maxims, not the big 1970s behemoths) and they sounded dire - flat, lifeless and completely devoid of any emotion!

Consequently I felt a little flicker of concern when I saw the flat response from the Jamos but, fortunately they are nothing like the Goodmans. The C803s are a loudspeaker that show off their blend of technologies very well, and offer a cohesive and detailed performance and a capacious soundstage that belies their modest dimensions. Careful positioning and partnering equipment choice can be used to ensure that their minor weaknesses at the very extremes of the frequency range are minimised, and I can see their big-hearted sound finding many fans.

The C803s have a weighty low end with good punch, and the slight lift in output in the upper bass region adds fulsome detail in this area.

Where they do fall down somewhat is right down in the lowest of the low registers, where the bass sounds a little overblown.

'Up on The Hill' from the Fun Lovin' Criminals' '100% Colombian'

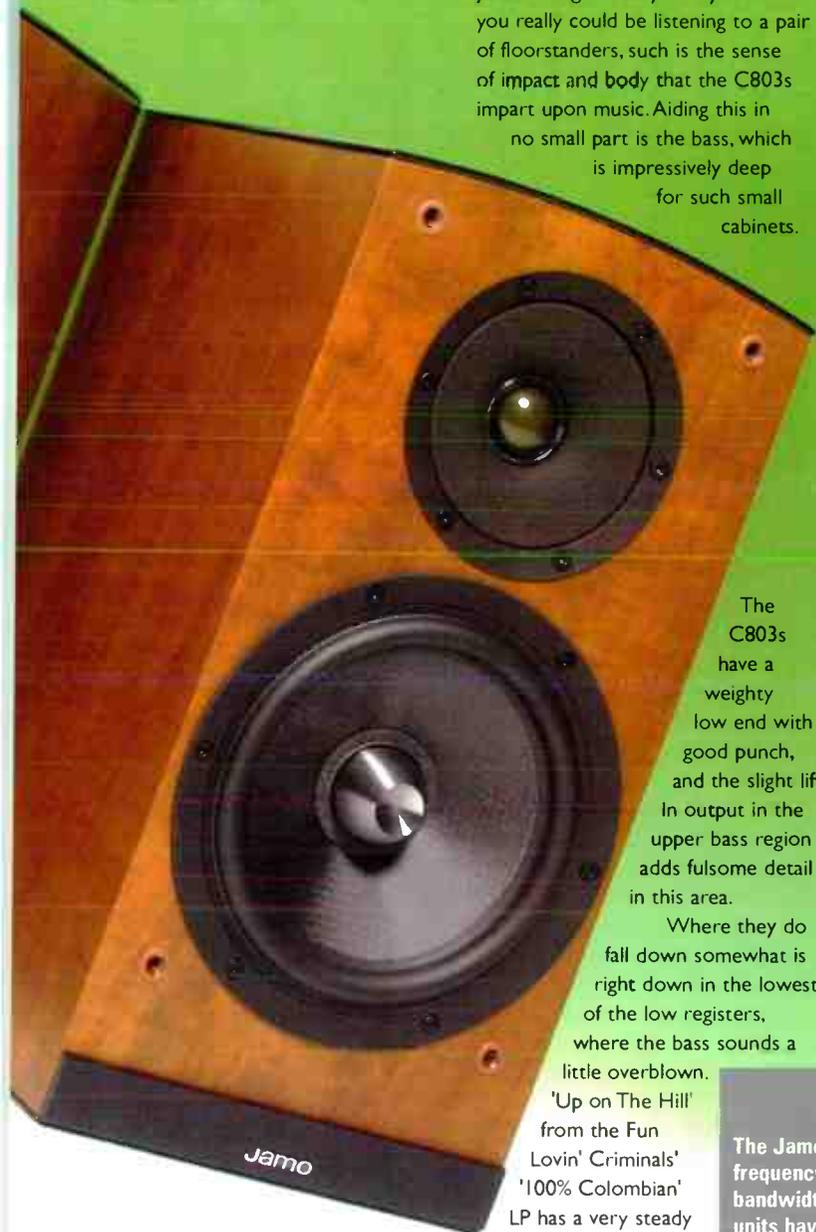
LP has a very steady and deep bass line underpinning the track, but through the Jamos this became something of a muddle, with each note blurring into the next. Moving them further away from the wall than the twelve inches or so they were previously set at helped here, suggesting that they do need room to breathe, but I wonder if Jamo have tried to push them a little too far at the very bottom of the frequency range.

At the top of the tree, high frequencies were pleasingly sweet and clean, the sign

SOUND QUALITY

It is always interesting, and usually a pleasant experience, to listen to a product that is well designed and incorporates well thought-out features that genuinely attempt to solve real problems. The Jamo C803s are such a product and their technology shines through in their performance.

Firstly, the C803s offer a very clean presentation, suggesting that the work Jamo has done on reducing distortion has succeeded. In the midrange in particular, instruments were vivid, with Diana Krall's piano having superb clarity and body. In a similar vein, the snare drum used on Steely Dan's 'Jack of Speed' was startlingly life-like and rock solid in its placement right in front of my listening



VERDICT Stylish standmounters that utilise various new technologies to good effect and offer a cohesive and dynamic performance.

JAMO C803 £700
Distributed by BBG Distribution
☎ +44(0)1923 205605
www.jamo.com

FOR
- soundstaging and scale
- midrange detail
- upper bass detail and punch

AGAINST
- upper treble softness
- low bass muddled at times

MEASURED PERFORMANCE

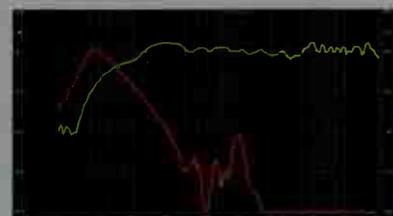
The Jamo C803s have a very flat frequency response across their full bandwidth, showing that their drive units have been well designed and well integrated. There is some rippling across the tweeter's output which may be as a result of the shallow horn in which it is located but this should not be audibly objectionable.

Bass output lifts around 150-300Hz which should add upper bass detail, but rolls down below 100Hz. This is augmented by the rear-firing port, which is tuned to around 45Hz, so the C803s should have good weight for their size.

The impedance curve is smooth and shows a relatively well damped design and, although there is something of an inductive peak at 2kHz, this is not large and should not cause any problems. Average measured impedance is 5.9 Ohms, dipping to a minimum of around 3.5 Ohms so the C803s do require an amplifier that will drive below 8 Ohms. Their sensitivity is good, however

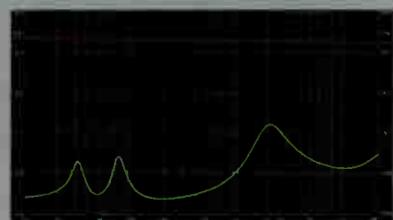
at 87dB so they will not need huge amounts of power; 40W or so should be fine. AS

FREQUENCY RESPONSE



Green - driver output
Red - port output

IMPEDANCE





One Love

It's hard not to be enamoured with Arcam's superb new Solo Movie DVD music system, says David Price...

It all started with the original Linn Classik, some six years ago. Back then, it seemed an outrageous thing for a specialist hi-fi company to do, but they did it. The idea was simple – a combined CD player, tuner and amplifier in one box – but the execution was sublime. The Classik sounded as good as any separates system I'd ever heard for the Linn's £1,000 selling price, and – here's the rub – it was in one small box, and virtually an interconnect-free zone.

Whilst this may not have appealed to those who relish the prospect of 30kg monoblock power amplifiers sitting either side of their fireplace, the great unwashed who believed that hi-fi should be heard and not seen (if at all possible) rather took to it, and Linn overcame the stupid purist audiophile conceit that it wasn't real if it didn't come in ten separate boxes, with fifteen metres of spaghetti hanging out of the back...

Arcam soon followed suit. The Solo was ostensibly a Classik Mark II, addressing a few of the Linn's rough edges. It brought a DAB tuner to the party (for better or for worse), and smoother, more modern styling, and a better remote (not difficult!). It sounded richer and fuller, although when we reviewed it we opined, correctly I think, that it didn't quite have the 'swing' of the Linn. Still, it was a lovely bit of kit, and it hasn't hurt Arcam's bottom line one bit.

Well, it was only a matter of time before the Solo sprouted a DVD

player and video functionality, and became multichannel, and so here it is. Best of all, despite all the extra gubbins (of which there are a lot, more later...), it retains the original's compact, slimline casing. True, unlike Linn's new Classik Movie System reviewed next month, it's not midi width, but spans an entire 'full width' 430mm (with a depth of 350mm and a height of 79mm), making it a little bigger all round, and it weighs a decent 7.75kg. Interestingly (unlike the Chinese-built Solo Music was), the Arcam Solo Movie is designed and built in Britain.

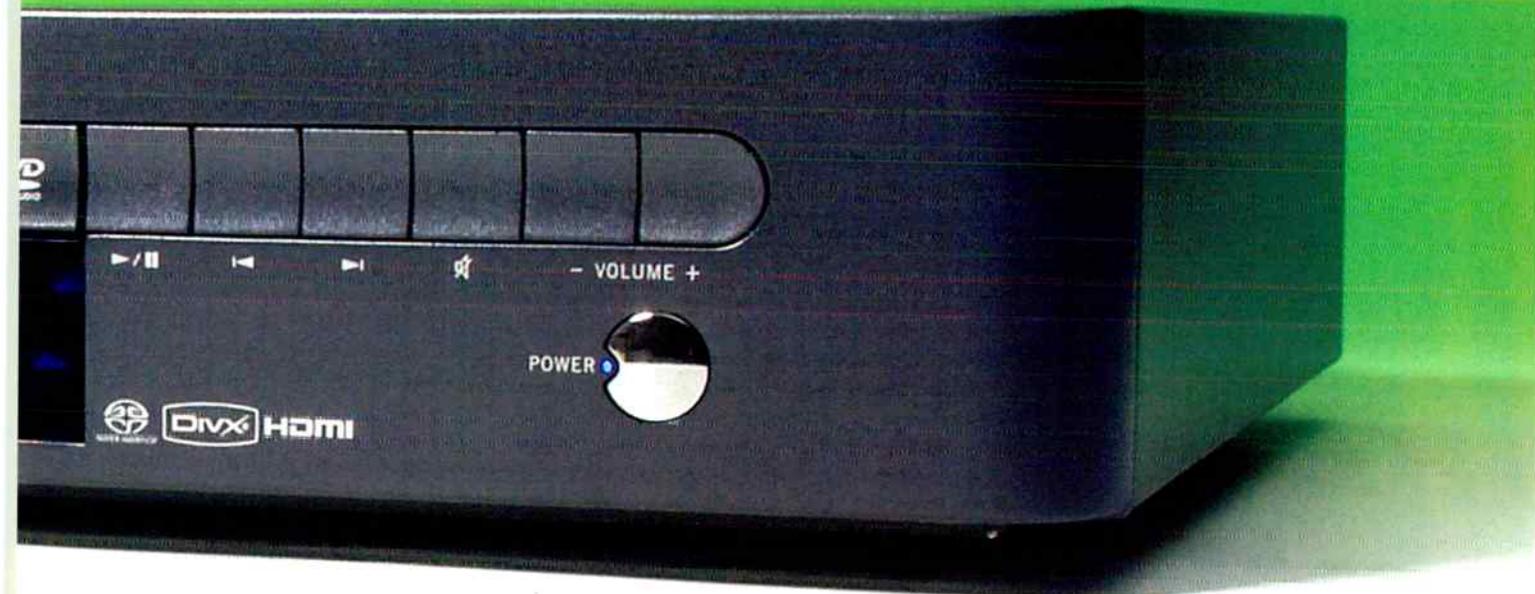
It's made very nicely indeed – you certainly don't feel you're in the cheap seats, although it doesn't quite have the visual sense of occasion that the pricier Linn Classik Movie offers. The central blue fluorescent alphanumeric display, mounted under a disc tray that feels satisfyingly smooth and precise in its action (and seemingly better engineered, it has to be said, than the Linn CMS), is crisp and informative, although the character set could be a little more svelte looking, and the piercing blue was not to all tastes – not everyone wants their hi-fi to look like a Volkswagen dashboard. The bundled learning remote control is a sleek affair, with a satisfyingly responsive action and useful backlighting – another point scored to Arcam and dropped by Linn!

First and foremost, the Arcam's disc drive is universal, meaning it plays back CD, DVD-Audio, SACD

and DVD video discs, with Dolby Digital, DTS, Dolby Pro-Logic II, MPEG, MP3, WMA and DivX decoding. Then there's a built-in DAB/FM/AM tuner, and a wide range of inputs, including two external digital inputs marked SAT* (satellite TV, on coaxial and optical) and 'AUX' (on optical only), and four RCA phono line level analogue inputs. There's also full Arcam rDock connectivity, which gives seamless control of iPods via the supplied remote control. Last but not least, there are 3.5mm front panel sockets for a headphone output and a tape input.

On the video side, the headline news is that it sports two HDMI inputs and one output, for your Sky HD box or PS3. You can order the Solo Movie 5.1 with either two RGB Scart inputs and one out, or a corresponding pair of component ins with a single output. It comes with a good basic video spec, including video scaling that upconverts standard-definition DVDs to near high-definition quality 720p and 1080i formats [see VIDEOSTAR].

Still, the emphasis, as ever with Arcam, is on the audio side. There are 24bit, 192kHz Wolfson DACs doing the digital to analogue conversion. Arcam says its proprietary 'Mask of Silence' and 'Stealth Mat' technologies are used to minimize the effects of Electromagnetic Interference. Five Class AB amplifier modules, claiming 50W RMS apiece, are aspirated by a sizeable toroidal mains transformer. Arcam says no fan is needed as the



unit contains a 'massive heatsink' and features very careful thermal design.

GETTING GOING

Anyone who's ever used a £2,000 Japanese DVD player/AV receiver combination will take an instant shine to the Arcam Solo Movie 5.1. Unlike the aforementioned, as soon as you switch it on you can get listening immediately, without having to read the instruction manual first. The good news is that there's no automatic loudspeaker calibration - instead you just plug your five speakers and sub in and go. Adjustments can be made via the remote control-driven menu system, although I found the Arcam worked surprisingly well straight out of the box.

As purveyors of the DT91, one of the finest sounding DAB tuners yet made (admittedly not saying much - sorry!), it is no surprise that the Movie Solo comes with a Digital Radio. Switch it on, screw in the 'wet string' T-shaped antenna and scroll through the source buttons to DAB and you're asked if you want to autoscans the stations. Press the 'OK' button and the Arcam is off, then thirty seconds or so later, it has a long list of stations stored. There's also standard FM/AM radio provided too. There's a handy video calibration system supplied, but I found the Solo Movie delivered excellent pictures with the factory settings.

Generally speaking, the Solo is a very nice product both to look at and to use - a lot of thought has obviously gone into its design - but I really didn't get on with its button driven control system. I presume it is for styling reasons that Arcam have employed volume up/down buttons as opposed to a rotary knob, but this is a real pain and adds an extra layer of 'detachment' to the user

experience. It is no accident that almost all modern car stereos have gone back to volume knobs, from the up/down buttons of ten years ago - and you can see why when fumbling with the Solo's row of visually identical buttons.

SOUND QUALITY

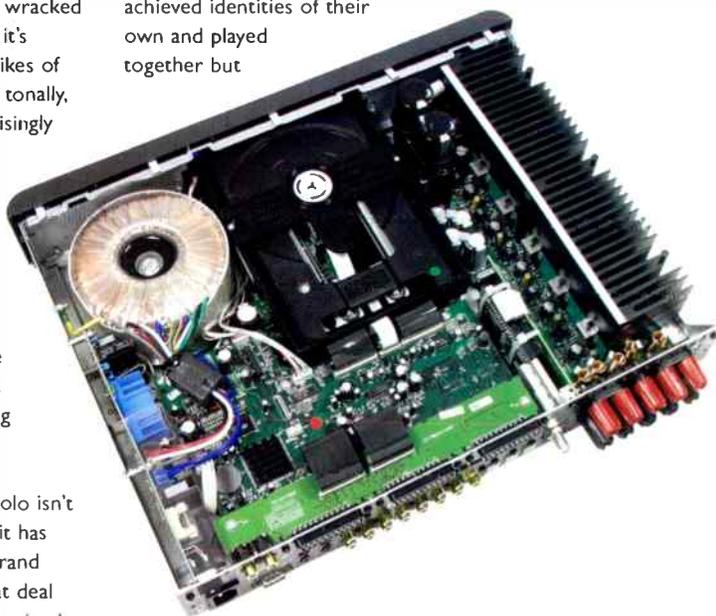
Given that the Arcam Solo Movie does so much, I was quite surprised by the level of performance it achieved used purely in isolation as a hi-fi disc player and amplifier. Unfortunately though, the radio section sounded thinner than I've heard from the likes of Denon's budget TU-1800 tuner, especially on DAB - even if it did seem to work very well even with the bundled 'wet string' antenna.

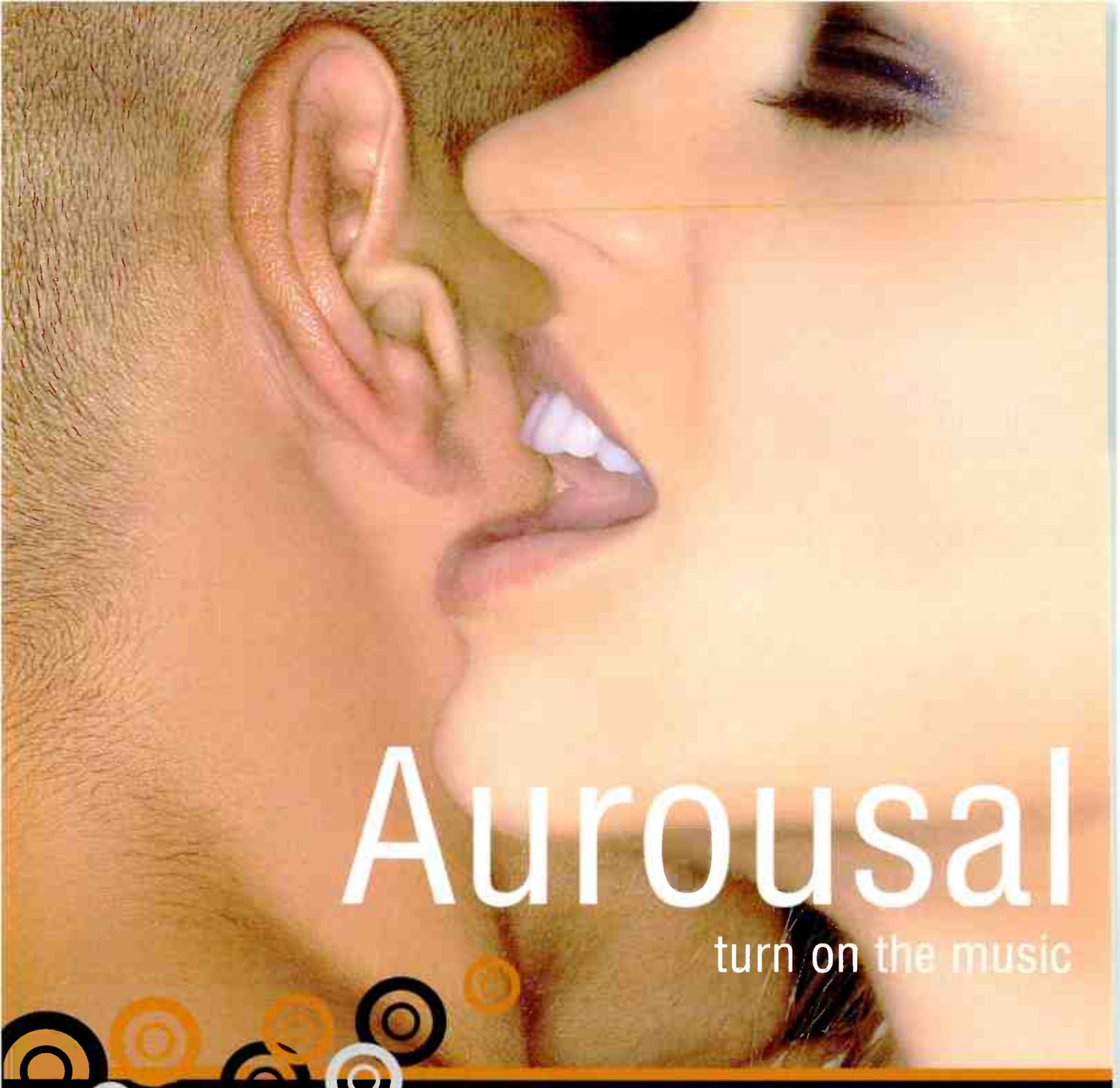
Kicking off with the Solo Movie in stereo mode driving my Yamaha NS1000Ms, I was heartily impressed by its rendition of 4hero's 'Give In' on CD. Here we had what is best described as a very big hearted and 'fruity' sound. The Solo isn't wracked with warm colouration, but it's definitely less dry than the likes of Linn's Classik Movie system tonally, and ended up giving a surprisingly expansive rendition of this beautifully recorded song. Bass was full, midband wide and deep, and vocal quality was surprisingly natural and full-bodied. Up top, there was a fairly slick hi-hat sound, and more importantly than anything, it managed to string everything together in a very musically enjoyable way.

Although detailed, the Solo isn't so in the sense that it feels it has to deconstruct every last strand of the mix. It conveys a great deal of what separates CD players (and

DVD players) of the same price can muster, and strings it all together in a nicely natural, musical way. A fascinating comparison was between the CD remaster of The Human League's 'Dare' and the recent SACD version. 'Don't You Want Me' at 16/44 sounded crisp and informative, with an insistent, driving bass, a nice midband capturing the textures of those classic Roland and Korg synthesisers, and a smooth hi-hat sound. Phil Oakey's vocals were full and accurate, and the song flowed very impressively - so much so that I feared the SACD was going to be a let down.

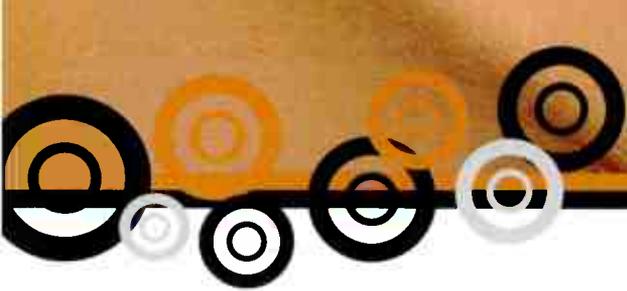
I was wrong, as the Arcam's disc drive was well able to signpost the obvious benefits of SACD. Vocals hung back in the mix with a great sense of space around them, and the Solo suddenly started showing his phrasing and inflections much better. Bass was more tuneful (although no stronger), and the various instruments in the mix suddenly achieved identities of their own and played together but





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separately – rather than being one big homogenous whole. Hi hats became silkier, and there was a great sense of space up top. Overall, it made a lovely noise, and made me lament the fact that SACD is no longer flavour of the month.

Indeed, its SACD performance was a joy – ACT's 'Absolutely Immune' wasn't the nasal blur that it can be through CD, coming far closer to high end vinyl with superbly differentiated instruments and a big, albeit tight mix that was Steven Lipson's forte. Claudia Brucken's icy vocals were delightful, the Arcam's superb timbral ability able to show why she was (is) so special as a singer. Dynamics were excellent too – despite being rated at a modest 50W [see MEASURED PERFORMANCE] the Solo Movie was well able to drive what can be quite a demanding pair of loudspeakers.

Moving to DVD-A, Foreigner's 'Waiting For a Girl Like You' was again pure pleasure. It sounded a tad less beguiling than SACD, but served up a massive bass, tremendously expansive midband with really accomplished dynamic accenting, and a to-die-for hi-hat cymbal sound. The Arcam showed fine rhythmic poise; although it's not the fastest at starting and stopping on the block, it nevertheless tied everything together in a genuinely believable and enjoyable way.

A vintage pure PCM 24/96 'DAD' pressing of Sonny Clark's 'Cool Struttin' again made me lament the fall of hi res from the headlines – this immaculate nineteen fifties recording, transcribed to 24/96 DVD (but not strictly a DVD-Audio disc, as it's officially a DVD video disc with no pictures!) some seven years back, was majestic. Image location was tight, bass seemingly endless and treble a veritable delight – what a shame it

will only play on DVD players! The Arcam again seemed to 'go the extra mile' with hi res discs such as this, making itself an engrossing listen in the process.

Even the DTS decoder is excellent – a rare DTS 'High Definition Surround' disc (DVD format, DTS soundtrack only, no video or PCM) of Eric Clapton's classic '461 Ocean Boulevard' showed it can deliver the goods in this excellent, often overlooked format. 'Let It Grow' was subtle and delicate, yet ultra detailed and clean, running rings around a stock Red Book version. The fact that the Arcam can do it so well in stereo, and deliver similarly superb sonics in surround mode – as a quick blast with an Acoustic Energy 5.1 speaker package attested – was all the more impressive.

CONCLUSION

DVD players aren't really our 'core concern' here at *Hi-Fi World*, and all-in-one DVD systems even less so, but living with the Arcam Solo Movie was a fascinating experience. No, it doesn't quite deliver the same level of performance as equivalently priced separates, but it really is surprisingly close and it seduces you with its superb packaging and do-it-all demeanour. As a hardened two-channel hi-fi nut, I can honestly say you won't be disappointed with its



sound through even very high end audiophile speakers, and yet it does so much more than just sound good.

For superfi system owners looking for something for the bedroom, country cottage or Spanish villa, it is ideal – and those forced to live with a one-box DVD system due to spouse pressure (you know how it is!) won't be disappointed either. The Arcam Solo Movie 5.1 system really is in worthy of audiophile status – especially when you take full advantage of its hi res functionality – and will delight with its fine sonics, versatility and build. If I had to go for a one-boxer with video capability, then I really think I could live with this, and coming from a dyed-in-the-grain 'vinyl and valves' merchant such as me, that is really saying something!

VERDICT ●●●●●
Truly superb one box stereo system that also happens to make a great job of DVD video and multichannel music.

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£2,000
Arcam
☎ +44 (0)1223 203 200
www.arcam.co.uk

- FOR**
- rich, musical sound
 - superb packaging
 - fine build and finish
 - quality remote

- AGAINST**
- thin sounding DAB
 - fiddly volume control

MEASURED PERFORMANCE

The Solo delivered no less than 98 watts per channel into 8 Ohms. However, regulation was mediocre, output actually falling into 4 Ohms, where power measured 90 watts. That's the figure that matters as nowadays most loudspeakers use 4 Ohm bass units. All the same, Arcam's Solo therefore gives around 450 watts total across five loudspeakers and this will generate high sound pressure levels and plenty of volume - something surround sound does well.

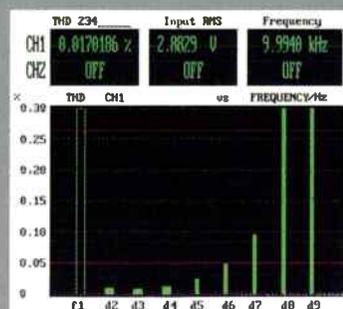
There was less processor noise from the Solo than rivals, and less high frequency distortion. Bear in mind that all external analogue signals, into Aux for example, are converted to digital, processed then converted back to analogue in products like this, often getting mangled on the way. The Solo produced just around 0.02% high frequency distortion - a low value. The external inputs are band limited to 21kHz, to prevent aliasing. The CD player reaches smoothly to 21.7kHz, with just a touch of roll down at high frequencies. SACD extends this to 30kHz (-1dB), as does DVD-A, both rolling down above 40kHz.

The VHF tuner is based on a Software Defined Radio chip from Radioscape, which also gives DAB. In effect the VHF signal is converted to digital then processed. Frequency response measured flat to 11kHz with a slight roll down at higher frequencies. There was no spurious output such as pilot tone, and distortion levels were reasonably low, but digital like, with higher harmonics. This tuner is a little noisy, at -57dB there will be a small raspy hiss behind music which

Radio 3 listeners at least may notice. The upside is that this performance is maintained right down to 38uV, an incredibly low level for "full quieting" to be achieved, so with weak signals it will be significantly less hissy than rivals. The tuner is sensitive too, having a stereo sensitivity of 27uV.

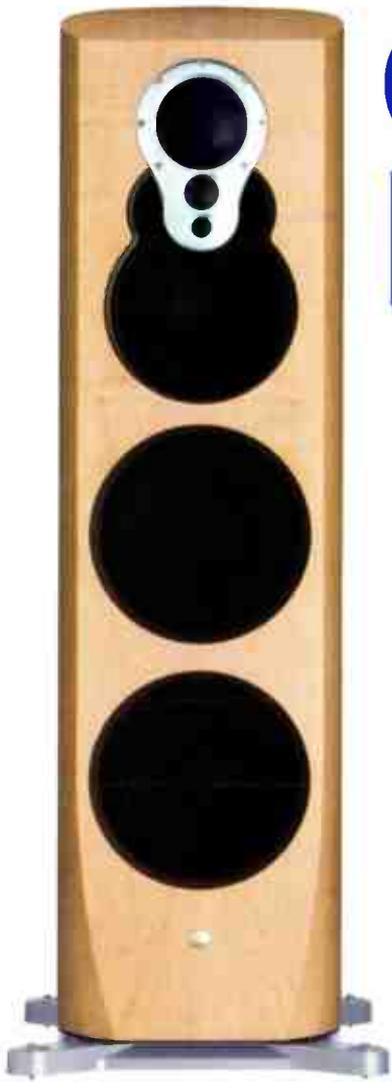
Measurement shows the Solo has a quality internal digital processor, fed by an unusual semi-digital VHF tuner, DAB radio section, good CD player and neat SACD and DVD-A players. Each part will give Arcam's smooth sound, free from sharp treble so, much like their excellent A/V receivers the Solo should sound smooth, punchy and highly entertaining, measurement suggests.

Power	90watts
Frequency response	
Aux	2Hz-21kHz
Tuner	10Hz-11kHz
CD	2Hz-21.7kHz
SACD	2Hz-30kHz
DVD-A	10Hz-31kHz
Distortion (amp)	0.02%
Sensitivity (amp)	720mV



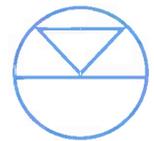
VIDEOSTAR

The video spec is impressive; the core processor - a third generation Zoran Vaddis 888s - comes straight from Arcam's £1,800 FMJ DV139 DVD player. Internal video scaling and deinterlacing is included, and the two 1080p capable HDMI inputs let the Solo switch the likes of Sky HD boxes or X-Box 360s as easily as it will switch between audio inputs. There's also analogue video switching via SCART or Component video outputs (depending on which model of Solo Movie you specify). There's a built-in wizard-driven video display calibration system, as per Arcam's high-end DVD players, setting up brightness, contrast, colour and sharpness via simple test patterns designed to be used in conjunction with the supplied blue filter. Via a 37" Sharp LCD widescreen, the results were extremely impressive, the Solo Movie giving little away to a high end Marantz DV-9600 DVD player in definition. Picture stability was superb, colours rich and skin-tones natural, with excellent contrast too - despite being thoroughly unfatiguing over long periods.



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RUSS ANDREWS HP-1 £499

As per the Russ Andrews DAC-1 USB reviewed in the May 2007 issue of *Hi-Fi World*, this curious preamplifier/headphone amplifier sports superb build quality thanks to it being made by April Music, the South Korean company behind the Stello brand (see www.aprilmusic.com). Indeed, the design of the HP-1 is closely based on the Stello HP100 with undisclosed upgrade modifications to the power supply by Russ Andrews. It features a fully discrete Class-A topology, J-FET input stage and a specially designed toroidal transformer.

The HP-1 uses an Alps Japan 'Blue Velvet' volume control that operates in graduated steps with precision, while the switches work with reassuring solidity. The front panel consists of a 10mm thick aluminium plate with a high-quality Neutrik socket that can accept the usual 6.3mm headphone jack, or – more uncommonly – a balanced XLR also.

While the HP-1 only has two inputs, there is a high and low gain selector, and an 'A' (Off, 20–200 kHz) or 'B' (On, 20–20kHz) filter setting at the rear. In use the 'A' (off) setting was the clearer sounding option. The 212x55x290mm HP-1 weighs 3.5kg, and includes a 1m PowerMax mains cable (normally £29.95) which easily outperforms a standard moulded lead with superior depth, tunefulness and timing.

Using Grado SR325i (£310) headphones and a Rega Planet 2000 CD player (£495 when new), the HP-1 played Elgar's 'The Dream Of Gerontius' (Barbirolli/EMI, 1965) with excellent instrumental and vocal separation, and gave a very clear insight deep into this recording. The vocal of the bass lead was superbly tuneful, with excellent phrasing. On 'Maggie May' by Rod Stewart there was a really good and tangible acoustic with the folk-based rhythms and melodies. The mandolin and acoustic guitars were wonderfully reproduced, as were Stewart's vocals.

Nirvana's 'Heart Shaped Box' was also most convincing as the powerful and surging drum,

bass and guitar tracks were revealed in all their roughly hewn glory. This powerful grunge-rock was delivered with great scale and dynamism, as well as being engaging and gripping. The lower cost Creek OBH-21SE headphone amplifier (about £250) is no slouch when it comes to rhythms and vocal/instrumental phrasing, and here it kept up with the HP-1, but sounded more strained, harsher and less dynamic. This comparison shows how good the HP-1 really is as an upgrade to the already excellent headphone amplifier that is the Creek.

Using the HP-1 as a hi-fi preamplifier in its own right was also a very pleasant surprise. Compared to a £3,000 Densen B-250 preamp, the HP-1 was not shamed and acquitted itself rather well considering the vast price differential. Understandably while the HP-1 couldn't beat the Densen in terms of spatiality or finesse, it sounded stunningly good for the £499 price. With 'I Put A Spell On You' by Bryan Ferry the du Pré/Barbirolli 'Elgar Cello Concerto' (1965), it unravelled the timbre of vocals and instruments with skill, and showed real separation. Bass was also outstanding for the price.

Thumbs firmly aloft then, for what is an excellent niche product. Not only did it perform brilliantly as a headphone amplifier, but as a genuine hi-fi preamplifier it could worry established models up to £1,000.

[Contact: Russ Andrews Accessories on

+44 (0)845 345 1550,

www.russandrews.com].





Adam Smith takes a listen to the multibit "Linear" version of Consonance's CD120 CD player...

Linear Progression

There are different takes on how best to turn that lengthy parade of ones and zeroes that your CD player's laser reads off the disc back into proper music. In theory, of course, it is a nice simple process that merely involves sampling the resulting signal at more than twice the maximum frequency that it contains and that's that. However, as with many things in life, it isn't quite that simple...

The process of oversampling has become increasingly commonplace over the years, and this involves sampling the signal at a rate many times higher than its maximum frequency and subsequently passing the signal through a digital filter and downsampling it to return to the desired result. Whilst this may sound overcomplicated, there are a couple

of advantages to it. Firstly, it can be cheaper to run a simpler filter with less bits at a much higher sampling rate than designing a more complex higher-bit item and, secondly, the anti-aliasing digital filter can be made less complex as it spans a greater bandwidth.

Of course, the act of upsampling a signal and then downsampling it again can be seen to be a little pointless and, in addition to this, Ryohie Kusunoki offered the theory (back in 1966!) that, whilst the digital filter is fine in theory, it can cause smearing of the signal in the time domain, and that any anti-aliasing artefacts still present in a non-upsampled signal as a result of the lack of digital filter are less audibly objectionable.

Whichever theory you subscribe to, those nice people at Opera Audio,

have been kind enough to cover all the bases with their CD120 Compact Disc player as it is available as both a 24bit/192kHz upsampling version with balanced outputs (for £100 more), and as a 16bit/44.1kHz variant, with no oversampling and no digital filter (although it can be switched to an 88.2kHz sample rate) - the 'CD120 Linear' reviewed here.

Opera Audio hail from Beijing in China, and started out as manufacturers of valve amplifiers, but have also diversified into source components, including the rather fabulous-looking Droplet CD player and turntable, and also into loudspeakers, amongst them the quaintly-named 'Eric' series. Whether you can expect them to be delivered in a Nissan Cedric, I do not know, however...

Both CD120 models come under

the "Classic Series" range, which also includes the T120 tuner plus a selection of amplifiers, including transistor, valve and hybrid models. The CD120 Linear itself is a nicely finished item, with just the bare necessities of switches on the front panel, namely standby, open/close, play, stop and forward/reverse track skip.

Completing the package is a dinky little solid metal remote handset that adds a few more features, but not too many - there is no direct track access numeric keypad for example. Also available in silver, the black finish of our review sample was very classy, setting off the blue display in a very pleasing manner and I personally find the player stylish and neat, albeit in a minimalist kind of way. Finally, vital statistics for the unit are 85x430x320mm (HxVxD) and it weighs in at 10kg.

SOUND QUALITY

One of the first things that most people noticed about CD when it first hit the shops, particularly after being used to a diet of sometimes woolly-sounding LPs and cassettes, was the high frequency clarity it offered. The format generally gives cymbals and hi hats a superb 'ting' but once everyone had got used to this, there was something of an observation that the 'ting' sometimes did not change a great deal, regardless of whether the percussive item in question was a hi-hat, a small 'splash' cymbal, or a whacking great 'crash' item. The sounds from the CD were nice and clear, but not always distinctive.

With my first track into the CD120 Linear's drawer and the sampling frequency set to 88.2kHz [see SAMPLING RATES], I was intrigued to hear that this famous 'ting' was rather muted. However, in its place was a real, live and generously proportioned hi-hat, tapping away just above the equipment rack. Make no mistake about it, the Consonance unit offers a realism and insight into music that you really don't hear all that often from the good old silver disc, particularly at such a reasonable price point. It has a commensurate ability to bring singers right up close to the microphone and spread their backing instruments faithfully around them, generating a wide and deep soundstage, and painting a surprisingly vivid picture of what is going on.

Spinning a track like 'Grand Parade' from the Reindeer Section's 'Son of Evil Reindeer' CD showed just how well the Consonance can dig into the heart of a song

and extract everything. This particular track is well recorded but quite densely layered, in instrumental terms. The CD120 Linear pulled everything out with the dexterity of a white-gloved magician and made it easy to follow what was going on. I have not heard many players do such a good job in this respect.

Another perfect example was Aimee Mann's "Fourth of July", where her slightly husky vocals were marvelously reproduced with genuine atmosphere and scale. The realism generated by the CD120 Linear, combined with its sweet and tidy midrange made the whole affair more emotional than I am used to. What was even more interesting was swapping back to our old friend and reference £1,000 player, the Eastern Electric Minimax. Whilst it added in the ultimate top end clarity and sweetness that the CD120 Linear was missing, I suspect as a result of the higher than normal measured distortion [see MEASURED PERFORMANCE], it made everything across the midrange sound rather flat and sterile. The Minimax is far from being dull however, so this shows just what a revealing character the CD120 Linear is.

Down at the bottom end, the CD120 Linear has a lovely, full, warm bass with good grip and detail, again sounding quite unlike most other CD players in its performance. Bass lines were articulate and fulsome, imparting tunes with a solid foundation on which to build. In ultimate terms, it lacks that last degree of visceral punch that fans of dance music or seriously large-scale classical works might like, but it never sounds slow or turgid.

CONCLUSION

The Consonance CD120 Linear is one of

SAMPLING RATES

Switching to the 88.2kHz sampling rate from the 44.1kHz made a bigger difference to the sound than I was expecting. The higher sampling frequency added a little extra heft to the bass and brought high frequencies to the fore rather better than the standard 44.1kHz setting. Whilst the player's innate character and music-making ability was strong in either setting, I found that I preferred the 88.2kHz setting and used this for all subsequent listening. Where the lower setting scored, however, was on softer material with little extreme bass and treble, as it seemed to allow the player to concentrate more on the nuances in the background of the midrange. However, changing the settings is a simple task from the remote handset and so, as always, experimentation is the key.

the most characterful and enjoyable CD players I have heard, as it has an innate musicality that makes it a joy to listen to, no matter what you are playing. I have resisted the temptation to utter the dreaded 'V' word so far but I can hold back no longer, so here goes - it really is astonishingly vinyl-like in its presentation.

Those who prize the clarity, punch and strict order of a good 'conventional' CD player would be well advised to listen carefully to the Consonance before committing to purchase as it sounds quite different to most other players as a result of its unusual technical performance. However, if you value atmospheric, realism and, above all, sheer musicality over everything else, then the CD120 Linear should be high on your audition list.

VERDICT ●●●●£

Smooth, musical and detailed unit that sounds quite unlike most other players at the price.

CONSONANCE CD120 LINEAR £695
Distributed by Alium Audio
+44(0)1273 325901
www.aliumaudio.com

- FOR**
- sheer musicality
 - detail and atmosphere
 - build and styling

- AGAINST**
- lack of top end clarity
 - bass could be punchier

MEASURED PERFORMANCE

This player has a small roll off at high frequencies our analysis shows, measuring -0.7dB at 20kHz. This is enough to give the CD120 Linear some obvious warmth or smoothness compared to the norm, but that is not usually a bad thing with CD, minimising glare and glassiness.

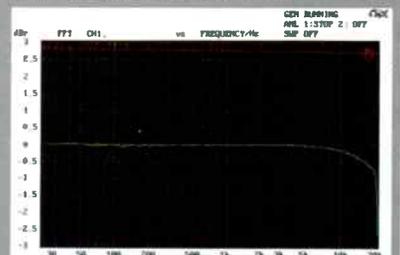
The player has a peculiar distortion pattern, with related odd order harmonics of higher level than is common. Our analysis clearly shows this, distortion measuring 0.057% at -30dB - a typical music level - around ten times higher than usual. At -60dB distortion measured a high 1.6%, causing the EIAJ dynamic range figure to measure a poor 98dB. Whilst all this looks bad, the Consonance obviously behaves differently in a particular and controlled manner, as a result of design measures. Separation was higher at high frequencies than the midband even - strange.

This is an unusual player with a highly distinctive distortion pattern. It doesn't measure especially well, but it will sound different. NK

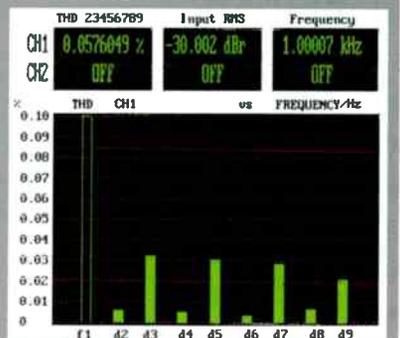
Frequency response (-1dB)
CD 2Hz-21kHz
Distortion 0dB (%) 0.056

-6dB	0.016
-60dB	1.6
-80dB	18
Separation (1kHz)	60dB
Noise (IEC A)	-98dB
Dynamic range	98dB
Output	2.2V

FREQUENCY RESPONSE



DISTORTION



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The Globbies

Forget the Oscars, Hi-Fi World's alternative awards will surely be what everyone's talking about in years to come. Instead of nominating the year's best new hi-fi separates, we're taking a walk on the wild side with the weirdest audio occurrences! For better or for worse, you can bet their quirky characteristics made us sit up and listen. David Price and Adam Smith don their tuxedos...

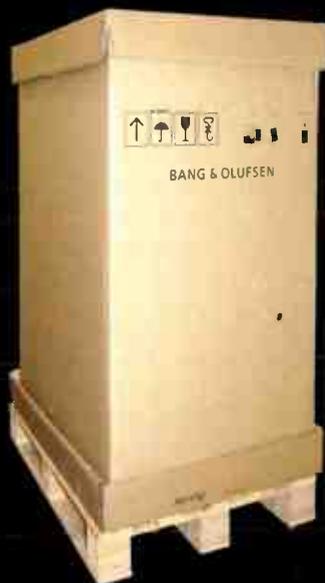
MOST ABSOLUTELY FABULOUS: KS Rai

It's true - Public Relations people really are a breed unto themselves, taking the English language down absolutely fabulous new avenues, sweetie darling! Their daily PR activities include caning the word "new" to within an inch of its life in their carefully penned press releases, and adding a good sprinkling of "exciting"s, "super"s and even the odd "smashing" too. This year's special Globie award goes to Kulwinder Singh Rai, of eponymously titled Rai PR fame, for coining an entirely new collective noun - for a group of AV receivers. In his work for Onkyo, Rai described the company's range as a "flotilla". An interesting choice, it evokes the image of a procession of 28kg brushed aluminium fronted, pressed steel boxes (with their learning remotes atop) sailing up the River Thames - not a regular sight for most of us, it must be said. Still, in Rai's defence, he did once send us in this picture of himself after a particularly lively night on the town - proof that PR people do have a sense of humour... DP



MADDEST PACKAGING: Bang & Olufsen Beolab 9

It's always depressing when a new arrival turns up in the office, whereupon we all dive on it with childish excitement only to be greeted by an alarming rattle from the box. Has the remote control/plug/instruction manual broken free, or has something more serious happened and, as happened to us recently with a CD player, has part of the drawer mechanism made a break for freedom and is now lurking somewhere in the bottom of the box? Sadly, hi-fi does not always survive the loving attentions of some well known courier services and ends up as a nice 3-D jigsaw. Consequently it is always a relief to find an item that is packed to within an inch of its life and well protected from the outside. The Jas Audio Orior Grands were a close runner up here, thanks to their packing being a nice thick double-walled box. Inside another nice, thick double-walled box. Inside a third nice thick, double-walled box! However, the daddies in this respect have to be the B&O Beolab 9s - Bang & Olufsen clearly decided not to muck about, as they arrive at your door on their very own pallet, securely wrapped in precision-cut polystyrene, surrounded by thick cardboard wrappers and strapped up tighter than a whale's blowhole at twenty fathoms. AS



MOST OUT TO LUNCH: Magnum Dynalab MD100T

Were I to embark on a career in audio manufacturing, making tuners would not be at the top of my list. But if I decided to take the plunge and embark upon the retailing of high fidelity radios, the chances are that - love or loathe the format, and I err toward the latter - it would have to be DAB. Moreover, given the sales figures and general demand for radios, commonsense and convention would tie me to the entry level price point, somewhere around the ground occupied by the once-revered Denon TU-260L at under £150. What then is US-based Magnum Dynalab doing selling all-analogue valve-equipped high end designs? If you thought that was weird, they don't even have FM synthesiser tuning or presets, let alone RDS. Well, Magnum Dynalab must be doing something right, because the likes of the £2,000 MD100T have proved abidingly popular in the US and abroad. The reason isn't the quirky mid-seventies styling complete with analogue metering (hurrah!) or the extensive feature list (err, where?), but the absolutely delicious sound quality - one that makes FM come alive like no other modern tuners at the price. Magnum Dynalab might be one of the most eccentric hi-fi makers in the world, but they sure ain't mad! DP

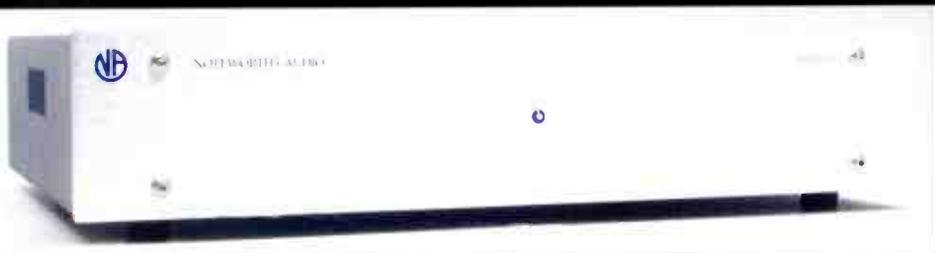


MOST RACY REMOTE: NuForce P9

The design of the good old remote control handset is something that does tend to concern us here at Hi-Fi World. As it is very often the piece of your shiny new component that you end up fondling most often, I do not think it is too much to expect that manufacturers put a bit of thought into this item. Now, as a Bang & Olufsen owner who is used to the likes of their latest Beo4 handset, as well as



some older 'Master Control Panels' that were the size (and weight) of a hardback book and offered two-way communication, I suppose that it could be said that I am expecting too much. However, I dispute this as, if Cambridge Audio can offer a superbly designed unit that is a tactile delight with their £250 amplifiers and CD players, then very few others have an excuse, as far as I'm concerned! But every now and then, something comes along that makes you glad there are some imaginative engineers out there, and this year the NuForce P9 preamplifier's remote stood head, shoulders, torso and upper thighs above everyone else. The P9s remote is an utterly fabulous oddball that not only works well but, with its hexagonal shape, metal construction and reassuring solidity, is a tactile experience bettered only by fondling an SME Series V. Errm, or so DP tells me! AS



ODDEST ERGONOMICS:

Note Products PhoNote

Ah – the nineteen eighties! Days when men were men, and specialist hi-fi was so specialist that you needed to be a fan of the brand you were buying to so much as know how to turn the darned thing on! We remember greats such as the NVA AP30, with a lovely liquid sound and

an on-off switch on the back panel. Given that the power toggle is obviously one of the most regularly used controls, you'd think they'd have put it on the front fascia, but no... Well, the PhoNote resurrects this trend, reintroducing the concept with an on-off rocker that's not so much as inaccessible as virtually unfindable. If it's in your equipment rack, all wired up and ready for action and you're struggling to find a way to turn it on, then fear not – you're not going mad, because Note Products have already done that by fitting it, ermm, underneath. Nice idea guys, but it's not as if you're supposed to leave it on all the time, eighties amplifier stylee, because the tubes inside would dent your electricity bill faster than a room full of Sugdens running 24/7. Switching the PhoNote on and off requires long, bony, skeletal fingers or the ability to contort your digits in an unnatural way. Still, all that fiddling around underneath is well worth it, as the PhoNote's one of the nicest tube phono stages we've come across – it's just a shame it was so darned hard to find out. DP

NERDIEST NOMENCLATURE:

Flying Mole

Sometimes the name a manufacturer comes up with for their precious products is nicely obvious. Mr. Bang and Mr. Olufsen were the founders of said company; Preben JAcobsen and Julius MORTensen took the beginnings of their names to come up with 'Jamo'; ADC's cartridges would undoubtedly have been rather too large and unwieldy for use had they



been required to carry the words "Audio Dynamics Corporation" and, as for Aurousal loudspeakers...well, perhaps we'd better not go there. Sometimes, though, a name crops up and we are left completely stumped as to how it was invented. Ladies and Gentlemen, we give you - Flying Mole. The Japanese manufacturer of some rather fine digital amplifiers apparently has a business philosophy that involves making things "creative, simple and beautiful" so perhaps this came to them when sat on the terrace one evening, sipping a gin and tonic, and watching a mole making a series of "creative, simple and beautiful" molehills on the lawn. Mind you, to have come up with the "flying" bit, I suspect something rather stronger than gin and tonic would be required. It's all very puzzling but, then again, we're never going to forget their name now, are we? AS

HOTTEST PROPERTY: JungSon JA88D

Since the dawn of time, the need for humankind to entertain itself whilst staying warm has been a powerful one. In days of yore it was songs around the campfire or beers on a sun-soaked beach, but the modern way is surely the JungSon JA88D – a powerhouse capable of generating heat equivalent to several suns, whilst also playing music at the same time (and very nicely too, as it happens). Like many £900 behemoth integrations, the JungSon has a massive power output, but the difference is that it's not the audio equivalent of a green salad with a dash of extra virgin olive oil that is Class D, but the full fat, high caffeine, forty cigarettes a day greenhouse effect inducer that is Class A. We've heard a number of noble designs of this type, but they usually struggle to muster 20W or so, whereas the JA-88D makes four times that, and despite 29.5kg of heatsinking, struggles to stop itself getting too hot to the touch after an hour or two. It eliminates the need for central heating in your listening room, makes the lights in your house dim when you turn it on and turns music into a very crisp and clear experience – just don't expect to keep your electricity costs down – unless your listening sessions coincide with off peak electricity times. DP

**SPURIOUS APPENDAGE: Luxman L-550**

Generally the fashion has now passed for manufacturers to fit those strange facilities that we all used perhaps once in passing, thought "that's nifty" and then completely forgot about. I know I am guilty of only ever once trying out my Yamaha CD player's "Tape Program Edit" facility that rejigged the tracks on a CD to optimally fit onto the length of tape that you were recording it onto, and I have never actually met anyone

who has ever needed to press the "MPX Filter" button on their cassette deck. Sometimes a maker will doggedly stick to a facility that everyone else considers to have passed by and Luxman, bless them, love their big analogue power meters. Now, back in the 1970s your stylish silver rack system would probably have had three sets of these at least, on preamp, power amp and cassette deck, but nowadays nearly all manufacturers consider that they do not fit with the 'direct signal path' ethos and that the money that is spent on them, plus their associated driver circuits, could be spent better elsewhere. Consequently, they're an old relic best consigned to the bin – correct? Well, maybe not. You see, firstly Noel commented that, when carrying out power output measurements on the L-550A amplifier, they seemed quite accurate but, secondly, the Luxman is a superb amplifier, so they don't appear to have affected its performance too much. Finally, we cannot help but notice that around ninety percent of visitors to the office since the Luxman has been in residence, have spotted it and, far from sneering at these gaudy appendages, have grinned childishly, pointed and said something to the effect of "Oooh - look at the big meters!". Therefore, Luxman, please don't ever think of doing away with them. In fact, would you make them a bit bigger next time, please? AS

WOBBLEST DISC DRAWER: DENSEN B-410

We really liked this new £1,000 CD player – reviewer Channa Vithana confided in me after the review had gone to print that he still couldn't quite believe how it had wiped the floor with some CD spinners at three times the price. In addition to fine sound, the Densen shows typical Danish design flair with an exceptionally neat looking casework design that looks so right from the word go, as well as making your average Japanese silver disc player look frumpy in the extreme. However, there's one thing that just wasn't right – the CD disc drawer. This is an oft-underestimated aspect of digital disc player – the interface between man and machine. Unfortunately, the B-410's otherwise gleaming copybook is spoiled by a rattly old thing that moves out to greet you with all the style of a thirty year old Trabant with binding back brakes. Someone should tell Densen that customers would willingly spend the extra £5 or so it doubtless costs to pay for a disc drawer than slides in and out with the finesse of your average mid-price DVD player. DP





Adam Smith has an audience with the diminutive Kingrex T20 Class T amplifier...

Regal Performance

The Sonic Impact T-Amp caused some large waves on the generally calm millpond of audio when it arrived a few years back. Here was an item that used new Class T amplification [see TECHNOLOGY] in a small, basic package. You might well have thought that in hi-fi circles it would have been instantly laughed off, thanks in no small part to the spring-clip loudspeaker terminals, a 3.5mm jack plug input and a price tag of \$39...

The problem was that, not only did Lucio Cadeddu find it to be rather impressive when he reviewed it for *Hi-Fi World* back in June 2005, but the little unit gained something of a reputation as an eminently

tweakable giant killer on a number of internet forums. As a result, Tripath, the company who manufacture the TA2024 chip around which the T-Amp was based, are now firmly established, with their amplification technology finding its way into car audio, computers and no less than Audio Research's 150M multichannel power amplifier.

Kingrex were founded in Taiwan in 2000 and originally manufactured LCD displays, however they have gradually expanded their portfolio. The T20 is based around the Tripath TA2020 chip rather than the TA2024 of the T-Amp. This is an unusual choice in some respects as, whilst it offers, according to the data sheets at least, a slightly better dynamic

range and higher power output, the Tripath website suggests that this is now an obsolete item that has been superseded by the TA2021B...

The T20 comes in a very well made and nicely finished metal case, measuring 38x180x130mm (HxVxD) and, unlike the T-Amp, offering a pair of 4mm sockets for loudspeaker outputs and good quality gold plated phono plugs for the input, amusingly labelled "Input"! The on/off switch is at the rear of the unit, and the front panel boast nothing more than a chunky metal volume knob and the essential blue power LED.

As standard, the T20 is supplied with a standalone all-purpose PSU that will operate on 100-240V inputs to supply the 12VDC power required

by the amplifier, but a PSU upgrade is also available, housed in a case that matches that of the T20. This is a more specific item, however, and different versions are available for different mains supply voltages.

SOUND QUALITY

From the off, the Kingrex proved itself to be quietly accomplished, with a clean and polished sound. The treble had good detail and body, adding a pleasing shimmer to cymbals and percussion, whilst lower down in the midrange, both vocalists and instrumentation were neatly rendered and well detailed.

The biggest problem I found with the T20 was the soundstage; basically there wasn't much of one! Everything from the high frequencies to the lows were neatly rendered and very tidy, but I could never escape the fact that I was listening to two loudspeakers - the T20 made little attempt to add any atmosphere or space to proceedings.

Consequently, I felt this was as good a time as any to switch to the upgrade PSU, which had been sat beside the T20 on the shelf quietly warming up, and this improved things by quite a decent margin. Suddenly, a proper image appeared with depth, a good scale and a nice sense of atmosphere. True enough it was not on the scale a decent "proper" hi-fi amplifier like the Luxman L-550A we have been using, or even the Cambridge Azur 740A reviewed on page 38 of this issue, but things definitely took a turn for the better.

Another improvement the PSU upgrade made was in the bass. Pervious to its connection, the T20's bass had reasonable weight, but lacked real visceral punch or rhythm, however with the PSU this definitely kicked up a gear and helped to solidify the T20's low end. Set up like this, the T20/PSU combo turned in a nicely even-handed performance across a wide variety of music.

Generally the Kingrex units happily took everything in their stride, remaining thoroughly pleasant to listen to, and giving a more sophisticated sound than might be expected from such small units. Angelique Kidjo's 'The Sound of the Drums' from her 'Fifa' CD had a nice foot-tapping sense of rhythm, and 'King of Hollywood' from The Eagles' 'The Long Run' album gelled together very well indeed, offering a commendably solid performance. However, not all was perfect...

The first problem that the T20 has is that it has a very low power

TECHNOLOGY

Class T can be thought of as being closest in terms of technology to Class D, but it has some significant differences. Class D amplification uses a fixed triangular wave running at a frequency much higher than the audio band (usually 300kHz or so). The incoming audio signal is sampled by this and the resulting pulse-width modulated (PWM) signal is used to drive switching transistors. These items switch a much higher voltage generating in an amplified version of the main signal, which is then passed through an output filter and low pass network to obtain the signal required to drive the loudspeakers. The problem is that these switching transistors are not perfect and give a form of distortion as a result of slight delays between one transistor turning off and the next turning on. This can be thought of as being akin to the crossover distortion that is found in a Class B amplifier.

Class T aims to get around this problem by using a varying signal to drive the switching transistors, generating a drive signal for them that can vary in frequency according to the input signal. This generally runs at around 600-700kHz but can reach up to 1.5MHz when required. Tripath claim that this eliminates the problems of Class D and results in a design with similar efficiency, but lower electromagnetic emissions and better sound quality.

output. As can be seen from the measured performance, it fails to meet its own specification on the test bench and volume levels were very limited through our 89dB Sendor loudspeakers. To give a rough idea, our normal auditioning listening level generally equates to a volume control position of between nine o'clock and eleven o'clock on a volume control; with the T20 I had the volume control at the two o'clock position and if pushed even a little louder, audible signs of distress could be heard, mainly breakup on loud notes. Consequently do not even consider this unit unless your loudspeakers have a minimum of 90dB sensitivity under their belts, and walk away now if you like Metallica or the 1812 Overture.

The other problem that I found with the T20, and one that I would say is also related to its low power output, was constrained dynamics. Even keeping the T20/PSU within the levels required to ensure that it did not distort, it still failed to really soar when changing from quiet passages to louder ones, on classical music in particular. I have heard low-powered valve amplifiers that can achieve this, even if they have similarly limited volume capabilities.

CONCLUSION

The Kingrex T20 and PSU amplifier combo is a sweet little performer and, although ostensibly similar to the Sonic Impact T-Amp, Kingrex have made concessions to proper audiophile use, such as the gold plated

input and output sockets that accept proper hi-fi cables.

As long as you bear in mind, firstly, the fact that this is not a dynamic powerhouse; secondly, that it will not drive most loudspeakers to ear-shattering levels and, thirdly, do not consider buying it without the upgrade PSU, then the Kingrex units make a reasonable case for themselves.

The final problem is their price, which seems rather high, particularly when compared to both the original T-Amp and the new (similarly audiophile-oriented) \$159 Super T-Amp. Definitely worthy of audition then, but carefully so.

VERDICT

Well made amplifier with nicely consistent performance, but limited by low power and constrained dynamics.

KINGREX T20/PSU £105/100
Kingrex Trading
+886 2 8226 9999
www.kingrex.net

- FOR**
- sweet, even performance
 - detail and finesse (with PSU upgrade)
 - build quality

- AGAINST**
- limited dynamics
 - low power output
 - price

MEASURED PERFORMANCE

The T20 measures like a Class D switching (Pulse Width Modulation) amplifier, but uses a Tripath chip set, so carries the acronym: Class T. The Tripath chip has a strong following on the Internet as an inexpensive hi-fi amp that produces no heat and needs no heatsinking. The T20 from Kingrex produces a modest 4.5 watts into 8 Ohms and 9 watts into 4 Ohms when not driven into overload. Kingrex specify power as 13 and 22 watts, but at 10% distortion which is a very high figure at which the amp is in severe overload. We measured 10 watts and 20 watts under these conditions, the upgrade power supply offering no improvement.

Most Class D amplifiers produce a lot of high frequency distortion and the T20 was no exception, measuring around 1% at 10kHz, our analysis shows. In the midband it averaged 0.3%, with extended harmonics, and ironically the residual looked like classic crossover distortion, which Class D amps do not possess.

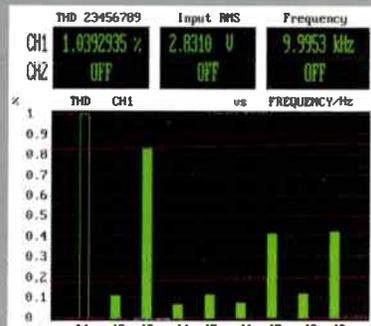
Frequency response varied a little with load, having a slight lift into 8 Ohms but a slight fall into 4 Ohms, so the amp's character will vary slightly according to the loudspeaker load.

Again, Class Ds usually possess this variability, due to their output networks. Damping factor was a modest 18, about that of a Naim.

The T20 exhibits classic PWM characteristics. It will have a characteristic sound as a result, although by hi-fi standards it doesn't measure well. NK

Power	4.5watts
CD/tuner/aux.	
Frequency response	5Hz-20kHz
Separation	74dB
Noise	-78dB
Distortion	1%
Sensitivity	280mV

DISTORTION



Horn of Plenty

The allure of horn loudspeakers through single-ended valve amplification is very strong for many audiophiles. Haden Boardman hears the new Lovington Horn SH1s...

The slightest mention of "horn" in the context of loudspeaker design is enough to raise both bouquets and brickbats from advocates and dissenters. Combine this topology with what appears to be a simple full range driver chassis, and I guess we have a design here which is very much left of the centre in loudspeaker design politics. Horn speakers tend to have "colourations" in their sound, especially those with copious bends and folds (i.e. most!). Full range speakers are also much more complex than first meets the eye, but I make no bones about it - I am both a full range loudspeaker fan and a horn enthusiast. A well executed combination of both can really put you right in the concert hall like no other kind of design. However, get it wrong and the overall design can be severely compromised...

Full range speakers are very tricky to get right. In a conventional loudspeaker, splitting the bass and treble signals makes it a lot easier to design and build the drivers; bass units need to move a lot of air, and so tend to have large gaps between the voice coil and magnet. This in turn limits the amount of high frequencies produced. There is a relationship between the mass of the speaker cone and its voice coil, and building full range speakers requires a much smaller voice coil gap, a small, light voice coil, and (generally) a lightweight cone. Other 'multi way' advantages include better dispersion, much higher power handling and lower cost; it is easier and cheaper to make a bass unit, tweeter, and crossover than it is to manufacture a decent full range drive unit.

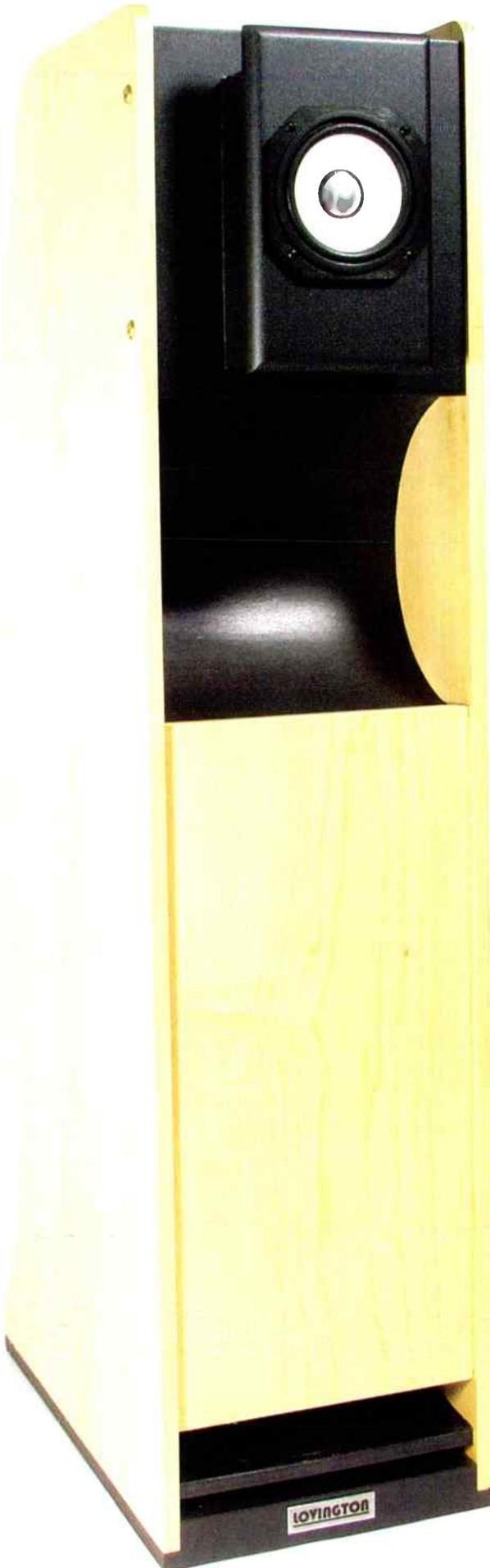
Why do I like full range

speakers so much? Well some of the advantages include the fact that they represent a virtual point source, no crossover is required, and the end design has an effective simplicity about it which, for me, comes through in the sound. By their very nature, they tend to be fitted with pretty strong powerful magnet structures and these, combined with the lightweight cone, give a very easy amplifier load, which suits my usual choice in amplification (valve!) one hundred percent.

In the UK, Ted Jordan and Lowther are best known for full range designs, although both take a radically different approach. In Japan, smaller rooms and a love of low power triode amplification has seen a massive selection of classic full range speakers from the likes of Mitsubishi/Diatone, Technics, Pioneer, Onkyo and most famously Fostex, who still manufacture a pretty extensive range. Which leads us nicely back to the Lovington speaker.

Designer Mark Treanor was inspired by the old Impulse Loudspeakers, quasi horns in the bass I admit, but still dynamic, rhythmical and fun. Although Mark's early prototypes used a conventional two speaker, two way design, once he had heard what a good full range speaker could do, he was pretty much hooked. As a result, a single Fostex FX120 full range four inch (100mm) unit is used per cabinet - one of the best full range units that Fostex make. Internal wiring is from Audionote and the complete speaker system costs £3,250 which includes home delivery and full set up, and the cabinet is available in a wide variety of finishes.

The cabinet itself looks a little like a constant width folded horn, something similar to a Lowther



Acousta type design; but this is a kind of quasi horn, with the advantage that you actually manage to get some bass out of a reasonably sized enclosure, if not true horn loading. Full horn loading would of course dictate a massive cabinet for the bass extension offered here. Dimensions of the Lovingtons are 1,150mm high, 275mm wide and 560mm deep and cabinet weight is 25kg. Clearly some thought has gone in to the looks and practicalities of the enclosure design, although I did feel the speaker drive unit is mounted a little on the high side. Perhaps this is just one of the disadvantages of owning a laid back Italian sofa!

Power handling on the small drive unit is modest at around 30 watts. However it is quite robust and as measurement shows [see MEASURED PERFORMANCE] it presents an easy load and is pretty efficient. I would suggest an 8-15 watt valve based design as being ideal for most people.

The cabinet loading is a patent applied for design, but it is not a horn in the truest acoustic sense. The full range unit is located in a small bass reflex enclosure, which vents in to the mouth of the "horn". This then tapers away to the "throat" which vents at the bottom of the cabinet. The clever part is that the two ports are adjustable; at the base of the main speaker cabinet, and on the rear of the full range unit, which allows for quite a good amount of room tuning in the bass. Maintaining efficiency and bass output from a small four inch unit is quite a task - there are certain rules of physics that cannot be broken, whatever the loading method used.

SOUND QUALITY

Initial impressions where favourable, with a forthright, fast and very dynamic sound. Disc three of Rickie Lee Jones' 'Dutchess of Coolsville' Anthology contains an early demo version of her hit 'Easy Money'; on the Lovingtons this simple, single guitar and voice recording shone through. On material much more complex, however, the SH1s had the ability to reveal deep layers, especially in the upper midrange and treble region. In this area the speakers seemed 'right' in their presentation; phase correct and the speaker changing its sound as different material was played.

The stereo image on everything acoustic tried was superb; a performance very much "out of the box". Even on more complex studio produced stuff, such as my favourite ABBA track 'The Day Before You

Came', the Lovingtons did a fabulous job displaying all the layers of this very well constructed arrangement. Treble could appear a little wispy at times, in a mild and innocuous manner, and I personally blame the Fostex metal voice coil cap for this. Even so, the speakers exhibited a fine sense of air and space to all recordings.

Switching to Italian Opera, Verdi's 'La Traviata' was again a fine experience. Pushing the speakers a little further, Stravinsky's 'Firebird Suite' did begin to show a little bit of over-warmth in the lower bass; impressive, but not wholly accurate. Still, on this material it was a happy compromise given the efficiency and size of unit.

The bass on these speakers can be rather strange and is quite room dependant. With the many tuning options, it was quickly realised in my room and with my tastes, more bass was needed. Like any speaker design, compromises must be taken in the design and execution. In the Lovington speaker, it is the mid to upper bass that suffers most. These high class units were clearly not designed for my tastes in drum and bass, or even laid back garage and house.

Playing my favourite Kruder and Dorfmeister tracks was a disappointment; the speaker does appear to suffer a quite noticeable response suckout which, depending on your musical tastes, could be a problem. The worst performing track was Leonard Cohen's 'Ten New Songs'. This fairly bass heavy recording was played back ponderously; the lower bass output was prodigious but seemed out of phase and 'disconnected' from the rest of the loudspeaker.

CONCLUSION

A very interesting and unusual design, on simple acoustic recordings the Lovington Horns' performance could be breathtaking, but on bass-heavy material perhaps they need more than a little four inch unit - even allowing for the strong but uneven low frequency output of the cabinet design.

As such, these quirky but lovable loudspeakers require careful auditioning, tuning and

REFERENCE SYSTEM

- Pioneer PLC-590/Grace 707/Ortofon MC200 turntable
- EAR834P phono stage/Ortofon T2000 MC step up
- Marantz CD12/CDA12 CD player
- Sowter transformer-based passive control unit
- Home-made EL84 pentode power amplifier
- Klipsch Heresy loudspeakers
- Lowther Acousta/PM6a loudspeakers
- Spendor SP1 loudspeakers

positioning. But if their sound suits your particular musical tastes, then I doubt you will find a more engaging design.



VERDICT ●●●£

Interesting and engaging loudspeakers. They will not suit all tastes, but excel on acoustic, small scale material and female voice.

LOVINGTON HORN SH1 £3,250

Lovington Horn Loudspeakers
 ☎ +44(0)1423 817137
 www.lovingtonhorn.co.uk

FOR

- openness, air and life
- ease of drive
- surprising bass weight

AGAINST

- too much bass weight!
- incoherent upper bass
- need careful setup

MEASURED PERFORMANCE

The Lovington Horn SH1s have a generally level output trend but with a number of peaks and dips across the frequency range. The most noticeable of these are in the region between 1 and 2kHz, meaning the SH1s should have a quite pronounced and detailed midrange, and between 6 and 9kHz, which will add upper midrange atmosphere. Treble output drops sharply above 9kHz but maintains this level to 20kHz, so the SH1s will lack top end sparkle but should not sound obviously dull.

Bass from the main driver rolls down smoothly below 150Hz and the horn adds strong output at 50Hz, but between these there is a large dip. Judicious placement may help to retrieve some of this level, as it is in an area in which rooms have an effect, but I would generally expect the SH1s to lack upper bass detail as a result. Overall the SH1s should be quite characterful, but may well be quite music-dependent.

Impedance is high, with a measured average of 11.3 Ohms and a minimum

of around 8 Ohms. Combined with their 89.5dB sensitivity, this means the SH1s are very easy to drive, presenting an unchallenging load to an amplifier and meaning that low-powered valve amplifiers will be a good match. AS

FREQUENCY RESPONSE



Green - driver output
 Red - horn output

IMPEDANCE





Lucky Number

Adam Smith is in seventh heaven (well, almost) with Cambridge Audio's Azur 740A amplifier...

Although starting with exotic equipment like the R40/R50 transmission line loudspeakers and CD1 Compact Disc player, Cambridge Audio have more recently forged themselves a name for high quality budget separates. Part of this has been down to the ownership of the brand by Audio Partnership, which was one of the first companies to make use of British design and Chinese manufacturing on a truly large scale, offering the best of both worlds in terms of UK brainpower and Far Eastern manpower and low costs.

Recently however, the Cambridge Audio boys have got the bit between their teeth and decided to show us what they can really do when they pull out all the stops. They had success with the innovative 840A amplifier and 840C CD player, the latter an item which I believe to be one of the best sub-£1,000 CD spinners, but this left them a bit of a gap in their range. What better way to fill it, then, than with a 700 series? The 740C CD player was the first of these, and impressed us greatly in our May 2007 issue, so the next obvious

item was the 740A amplifier...

The 740A offers a rated 100W per channel of power output from an evolved and improved version of the 640A v2's output stage, and it shares the styling of its bigger brother, the 840A, with a similar display and control layout. Offering six line inputs plus a tape monitor, two tape outputs and a preamp out, full connectivity is also provided for Cambridge's Incognito system for multi-room use, as are rather wobbly sockets for two pairs of loudspeakers. No phono option is offered and, although Cambridge's dearer phono stage, the 640P is a fine unit, as it is still only a £60 item, I can see a gap that would be nicely filled by a high-tech multi-faceted 740P or even an 840P version. How about it, chaps?

On the front panel, the display can be customised by individually naming each input from the rather impersonal "Input 1, Input 2", etc. Volume is controlled by a high precision silicon gate device rather than a conventional potentiometer, giving adjustment in 1dB steps. The centre of the display has a semicircular lineup of segments to give a graphical representation

of volume level as well as giving it in figures. Finally, the package is completed by one of Cambridge's superb remote control handsets.

For auditioning, the 740A was connected up to our Eastern Electric MiniMax CD player and Pioneer PLC-590/SME M2-10/Ortofon Rondo Bronze turntable through the Anatek MC1 phono stage. Loudspeakers were our Sendor S8es and also the Jamo C803s reviewed on page 18. I also had a Naim Nait5i on hand for comparison purposes.

SOUND QUALITY

The Cambridge Azur 640A v2 is a very fine amplifier and something of a bargain at its Richer Sounds selling price of £300, so I was interested to see how an evolved version of it would fare...

Initial impressions were good. The 640A v2 is dynamic and exciting but can be a little hard at times, and Cambridge Audio have smoothed this out very well with the 740A. Treble is nicely detailed without resorting to harshness, and Cambridge have resisted the temptation to imbue the 740A with a traditional transistor steeliness, something which is



sometimes done by manufacturers in an attempt to add detail.

The Cambridge picks out top end minutiae with good enthusiasm and adds a sweet sense of poise and polish to the sound that is one of the joys of moving up the price scale from a sometimes rough-and-ready budget design. Tracks like 'Sailortown' from Energy Orchard's eponymous debut album, which can be a little jumbled on an enthusiastic cheaper amplifier, were well controlled by the 740A, and it rocked along very enthusiastically with Bap Kennedy and the boys.

The impression of detailed sophistication continued into the midrange, where the 740A adds a healthy dose of definition to both vocals and instruments. Although having a slightly dry overall nature and, consequently, adding a little huskiness to some vocals, singers like Norah Jones had an obvious sense of space around their performances, and the soundstage generated by the 740A has good scale to it. The sense of atmosphere between and behind the loudspeakers is palpable, although it does give the impression of truncating rather abruptly at the extremities either side of them.

My only other complaint here is that the instruments within the recorded acoustic of the soundstage do tend to lack some focus. Everything is there, but it is not always easy to work out where. Orchestras in particular could come across as one big lump of instruments, each one being clear but not particularly well located. Here, comparisons with the Nait5i were quite interesting, as whilst the Naim brought everything right up to the plane of the

loudspeakers and definitely lost out in terms of depth and atmosphere, individual instruments snapped firmly into focus and gained a much more solid foundation.

Down at the low end, the Cambridge's bass is pleasingly weighty however, and has good detail and control, giving bass instruments excellent speed and form. The 740A offers good punch, and controls less well damped loudspeakers, like our Spondor S8es, very well thanks to its high damping factor of 70. Bass lines from Michael Jackson's 'Black or White' album were pounded out with great gusto by the 740A, and it did not suffer from any muddle with the deep low end of The Fun Lovin' Criminals' '100% Colombian' LP. Once again however, the Nait5i just added an ounce more bass agility to the mix.

CONCLUSION

The Cambridge Azur 740A amplifier builds very well on the foundations set for it by the smaller 640A v2. It takes the dynamics and detail of this item and then polishes off the rougher edges to give a thoroughly enjoyable performance that, once again, suggests a more expensive item.

Comparisons with the Naim Nait5i may seem a little unfair as the Naim is over £200 dearer, but the 740A

acquitted itself remarkably well and, although the Nait5i offers better instrument focus and bass litheness, the 740A is able to show it a thing or two about soundstage scale, offering a rather more even-handed treatment of music. The Nait5i will appeal if you happen like what it excels at, but the 740A arguably offers a more consistent performance across the board.

Cambridge Audio have come up with a welcome addition to their range in the 740A as it bridges the gap between the 640A v2 and 840A well. When you consider its sound quality, high build standard and facilities, it merits firm recommendation.

VERDICT ●●●●£

Sturdy and well built amplifier that offers a wealth of useful facilities allied to fine sound.

CAMBRIDGE AZUR 740A £500

Cambridge Audio

+44(0)845 900 1230

www.cambridgeaudio.com

FOR

- fine stage depth and scale
- sweet treble
- facilities and connectivity

AGAINST

- soundstage lacks focus

MEASURED PERFORMANCE

The Azur 740A amplifier has a beefy power supply with excellent regulation that makes it a very 'stiff' source into a loudspeaker and will ensure solid bass with good control. Helping in this respect is a high damping factor of 70, the only caveat being that it will sound dry and punchy, not bass heavy.

Distortion figures were low, even at high frequencies, a figure of 0.003% being returned at 10kHz, 1 watt into 4 Ohms - often a trying test as it shows up crossover distortion in Class B designs. Our analysis shows the 740A produced primarily second harmonic distortion which will have minimal audible impact.

Frequency response was wide and flat, which tends to result in a lighter sound, with less top end warmth.

The Azur 740A measured well in every respect. It will almost certainly sound light, dry but punchy, very much in the current Cambridge idiom. NK

Power	112watts
CD/tuner/aux.	
Frequency response	7Hz-180kHz
Separation	82dB
Noise	-108dB
Distortion	0.002%
Sensitivity	450mV

DISTORTION



Big Spenders

Channa Vithana assembles a minimalist Compact Disc playing system based around high end Spendor S9e loudspeakers...

I have been enjoying the musical delights of the Spendor S9e floorstanders for well over six months now. In that time they have been connected to many a system or hi-fi component at wildly differing prices, and with every single permutation they've never once lost their poise. For example, they proved equally at home being driven by the budget-priced £250 NAD 325BEE integrated or the £1,895 Manley Stingray valve integrated. Indeed, the Spendors have been outstanding with my reference zero-feedback Densen B-250 and B-330 pre/power amplifiers, and also great with the Naim NAC252/SuperCap2/NAP300 amplifier combination which cost about £13,000! Given that many loudspeakers are fussy at the best of times, such consistency and versatility is no small feat.

So the Spendors are perfect, and that's all there is to it, right? Well, not quite. While these loudspeakers are perfectly agreeable with low powered budget fare like the NAD, I have found that to really sing they need plenty of high quality clean power - without this, you are just not hearing what the S9es can really do. Consequently, I decided to put together a system that can get these lovely loudspeakers to give of their best, but without breaking the bank - or at least causing serious structural damage.

I wanted this system to get close to the performance of my usual

reference system for much less than what my Densen CD/Naim amplifier combo costs. With my budget slashed to a piffling £6,500 (inclusive of the Spendors) it was time to think laterally...

For me the biggest disappointment in a many a hi-fi system is the preamplifier. For different reasons many preamps can strangle the life out of music, so I got rid of it! This meant that an LP system would not easily be suitable because apart from the complexity and cost of a turntable, tonearm and cartridge - most phonostages do not have a volume control. Hence a CD player with variable output beckoned, but which one? There are some seriously good examples, like those from the high-end US firm Wadia, and Linn do the Unidisk SC universal disc player with this feature, for around £3,000, but these were too expensive. Enter the £999.95 Quad 99 CDP-2.

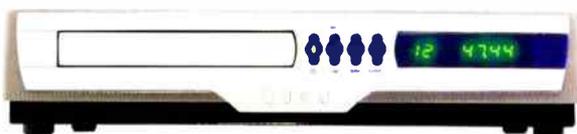
With no less than six digital inputs and a volume control it was ideal. Better still, it received the full five-globes in *Hi-Fi World* October 2005, when DP said of it that, "there are warmer, sweeter sounds around (tubes) and there are tighter (Naims) but the 99CDP-2/909 offers a brilliant taste of both..."

Quad has attached the digitally addressed, analogue potentiometer output from the 99 Pre preamplifier directly to the output stage, giving dual outputs - one at fixed level and one variable - allowing the CDP-2 to be connected directly to the power amplifiers for the shortest possible signal path. The 99 CDP-2 measures 80x321x310mm and weighs 4.5kg.

For an even simpler connection, I could have utilised the Quad's onboard volume control with a set of active loudspeakers by Linn, Meridian or ATC for instance, but their bigger active floorstanders are too costly for this system and it would mean future upgradeability would be limited to just active models. And, as I really wanted an attainably-priced three-way floorstander that could deliver sledgehammer-power, insight and finesse, bass-tunefulness and bass-extension, the S9es with their 27mm coated fabric dome tweeter (plus damped vented enclosure), 140mm ep38 polymer cone midrange driver and 220mm Kevlar composite cone bass driver were ideal.

Next, I needed a power amplifier similar in drive and openness to my £3,000 Densen B-330, but less expensive. The Canadian Bryston range of amplifiers has a strong reputation and the £2,100 2BSST looked intriguing. This latest in the long-running 2B series (since 1979) is dual-mono incorporating new SST output devices with 60,000 micro Farads of power supply capacitance, two "ultra-low-noise" power transformers and selectable gain from 1V or 2V. The claimed power output of the Bryston is 100W/8 Ohms and 180W/4 Ohms.

It comes with balanced XLR or phono inputs, high-quality loudspeaker terminals and a twenty year warranty. It measures 435x101x382mm and weighs 12.7kg. I compared it directly to the £3,000 Densen B-330, and while the £900 more expensive Danish-built power amplifier had understandably more



resolution and spatiality, phrasing and timing were very close between the two, so I knew the Bryston was the right choice for the Spondors.

SETTING UP

Counting the plinth, the 36.5kg S9e is dimensioned at 1005x332x400mm and incorporates a rear-firing port via a rectangular slot at the base of the cabinet. The big Spondor has excellent bass extension and tunefulness, but to get the best combination of low-frequency resolution and timing, I would recommend a minimum of 650mm away from the rear wall and about the same distance from the side walls.

Further tuning is recommended by using the supplied spikes - I have heard other 'S' series Spondors used without spikes and it isn't good. Then if you have suspended wooden floors rather than a stable, level, concrete one I can recommend a concrete slab under each spiked loudspeaker as a low-cost option. A slightly more sophisticated solution for suspended wooden floors is to have a plywood plinth fitted with spikes to further isolate them (remove spikes from the Spondors first). The resultant upgrade with the isolated plywood plinth is huge as there is more definition and control to the bass while overall musical timing is greatly improved.

For the cables I chose Townshend Isolda loudspeaker cable at £50/ metre plus £200 termination. They are formed from flat and very soft copper strips which are insulated with polyester braid. The copper is cryogenically treated in a process called Enhanced Deep Cryogenic Treatment (EDCT), which involves ramping the item down to a very low temperature and soaking it there, before slowly returning it to normal. Townshend say that this acts as an "annealing" process that simulates years of burn-in and improves the conductivity of the

copper in the cable.

I found the more expensive Isolda outperformed the excellent £30/m 'honosophie LS2 loudspeaker cable (see *HFW* April 2006). For Isolda customers Townshend supply an extra strip of EDCT copper to use as replacement bridging plates for bi-wirable loudspeakers. The difference

with Isolda strip-plates in place of the standard Spondor ones was vastly superior timing and a much wider, deeper sound to all the music used - this is a very highly recommended upgrade.

For interconnects I chose the Townshend Audio DCT300 at £300/0.8m length. They are also cryogenically treated via EDCT. The construction is 3x0.1mm copper strips, threaded through 3mm internal diameter PTFE tubing. In use compared to 'free' 'bell wire' interconnects, the DCT300 removed a whole layer of grain to the music

"this system was a joy - delivering comprehensively musical performances..."

which sounded dynamically flat and two-dimensional with the 'free' cables. Music became more lifelike, with superior timing also.

My mains supply is pretty bad, so it really benefits any system or component here to have good quality power cables - consequently I chose the £140 Chord Company Power Chord. These are five-globe rated cables that won a group test in *Hi-Fi World* October 2006, where they outperformed even a £480 cable! The difference between the standard supplied mains leads and the Power Chords was even bigger than the comparison of the DCT300 and 'normal' interconnect. Here vocals and instruments gained massively in timbre and space, while the music as a whole was superior in terms of dynamics and timing. I would recommend auditioning the Chord Power Chords first, then the Townshend Isolda loudspeaker cable (+ Isolda bridging plates) and for that final polish, the DCT300 interconnects.

SOUND QUALITY

After the aforementioned experimentation with cables and general fettling, I found that this Quad, Bryston and Spondor system worked famously well together. It showed that rare combination of vitality and sophistication - the inherently low coloration sound of the Bryston amplifier forming a brilliant match for the rhythmically coherent Quad 99 CDP-2, whilst the revealing, unflappable and big-hearted Spondors were really able to do their stuff, unfettered by what was going on before them.

For example, on the 'Mozart Serenades' (2007) with Alexander Janiczek on violin and the Scottish Chamber Orchestra, the music was clear and vivid. There was excellent definition to the violins, timbrally

convincing yet never shrill. The cello imbued the music with plenty of dynamism, and the violins were clear yet rhythmically cohesive with the horn, trumpet and flute. There was excellent rhythmic flow to Lloyd Cole's 'Perfect Skin', the superb lead vocals expressed with deft articulation and timbre, enabling Cole's

distinctive vocal stylings to be revealed. Bass tunefulness and extension was outstanding at only moderate volume levels, and I never felt inclined to turn up the power.

The beautifully natural sounding acoustic of Chris Rea's 'Blue Guitars' was enthralling. The multitude of stringed instruments were precisely conveyed, and I could pick out the slightest shifts in the picking and phrasing of strings as the structure of the music got more complex. 'It's My Life' was outstanding, the system again showing its trademark timbral accuracy, while the musical phrasing was superb. A particular delight were the bass lines played by Tony Kanal, which were not only deep and tuneful but very easy to follow as an instrumental element in a complex and busy mix.

CONCLUSION

Thanks to the Quad 99 CDP-2 player's handy digital inputs you can connect MP3 players, computer soundcards or even DAB tuners, to form a sophisticated digital system without the need for a separate, sound-degrading preamplifier. Or you can use it as a beautifully minimalist two-channel system, requiring just two power sockets from your wall, as reviewed here. In the case of this system, this feature allowed more money to go on the excellent Bryston power amplifier and Townshend/Chord cabling. The result was a joy - correctly positioned and set-up, the Spondor S9e delivered comprehensively musical performances, with superbly tuneful and extended bass, whilst also being rhythmically taut and tonally accurate. Despite this system costing less than half the cost of my Densen/Naim amplifier/CD reference, it got over seventy-five percent of the performance, which is, I think, an excellent result.



QUAD CDP-2 £999.99
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www.quad-hifi.co.uk

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Bryston
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SPENDOR S9E £3,145
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www.densen.com



BLACK RHODIUM FUSION MAINS £90/1.5M

Headed by Graham Nalty, Black Rhodium has been producing hi-fi cables since 1990. The Fusion is certainly one of the company's more affordable products, and comes in a basic plastic package showing off its lemon yellow dielectric to the

world. This is notable for not being 'showy' in the sense that certain other rivals present their products more like 'male jewellery' than hi-fi accessories. The cable and plug themselves are obviously well made, but again show nothing special, on the surface at least. Where the eye can't see however, the Fusion is made from three high quality silver-plated copper conductors, each of which is fitted with ferrite suppression rings. This is all shrouded in low-loss silicone rubber insulation, post-cured after manufacture to remove impurities. Black Rhodium says this process delivers "a more flowing and purer musical sound quality than other high quality low loss insulation made from harder materials".

The Fusion auditioned very

impressively, especially considering its price. Compared to a bundled 'kettle lead', it provided a noticeable improvement in both clarity and refinement across the whole audio spectrum, with a wide range of music. Bass was tauter and more powerful, treble smoother yet more insightful and midband obviously more three dimensional and transparent. A similarly priced Supra Lo-Rad cable was far closer to the Fusion, but again the latter impressed with the discernable ease with which the music was presented. This is a characteristic of all Black Rhodium products, in our experience – they are gently, liltily musical performers and the Fusion mains was no exception. Of particular note was a reduction in background noise from external sources, such as clicks and pops from refrigerators and the like – this reduction in the noise floor resulted in a greater clarity to the sound. Overall, this product represents £90 well spent, offering mid-price performance at close to budget prices. [Contact: Black Rhodium on +44 (0)1332 342233, www.blackrhodium.co.uk]

soundbites

BLACK RHODIUM PRELUDE £80/M

An attractive set of interconnects in what could only be described as 'Jaguar Racing Green' with gold plated RCA phono sockets at either end. Black Rhodium says they're designed for low microphony. This is an interesting point, as cables are effective transmitters of vibration, and it's only recently that the likes of Naim's Hi-Line cables have started addressing this issue. Black Rhodium's technique for minimising microphony is to place a conducting electrostatic shield between the inner insulation and the screen. Again, they are silver plated copper, which for many audiophiles offers the best compromise between the slightly silky but mid-forward balance of silver and the coarser, faster sound of copper. As one would expect, the cables are directional and this is indicated by printed arrows on the sheath. A period of burning in is also recommended as this affects the crystalline structure of the metals and allows many of these variables

to settle down which has a positive effect on sound quality. In this case, we found the Preludes really started performing after ten hours of constant use, and were totally stable after about a week of playing music.

For the modest retail price of £80 per metre, the Preludes worked very well indeed, with a transparent top end, clean midband and a vivid and energetic bass – just as a well executed silver-plated copper cable should. Acoustic musical instruments sounded very lifelike, as a 1979 vinyl recording of Beethoven's Piano Concerto No. 5 'The Emperor' on Decca showed. Here, the piano, which is one of the hardest instruments to record and reproduce, felt alive and tangible with excellent body. Still, despite the Prelude's fine tonality, this was not a slow or coloured cable, offering a musically engaging rendition of hard rock music such as Metallica's 'Enter Sandman'.

Bass was taut and offered exceptional punch for a cable at this price. Overall the new Black Rhodium Preludes distinguished

themselves with their realism, detail, clarity and dynamics. An excellent result at the price, and once again they proved the match of many interconnects in the next bracket up. [Contact: Black Rhodium on +44 (0)1332 342233, www.blackrhodium.co.uk]



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which is to pass
absolutely no
judgement, merely
a statement of fact.
”

Adam Smith, Hi-Fi World, July 07
Podium Sound 1



Future Perfect?

The good ship DAB has had a choppy maiden voyage, but Steve Green reckons that recent developments make digital radio's future – in all its forms – look rosy...

Although it's had a disappointing start, digital radio should eventually deliver the higher audio quality listeners desire, and this article looks at some recent developments in radio and what we're likely to see over the next few years.

The most important news in the world of radio in recent months has been the unveiling of the new DAB+ system that will eventually replace DAB. The advantage of DAB+ is that it is a lot more efficient than DAB, which is mainly due to the adoption of the new AAC+ audio codec.

What this means in practice is that DAB+ will be able to carry three to four times as many radio stations, or stations will be able to transmit at higher audio quality. What is most likely, however, is that we will see a combination of both of these things, with the BBC providing much higher quality because it is unlikely to launch any new stations, whereas commercial radio will focus primarily on launching new stations, but it is also likely to improve its audio quality, albeit to a lesser extent than the BBC.

The downside of DAB+ however is that existing DAB receivers will not be able to receive it, and nor are there any DAB+ receivers in the shops yet! However, there have been promising developments on the DAB+ receivers front recently, as the first portable radios that can be software-upgraded to DAB+ are set to be released in August or September, and receivers that support DAB+ without requiring a software upgrade should be available towards the end of the year from a number of receiver manufacturers including the market leaders, Pure Digital. It's also encouraging to see that Pure Digital has said that by the end of next year 80% of its receivers in the shops will support DAB+.

Most new DAB+ devices we will see will be portable radios, but Onkyo has recently announced that



The old and the new; London's Alexandra Palace was built in the 19th century but transmits 21st century digital radio from its famous radio mast.

its new T-4555 DAB tuner can be upgraded to DAB+ [see p7 – Ed.], which would make it the first of its kind to allow this. Given the current situation, I would estimate that we will probably see the first DAB+ stations launch in around three years' time, because by then a large enough number of DAB+ receivers will have been sold to make launching new stations an attractive proposition to the commercial radio stations.

WIRELESS WORLD

Apart from DAB+, we will see a number of other exciting new digital

display these pictures are expected to come out within the next year or so. On a similar note, rather than sending pictures, the French radio broadcasters are planning to send interactive graphics alongside their radio stations when they launch digital radio next year, so I would imagine that the UK broadcasters would also want to do this once a lot of receivers have been sold that have LCD displays.

A new product that received quite a lot of attention in the media when it was announced recently is Roberts Radio's DAB/FM add-on for

"if you want good audio quality, the Internet will be the best place to find it..."

radio products and features in the coming months. One of the first of these will be portable radios that combine Wi-Fi Internet radio with DAB and DAB+, and these devices should be available towards the end of the year. Also, Radio 1 and some of the bigger commercial radio stations in London have been trialling sending picture slideshows alongside the radio stations streams – so-called 'picture radio' – and receivers with colour LCD displays that can

the iPod. Radio is apparently at the top of iPod-owners' wish lists, so this product is likely to sell well, and it will be released in time for the run-up to Christmas priced at £50.

One new feature that DAB+ supports but which hasn't attracted much attention so far is the brand new MPEG Surround format. This new format is 'backwardly compatible', which means that it doesn't affect the stereo transmissions to which it is added,

and it uses a bit rate of just 5kbps to convey the surround sound information. Yet despite the bit rate being incredibly low, its audio quality

audio quality on DAB however, and it will be a number of years before the DAB services can be switched off so that the full potential of DAB+

about to be resolved by the use of a highly efficient Internet distribution method called 'multicast', which allows broadcasters to deliver high quality streams to large audiences at a tiny fraction of the cost of transmitting nationally on traditional broadcast systems such as DAB.

The BBC will be launching multicast streams of its radio stations (using 128 kbps AAC) and TV channels as part of the forthcoming BBC iPlayer, which will be launched later in the summer. However, the multicast streams won't be included in the first phase of the launch, which will only consist of a '7-day TV catch-up' download service for programmes that people have missed, but they will be added along with the radio catch-up service towards the end of the year.

The 'on-demand' parts of the iPlayer will make use of a peer-to-peer (P2P) network, where users download parts of the programme files from other users' computers rather than everyone having to download the whole files from the BBC itself. Similar to the case of using multicast for the live streams, the use of a P2P network allows the BBC to provide its programmes for download at good quality whereas otherwise it wouldn't be viable due to the amount of bandwidth required.

All but one of the big commercial radio broadcasters also took part in the BBC's multicast trial, so they are also expected to make use of it in the near future. However, one downside with multicast at the present time is that only a relatively small number of Internet service providers (ISPs) support it – although this support should improve quickly once the BBC iPlayer has launched. But as younger listeners have been deserting radio in droves over the past few years, two of the big commercial radio groups, GCap Media and Virgin Radio, have decided not to wait for the ISPs to support multicast, and they've launched higher quality Internet streams (using 128kbps WMA) for their stations – including Classic FM, thejazz, Virgin Radio and many more – that are available to anyone with a broadband connection in an attempt to win some of these listeners back.

Commercial radio has also recently launched its own player to rival the BBC Radio Player. Named after commercial radio's trade body,

nationalgrid
Wireless



Onkyo's new T-4555 DAB tuner which can be upgraded to DAB+.

performance is claimed to be "close to that of the discrete multi-channel surround sound systems" such as Dolby Digital and DTS. Whether this claim is true or just marketing hype remains to be seen, but the very low bit rate level required will make it viable for ordinary radio stations to provide surround sound, and if it is popular with listeners then it could provide the spark needed for the high-resolution audio formats to take off that make use of surround sound.

Another interesting feature that we might see in the near future is a podcast service, which Channel 4 is proposing to launch on DAB if it is successful in its application to run the new national DAB multiplex that is due to launch in spring/summer next year. The proposed service would consist of nine different podcasts, from providers such as the Financial Times, the NME and Penguin books.

The other applicant for the new national DAB multiplex licence is National Grid Wireless (NGW), and

"content is tailored far closer to the listener than ever before..."

the stations both they and 4Digital (the consortium headed by Channel 4) are proposing to carry are listed in the table. As you can see from the tables, whichever side is awarded the licence there should be at least two new stations run by Channel 4, which would be a welcome addition to radio, as Channel 4 would provide both competition for the BBC in terms of public service broadcasting content as well as sparking new life into commercial radio. Overall, the station formats being proposed by the two applicants are broadly similar, and the main difference between them is that 4Digital is reserving capacity for mobile TV channels to use whereas NGW is not, and I think this will turn out to be the deciding factor in Ofcom's mind as to which side should be awarded the licence. There is still an issue with the

can be realised. Therefore, in the meantime, those who want to receive digital radio with better audio quality will have to look to using other sources. FM of course still offers the best overall audio quality, and it won't be switched off for at least another decade, but in terms of digital radio, the simplest alternative for most people would be to listen via one of the digital TV systems, as the audio quality of the radio stations on those platforms is usually higher than on DAB.

SPREADING THE NET

The system that offers by far the most potential for providing radio at higher audio quality is the Internet. The advantage is that it combines the ability for consumers to receive higher bit rate streams via broadband with the use of modern audio codecs, such as AAC (Advanced Audio Coding) and WMA (Windows Media Audio). Indeed, although DAB+ will improve the audio quality relative to

DAB, the Internet radio streams will still provide significantly higher quality than DAB+. The reason why this will be the case is that modern audio codecs will be used by both DAB+ and the Internet streams, so which system provides the best quality boils down to which provides the highest bit rate levels, and the bit rate levels will be significantly higher on the Internet streams than on DAB+. So if you want to receive digital radio at good audio quality, the Internet will be the best place to find it.

The main problem up to now, though, is that it has been very expensive for the broadcasters to deliver high quality streams to large audiences due to the huge amount of bandwidth this would require. But this issue is

4DIGITAL APPLICATION (consortium headed by Channel 4)

E4 Radio

Channel 4 Radio

Pure4

Talk Radio

Closer

Sky News Radio

Sunrise Radio

Virgin Radio Viva

Original

Radio Disney

Music and comedy aimed at 15 – 29 year olds

Speech-based service aimed at 30 – 54 years olds – billed as a competitor to Radio 4

Music and speech station aimed at 30 – 49 year olds, providing an eclectic range of music and intelligent conversation

Studio discussion with phone-ins

A radio station version of the celebrity magazine of the same name aimed at 30 – 44 year old women

24-hour rolling news service

Speech-based service aimed at Asian listeners

Music service aimed at 15 – 29 year old women

Album-led music station aimed at listeners over the age of 40

Children's radio service

NATIONAL GRID WIRELESS APPLICATION:

Adult/album

E4 Radio & Channel 4 Radio

50+

Radio Luxembourg

Premier Christian Radio

Rolling news

Radio Play

Asian

Fun Radio

Love songs

Colourful

BBC Asian Network

Eclectic mix of adult-oriented music

See entries in 4Digital table

Music and speech service for people aged 50+

Modern and alternative rock station for the under-30s

Speech-based religious service

24-hour rolling news station

Quizzes, games and competitions

Music and speech station for Asian listeners

Children's radio service

Love songs and ballads aimed at a female audience

Station aimed at the black community

Speech and music station aimed at under-35 Asian listeners

the RadioCentre Player can be found at www.radiocentre.org, and it provides access to a total of 10,227 radio stations, both from the UK and around the world. One difference between this player and most of the Internet radio portal websites is that it lists the Internet streams of 'proper' broadcast radio stations from around the world rather than just small-scale Internet-only streams. However, when I tried the player out, it usually tuned into lower bit rate versions of the GCap and Virgin stations mentioned above, so if you want to listen to those higher quality streams you would be better off accessing them via www.radiofeeds.co.uk, which lists the bit rates of the different streams that are available for each station.

Moving away from mainstream radio stations, there are literally thousands of 128kbps and higher MP3 Internet radio stations available via the Internet radio portals covering a vast range of genres. Some of the better Internet radio portals include www.shoutcast.com and www.icecast.com, and if you're willing to invest some time in searching for stations you can unearth some hidden gems via this route. Also, if you don't want to be tied to your computer when listening, there is already a decent range of Wi-Fi Internet radios available, as well as Wi-Fi devices that you can plug directly into your hi-fi system, such as

the SlimDevices Squeezebox.

Another excellent source of non-mainstream 'radio' which covers a very diverse range of content are podcasts, and a good place to start looking for ones that might interest you is iTunes, whose podcast section is well laid out and easy to use.

An interesting recent phenomenon has been the rise of the music recommendation websites,

Sirius satellite digital radio systems have achieved in the US, which now have 14 million subscribers between them. Ondas Media, for example, is planning to provide around 50 to 100 radio stations, and as these satellite systems will be subscription-based and advert-free they will be able to cater for niche genres, because stations won't have to worry about delivering large audiences to the

**Start Listening with Last.fm**

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To start, type your favourite artist

(Play)

such as Last.fm (www.last.fm) and Pandora (www.pandora.com). The UK-based Last.fm, for example, tracks the music that a user listens to on their computer to build up a profile of the user's taste in music, and then Last.fm recommends music that it thinks the user will like, from which the user can build up playlists or custom radio stations.

In addition to developments on DAB and the Internet, two new satellite digital radio systems are also due to launch within the next few years. The companies behind these systems – WorldSpace and Ondas Media – are hoping to replicate in Europe the success that the XM and

advertisers.

Another new digital radio system that we will see more of in future is Digital Radio Mondiale, known as DRM – or in its extended form, DRM+ [see p75 – Ed.].

Overall then, although the audio quality on digital radio has been very disappointing so far, DAB+ and especially Internet radio should deliver the goods over the coming years. It might not be too presumptuous to say that we might be entering a new golden age of radio where the content is far more closely tailored to the listener than ever before, with fairly decent sonic standards too.

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Morphy Richards's 27024 is the world's first radio to support all European broadcast formats. Steve Green finds out if it delivers the goods...

Radio Head?

This brand new high end table radio (£141 from www.rebelio.co.uk) supports digital and analogue broadcast radio formats used in Europe at the moment: DAB, FM, AM, and the new DRM (Digital Radio Mondiale) digital radio system. And not content with this world first, Morphy Richards has also included all the latest features you can find on top DAB radios, such as the Electronic Programme Guide (EPG), SD memory card, and pause and rewind.

Its stand-out feature is of course Digital Radio Mondiale, which is the digital replacement for AM radio, and it covers the familiar Long, Medium and Short Wave bands, but as the signal is digital it doesn't suffer from the noise and interference that plagues AM. DRM has also been designed to cope with the weird and wonderful radio propagation that can occur at frequencies below 30MHz. These low frequencies can carry signals over very long distances (radio hams exploit this to communicate around the world), and DRM's main attraction at the moment is that it allows the reception of international radio stations.

However, the DRM standard only came out in 2003, so there aren't many twenty four hour radio stations available on DRM yet, and I was only able to pick up three DRM stations regularly – the French station RTL, German station Deutsche Welle, and the BBC World Service. And even these stations were often unavailable for many hours at a time – you have a greater chance of receiving these stations the further south you live

and the earlier in the day you try and receive them.

This radio can receive every band so the autoscan took quite a while. When the scan ends all the stations are stored in one long alphanumeric list irrespective of which system they are on but without repeating station names – e.g. Radio 2 is listed once despite being on both DAB and FM, and when you tune to a station the DAB version is selected. It's possible to change to the FM version, but frequently this didn't work because the radio flicked straight back to the DAB version; as a result I ended up using manual tuning on FM. Operation mainly involves navigating through menus and options due to there being a distinct lack of buttons – fiddly!

A good feature was the multi-line navy text on royal blue background display. The display showed six station names or menu options at a time, and was recessed so I often had to bend down to see the top. On the plus side, the EPG was easy to navigate, and allowed timed recordings to be set up with a single press of a button, and recordings could be set up with only a little more effort by manual entry. The pause and rewind feature also worked well, as did the alarm clock.

Connectivity is good, with the rear of the unit housing a connector for an external speaker to allow stereo playback; line in and line out sockets; a USB socket to allow for future software upgrades; and there was also a headphone socket on the front. The radio can only be powered from the mains, and the unit I tested had a two-pin European plug supplied, so if you do take the plunge you will

probably have to buy a 2-to-3-pin plug adaptor as well.

DAB reception quality was substantially poorer than that found on the better-known DAB radios. And as already mentioned, DRM reception was hit-and-miss, although this seems to be due to coverage issues rather than a fault of the radio. On FM, this single-speaker radio incorrectly defaulted to FM stereo until I altered the options. A far higher signal strength is needed for stereo, so the uninitiated might suffer unnecessarily poor reception because of this little peculiarity. Once set for mono, FM reception was good.

On DAB and FM, music on the Morphy Richards sounded flat, lacking in definition, and rather muddy. Speech sounded subjectively a lot better than music, but it was still affected by the flat and constrained sound of the radio. The audio quality on DRM was worse than on DAB and FM, although it was still a significant improvement compared to the quality you typically find on AM radio – whether that's much to shout about in the twenty first century is another matter... To be fair to this radio, audio quality on DRM is restricted by bandwidth limitations. The three stations I received use the conventional narrow-bandwidth AM channels, and the 10 kHz channels limited the bit rates to just 17 to 21kbps, so even though DRM uses the very efficient AAC+ audio codec, audio quality is inevitably poor.

A product that supports every broadcast radio format sounds like a good idea, and it is, but the concept fails to reach its full potential in this product.

VERDICT

The ambitious concept of a radio with every broadcast radio format – plus all the latest features – is let down by poor sound and reception quality.

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FOR

- radio formats supported
- features

AGAINST

- sound quality
- reception quality
- plasticky build



Ear Kandy

The Kandy Mk III tuner is a typically quirky but capable Roksan design, and Steve Green finds it to be very much on his wavelength...

The £550 Roksan Kandy Mk III is a high quality FM/AM tuner, with no Digital Radio functionality. Although most tuners available today support DAB as well as FM, it is very unlikely that we'll see FM switched off for at least another decade, and as it still provides the highest quality source of radio, a decent FM tuner is very much a worthwhile investment.

Out of the box, the first thing that strikes you is its 7kg weight and solid build quality – at 430x90x380mm it's much larger than average. The silver brushed aluminium front panel with turquoise text on black background display makes for an attractive combination, and its inset rivet-style buttons give it character.

As well as the standard large rotary tuning knob that you see on virtually all tuners, the front panel houses a number of other buttons, including a band-select, stereo/mono, preset store, autotune and mute. On the rear, there is the usual 75 ohm male Belling terminal for the FM aerial, and a dual pull-down connector in which the wires for the AM aerial can be inserted.

Programming station frequencies

into the preset locations was simple, and there are 99 preset storage locations available, which can each store either an FM or an AM station's frequency. One feature the tuner lacks however, is the ability to display station names with RDS - I would suggest that the Roksan should really support this as well.

The supplied remote control was excellent though - well balanced and comfortable in the hand - and the tuner responded quickly to its button presses. Tuning between stations using the remote control was easy, as it allowed the number of the preset station to be entered directly, or to move up or down through the list of presets, as well as providing the standard autotuning and band selection functionality.

One feature I really liked was the ability to tune directly into a station by entering the numeric value of the station's frequency using the remote control – for example, if the numbers '8930' were entered, the tuner would immediately tune to 89.30MHz. This is a feature that I've only ever seen on one other tuner. One complaint I had was that it couldn't switch the tuner on or off, and nor could it change between stereo and mono or between auto and manual tuning.

The Kandy tuner comes supplied with an FM ribbon cable aerial of better quality than most supplied, and an AM loop aerial. However, it is strongly recommended to use a dedicated dipole or multi-element FM aerial because they can make the world of difference in terms of reception quality and therefore audio quality. A rule of thumb for installing aerials for radio reception is the higher they are installed the better, but even using a simple FM dipole in the same room as the tuner is in can improve performance significantly.

Reception quality on the Kandy was very good and this is a quiet tuner in terms of background noise. There was no perceptible hiss on any of the stations that I live within the coverage area for, and there was little or no hiss on a number of the out-of-area stations either. Switching the tuner from stereo to mono – which reduces the signal-to-noise ratio that is required to receive FM stations – also pulled in a number of stations that transmit from a surprisingly long distance away.

In my area, AM reception was mediocre, and there was an issue with the way the Kandy displayed AM frequencies, as it rounded off the frequency displayed to the nearest



10kHz, which was a little confusing – for example, Radio 5 on 909kHz was actually displayed as 910kHz and so on.

SOUND QUALITY

Roksan's Kandy Mk III delivered a pleasingly authoritative sound that had a lot more character to it than that you typically find on lower-priced tuners. On Radio 3 for example, performance was very impressive, delivering a rich and mature sound but with plenty of detail and precision. There was no hint of the clinical or bright sound that some lower-priced tuners can be criticised for, and the Roksan sounded significantly more natural and realistic than most of its rivals. The rich nature of the Kandy was equally well suited to Classic FM's bigger and bolder sound, lending it a luxurious quality but without being warm, and instruments were well defined, sounding neither too smooth nor too sharp.

The type of stations that the Kandy's sound exploited best were those that played middle-of-the-road music. For example the better-engineered shows on Radio 2 (i.e. those in the evening) sounded superb, as the Kandy's rich and full-bodied sound added weight and personality, and the overall result was an engaging and highly entertaining listen. The tuner also dealt similarly well with down tempo material, such as reggae and smooth jazz.

The Kandy's performance with stations that played rock and indie music was more of a mixed bag though. On the one hand, it produced a big, weighty and highly entertaining sound for the vast majority of the time, and the effect

was even vaguely reminiscent of a live concert, something that you certainly could not say about tuners in the £300 price range. On the other hand, the audio quality seemed unduly dependent on the quality of the audio engineering employed by this kind of station, and occasionally in the middle of a track in which the Kandy had up to that point provided a soaring performance, the audio could frustratingly become coarse and confused.

Of course, poor audio engineering being employed by a radio station isn't the tuner's fault, but it is also regrettably an inescapable part of modern radio, and the Kandy was a little less forgiving in this respect than some of the other tuners I've listened to. It was a similar story on the stations that play music of the pop, dance and R'n'B varieties, as the vast majority of the time the Kandy performed excellently, but was a tad unforgiving of poor broadcast quality. Speech sounded superb, with presenters' voices sounding vibrant but still natural and realistic, and speech and drama on Radio 4 were the highlights as usual.

CONCLUSION

Overall, the Roksan Kandy Mk III tuner performed excellently

and also provided fine reception quality on FM, with the only small downside being its unforgiving nature with imperfectly engineered audio. Unfortunately it doesn't quite match its Creek T50 rival in terms of sheer entertainment value, but it's close, so if you have a Roksan system or prefer the Kandy's styling and/or user interface, then you'll not be disappointed.

VERDICT ●●●●●
Highly capable performer with most genres of music, although doesn't flatter poor source material. Fine build and feature set complete an excellent package.

ROKSAN KANDY III £550
Roksan Audio Limited
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www.roksan.co.uk

- FOR**
- sound quality
 - FM reception
 - remote control
- AGAINST**
- unforgiving with poor audio
 - no RDS

MEASURED PERFORMANCE

The VHF/FM section of the Kandy III uses a pilot tone filter at 19kHz, to suppress pilot and subcarrier at 38kHz. Measurement showed it worked well, but there is some effect on audio band frequency response, implanting a small +2dB peak above 10kHz, our response analysis shows, something usually attributable to filter mismatching. This will make itself occasionally known as a little sharpness. The Kandy will have a good sense of clarity due a small lift lower down the audio band; this will not be a warm sounding tuner. Bass rolls off below the lower response limit (-1dB) of 40Hz, not an effect likely to be detectable with most broadcast programme. Generally the Kandy should sound balanced and clear due to its response characteristic.

Distortion was a little higher than usual, measuring 0.3% at 50% modulation, whereas 0.1% or so is more common. Luckily this tuner produces mainly second harmonic so the impact upon sound quality will be minimal. Stereo separation was fine at 40dB across the audio band.

Sensitivity was on the low side of what is common nowadays, measuring 1.3mV for full quieting, against 0.8mV or so from rivals, but with hiss at -70dB the Kandy is quieter than most. A stereo sensitivity of 67µV was a little low too, but not by much.

The Kandy III measures well

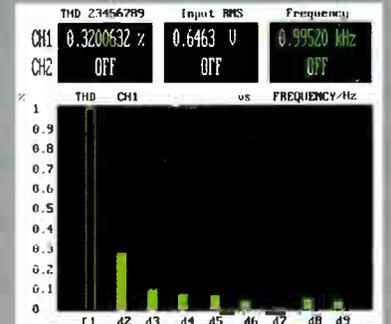
enough in all areas. Whilst not quite a class leader, it has no major flaws. NK

Frequency response	40Hz-15.4kHz
Stereo separation	40dB
Distortion (50% mod.)	0.33%
Hiss (stereo, IEC A)	-70dB
Signal for minimum hiss	1.3mV
Sensitivity	
mono	8µV
stereo	67µV

FREQUENCY RESPONSE



DISTORTION



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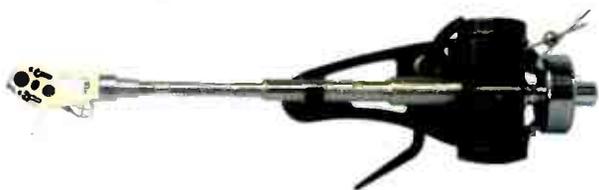
10 AUDIO REVIEW

"A new benchmark for musical communication" **STEREO TIMES**

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STEREO TIMES on the Aurora gold turntable & illustrious tonearm

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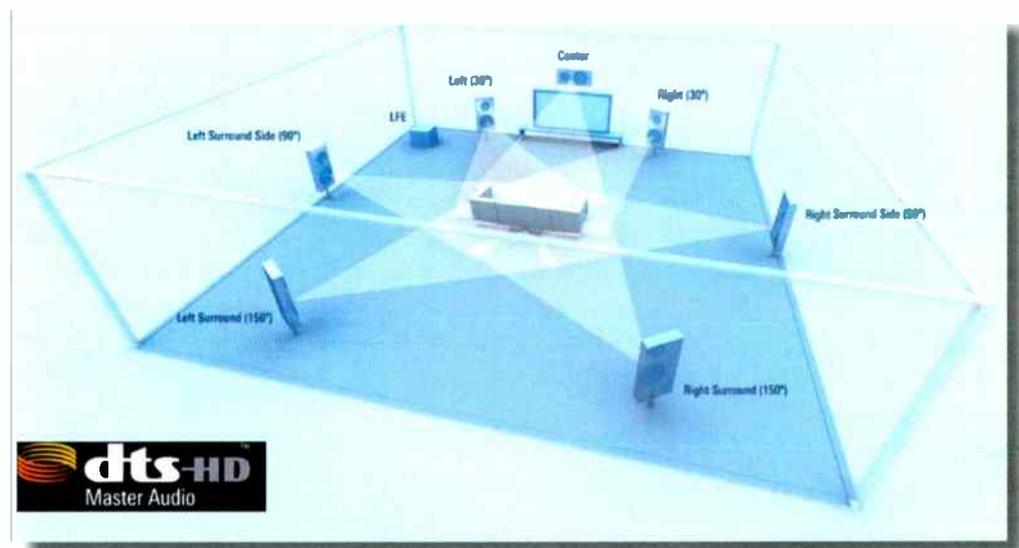
Over The Horizon...

With amazing new storage systems coming soon, Noel Keyword looks at the future of high resolution digital audio...

You could be forgiven for thinking nothing was happening in audio. The glacial introduction of Blu-Ray and HD-DVD is barely perceptible. But there are some intriguing new technologies around that we may soon impact on audio. But let's start with Blu-Ray.

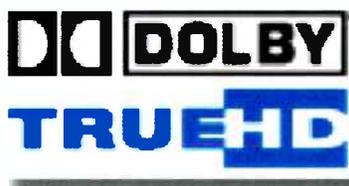
So far little has been said about what Blu-Ray and HD-DVD have to offer on the audio front, apart from an early specification requiring six channels of 24/96 PCM for Blu-Ray. That has evolved to the incorporation of various proprietary audio coding schemes, both obligatory and optional. Both Dolby and DTS set standards we will see in the near future on both of these new disc systems. Expect to see Dolby TrueHD on both disc formats. It offers 7.1 channels (three front, two surround, two rear, plus a subwoofer) of 24bit/96kHz sound, losslessly compressed, meaning there is no degradation of sound quality. Original Dolby surround-sound on DVD compressed music heavily, in order to make enough room for the video, but not any more. Dolby HD will give very obviously superior sound quality on both HD-DVD and Blu-Ray.

Digital Theater Systems, or DTS, came into existence offering a quality alternative to Dolby sound, and so it hardly surprising that they also their own take on things with DTS Master Sound, touted to have a huge maximum data rate of 24.5Mbps. Modern video compression schemes have reduced High Definition video data rates to around 15Mbps maximum, meaning that audio now becomes the dominant payload on a



Blu-Ray and HD DVD will provide high quality 7.1 surround-sound, with side surround and rear 'speakers. But DTS Master Audio can support 24/192 in a 5.1 arrangement.

High Definition Blu-Ray or HD-DVD disc. This is quite a turnaround for audio, as it always played Cinderella at the video ball! Now audio can



potentially consume more disc space than video. Looking at the details shows that this is unlikely happen anytime soon, because it occurs only with DTS Master Audio on Blu-Ray, which promises a mind boggling 5.1 audio scheme with all channels running at 192kHz sampling rate and 24bit resolution. This gives the quoted maximum audio data rate of 24.5Mbps - much higher than the video. HD-DVD offers only two channels at 24/192kHz, by the way, so as far as audio is concerned, it is inferior.

Whether we will ever see 5.1 audio with this specification is open to question, as audio recording studios are geared for 24/96 at

present and few 24/192 audio recordings of any sort exist. The few that do exist, on DVD-A, sound intricately detailed, if not quite as liquid as SACD programme. It's an intriguing prospect all the same, one that may silence criticism of silver disc sound quality [...but I'm sure there will still be some detractors! - Ed.].

One problem with practicable storage technologies like Blu-Ray and HD DVD, based on a now dated optical storage system, is that they are threatened by better ones under development that, if perfected, could spell their end. And wouldn't you know it, just as Blu-Ray and HD DVD get under way InPhase technologies announce they have finally overcome the practical difficulties of holographic storage, enabling them to market a disc with ten times the storage capacity of HD DVD and Blu-Ray. Holographic storage is technically spectacular: it writes and collects data in three dimensions using a flash of light. This is an idea many companies have worked on, but only recently has a usable system been marketed.

InPhase is an American company



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World Radio History



and the technology seemed so awesomely complex at the time that inexpensive players were considered unlikely. As InPhase and Maxell are promising 800GB and 1.6TB (Terabytes) discs, Holography is capable of vast storage capacity,

that bedevils this approach. The benefits are production simplicity and low cost, of both discs and players. Their Versatile Multilayer Disc can store up to 100GBs, they claim, albeit on a double sided disc. However, with a storage capacity of 50GBs, a single sided disc is still large enough to hold a full length HD movie or high quality audio in Dolby HD or DTS Master Sound. The company told us their first 500 players - a pilot batch - are being produced and final production players will cost just £199. The benefit of this approach is sufficient disc capacity to accommodate HD programme, video and audio, at a price acceptable to the vast markets India and China. Blu-Ray promises to be considerably more expensive, and HD-DVD barely adequate in terms of storage capacity.

The Chinese favour their own EVD (Enhanced Versatile Disc) system, as it avoids expensive DVD patents, and NME is reported to be investing in Beijing based E-World that has developed EVD. All the same, getting new software and hardware to market at the same time, globally, is a sizeable task, even for CE giants like Sony and Philips, so EVD and NME face a Herculean - some



The InPhase Holographic storage recorder, and Maxell disc in a caddy. Below are Maxell's specs. including a claim to offer 1.6TB by 2010...

that presented their first holographic disc player at a NAB Broadcasting exhibition in early 2007. Whilst the principles of holographic storage have been understood for some

as well as very high data rates, more than enough for the longest films in High Definition, together with 7.1 audio at any resolution, as around 50GBs is sufficient for this purpose.

HOLOGRAPHIC SPECIFICATIONS*

YEAR	CAPACITY	TRANSFER RATE
2006	300GB	160Mb/sec
2008	800GB	640Mb/sec
2010	1.6TB	960Mb/sec

MAXELL HOLOGRAPHIC DISCS

- DISK DIAMETER 130mm
- WAVELENGTH SENSITIVITY 407nm
- WRITE ONCE
- 3 YEAR SHELF LIFE
- 50+ YEARS ARCHIVAL LIFE

*All specifications are preliminary and subject to change

time, finding materials that remain optically stable for a long enough period to be commercially acceptable has remained an obstacle. We tend to forget that today's silver discs have almost infinite life when physically punched out, and the dyes used in R/RW discs are also stable and long life. InPhase claim an archive life for their new discs, manufactured by Maxell, of fifty years.

Their first product is a professional write-once disc recorder, using a 300GB disc protected by a caddy. With a recorder price of £9k and a disc price of £90 we won't be using them in the home quite yet, but it is worth remembering that early CD players cost thousands

But holography may end up a system of choice for its high read and write rates, and because it does not need to spin a disc at high speed. Discs would be much smaller than at present. InPhase say they'll introduce a consumer system in 2008, perhaps optimistic, but who knows? Now they have hardware in the market, it may be easier to achieve this.

Whilst Philips, Sony, InPhase and most others think the future lies in ever more sophisticated technology, others see it differently. New Medium Enterprises is one of them. Based in London they have come up with a way of stacking multiple layers - up to 20 - onto a DVD type disc, avoiding the problem of interlayer crosstalk

would say impossible - task. Theirs is an interesting alternative all the same. The digital audio world looks interesting, over the horizon.



The slim VMD player. A pilot batch of 500 is being manufactured now, they told us.

Super Mini

Long respected for their high quality mini systems, Denon has taken things a step further with the new CX3, which claims audiophile separates sound with system convenience. Dominic Todd sizes it up ...

Although Aurex can rightly claim the mantle of the first pint-sized audiophile system, Denon pretty much reinvented the breed in the early nineties. Their range of 'mini component' systems offered sound that did a passable imitation of budget separates, but came packaged in stunning titanium grey miniature casings. Since then, they've sold strongly in all markets, being justifiably popular.

The £2,000 Denon CX3 reviewed here is surely the ultimate miniature, claiming serious audiophile (as opposed to simply budget separates) sound, in a package the size of which you can see for yourselves. The bundle consists of the separate SACD player (DCD CX3) and receiver (DRA CX3). Matching SC-CX303 loudspeakers are also available but, given issues of personal taste, I suspect most will buy the CX3 without them.

One of the reasons this system is so small is down to the digital amplification (Class D) fitted to the DRA CX3 receiver. With a claimed 75 watts per channel, this is one compact system that should deliver excellent transient attack. Concentrating on quality, it's also good to see that Denon have fitted separate power supplies for all stages and used well regarded components, such as Elna output capacitors. Equally impressive are the gold-plated, brass speaker and phono sockets.

Inputs include the now obligatory iPod dock (Denon's matching ASD-1R), CD, aux, recording loop and, most surprisingly, an MM/MC phono input. This phono stage appears a well engineered device rather than an afterthought, but I do wonder whether potential buyers wouldn't rather have had a DAB tuner than the FM/AM-only one that's currently fitted?

Finish is one aspect that cannot be questioned, as the casing uses a thick gauge of metal throughout, smoothly contoured edges and two-part damped lids. The subtle red

display is dimmable and, like the rest of the design, oozes quality. Crucially, in addition to looking good, the Denon feels it too. Smoothly damped controls and a metal faced remote help give an impression of real quality here; this is also an impression that's carried through to the SACD player.

Weighing in at 1.5kg more, if anything the DCD CX3 is even more impressive than the receiver. At its heart the DCD uses a Burr Brown DSD1796 24bit DAC with DSD Direct conversion. Denon's own AL24 processing is an impressive feature, usually reserved for their expensive separates players. Further credibility is given to the CX3 by its discrete digital and analogue power supplies, copper covered servo unit and impressive transport section. This newly designed unit offers fast SACD read times and feels fantastic at the user – the tray glides out and consists of a slim sliver of metal, Linn Sondek CD12-style!

In addition to CDs and SACDs, it will also play MP3 and WMA files plus CD-RW discs. Like the receiver, there is a Pure Direct mode that, once activated, cuts out unnecessary circuitry such as the display. Also as with the receiver, the DCD benefits from quality phono sockets. In this instance you'll find both coaxial and optical digital outputs. A few may lament the lack of a 5.1 output but, given that the vast majority will be sold with the two-channel DRA receiver, I don't see this being a major issue.

SOUND QUALITY

With the Denon connected up to a pair of KEF Q5 loudspeakers, I began by checking out the quality of the FM tuner. Denon have an excellent reputation for their tuners, and the DRA CX3 easily lives up to that. Listening to the Proms on Radio 3, I found a quiet background matched with focused and well-formed staging. Instrumental decay was especially impressive and there was little to complain about with regards to accuracy of timbre.

The only slight disappointment

was that, next to a separates tuner (the Denon TU1800 in this case), the width of staging appeared slightly constrained. To make up for this, the projection of sound was first rate and would suit laid-back loudspeakers extremely well.

Switching to Radio 4, and 'The Archers' sounded just fine. Vocals were impressively textured, background detail was well detected and once again there was impressively little background hiss. All in all, the performance of the FM section proved more than a match for DAB and, provided you just listen to FM stations, would be all you need for quality radio.

With the DCD CX3 powered up and David Bridie's 'Dive' SACD loaded, it was time to turn my attention to digital replay. Perhaps most striking with this combo was the strong dynamic scale. Whilst it won't quite trouble a Musical Fidelity kW, in terms of punch it was every bit as good as most full-sized separates at this price. As you'd expect from a well executed SACD player, the sound was also smooth, cohesive and well layered. Detail retrieval was especially good but, whilst the treble was generally well resolved, I did notice some sibilance with vocals.

This slight vocal forwardness manifested itself again with the CD version of Cassius's 'Toop Toop'. This edge to the vocals was accompanied by a forward balance that could prove trying with brighter sounding loudspeakers but, this aside, the reproduction proved highly enjoyable. The dynamic, pacey bass was right on the mark, whilst the detailed percussion added colour and interest to the piece. As before, the staging offered more depth than width, but still managed to avoid sounding constrained. Despite my concerns with the edgy upper-midrange, this proved to be a foot-tappingly good rendition.

Switching to Classical music I found the same pros and cons. Mendelssohn's Symphony Number 2 (Decca, Berlin Symphonic) was



VERDICT ★★★★
 Audible sound quality combined with convenience, style and great build. The CX3 proves to be an impressive synergy from Denon.

DENON CX3 £1999.95
 Denon UK
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 www.denon.co.uk

- FOR**
- pacey, focused sound
 - decent phono stage
 - first-rate finish
- AGAINST**
- occasionally edgy
 - no DAB tuner

imbued with great body and the music swelled majestically as and when required. Finer detail was extremely well portrayed, although there was some slight muddling in absolute terms when the orchestra and choir were at their most dense. There was also a little hardening of the sound in the upper midband, but generally the CX3 combo turned in an enjoyable and focused performance.

Saving the best for last, I decided to test out the phono stage. Sure enough, far from being a spec-filler, the Denon's phono stage was really rather good. With Donald Fagen's 'On the Dunes', I was impressed by the taut bass response. It may have lacked a little in ultimate weight but the manner in which it carried the song was most impressive and, it has to be said, reminiscent of some decent budget standalone phono stages. Other notable qualities included good transient attack with percussion, well above average detail retrieval and excellent projection – no doubt helped by the amplifier's natural characteristics. In short, this appeared to be a phono stage and amplifier in true synergy, and a combination that shouldn't disappoint vinyl fans.

CONCLUSION

In terms of combining mini system style and convenience with separates sound quality, Denon have succeeded. The CX3 looks suave, is easy to use,

has most features that you'll ever need and, crucially, sounds good too. Highlights include a surprisingly good phono stage, a pacey, rhythmic sound quality and an excellent quality of construction and finish.

Whilst highly impressive overall then, the lack of a DAB tuner troubled me. This was not because I am a DAB fan, which isn't necessarily so, but because the lack of DAB prevents access to a number of worthwhile stations (mostly from the Beeb, it has to be said). The fact that Denon already have some impressive separates DAB tuners out there makes this omission all the more surprising, and so one wonders if the CX3 was originally conceived as a Japan-only product? Still, at least the FM tuner is a very strong one, and would have shamed any DAB design, however good!

Sonically the Denon is excellent for what it is, but I did find it could sound edgy occasionally. For this reason, I'd recommend using smooth loudspeakers,

such as Revolver R33s, and similarly silky speaker cables such as Black Rhodium Tango, to keep things sweet. Match the loudspeakers carefully though and this is one system that audiophiles will really enjoy.

MEASURED PERFORMANCE

The small DRA CX3 receiver uses a Class D amplifier to give 85 watts into 8 Ohms and a massive 170 watts into 4 Ohms. Class Ds vary enormously in topology and performance; this one produces quite a lot of high frequency distortion, like most, but has no D.C. on the loudspeaker terminals, a small plus point, and frequency response did not vary significantly with load. Both load regulation and damping factor were extremely good, suggesting a tight, dry sound due to extreme loudspeaker control, but Denon have engineered in a slight -0.5dB response fall at high frequencies to add a little warmth and body to the sound.

Interestingly, both the tuner and CD player are similarly 'enhanced'. The tuner has falling upper treble, to give a sound with warmth, and the DCD CX3 CD player uses Denon's AL24 processing, which strongly affects impulse response, rolling down highs, whilst leaving steady tones unaffected. In practice this adds a softness. With SACD, measurement showed that frequency response reached 40kHz, and distortion was low, just 0.03% at -60dB for example - ten times lower than CD.

The Denon system is innovative, although a little odd in that AL24 is a bit

Power	85 watts
CD/tuner/aux.	
Frequency response	3Hz-26kHz
Separation	72dB
Noise	-101dB
Distortion	0.1%
Disc	
Frequency response	20Hz-20kHz
Noise	-62dB
Distortion	0.02%
Sensitivity	3mV

DISTORTION (AMPLIFIER)

THD 23456789 Input RMS 3.1092 V Frequency 10.0055 kHz

CH1 CH2 OFF OFF

% THD CH1 us FREQUENCY-Hz



Adam Smith worships at the altar of Mowgan Audio's Mabon loudspeakers...

Celtic Heart

Despite their steady approach, the chaps at Mowgan Audio are very quietly sneaking their way into the consciousness of the audio market, according to our spies out there in hi-fi land. It appears that their four-strong range of loudspeakers, all named after Celtic deities, are receiving some very positive feedback from both trade and public alike, with technical director Bill Bridge telling me that they scored a 99% positive feedback result from the public at January's Manchester Sound and Vision show.

In my experience, listeners at

such an event are only forthcoming with praise if they genuinely mean it. Personally, I can recall hundreds of rooms that I have sneaked quietly out of over the years, in order to avoid having to tell barefaced lies in response to a "what do you think, then?" question, but if I like the products in question then I am happy to let it be known.

Mowgan Audio take the eminently sensible approach of keeping things simple, by using high quality drive units in a very sturdy and solid cabinet, and carefully voicing the finished products using crossovers that are not unnecessarily complicated. In the case of the

Mabons, this means an Eton eight inch (200mm) honeycomb coned bass driver, modified to Mowgan's specifications, a purpose-designed Audiotechnology four and a half inch (110mm) midrange, alongside the excellent SEAS Millennium one inch (25mm) tweeter.

These are connected via a seventeen element second order crossover and all drivers are hard wired - none of those nasty push-on tags that seem so prevalent in (even expensive) loudspeakers. Connections to the Mabons are through a single pair of huge binding posts, which can accept banana plugs in their centres and also have

lateral holes for bare wire that are so huge that I suspect 10mm squared cooker cable would not touch the sides! Finally, bass loading is achieved through one of the largest ports I have ever seen on anything that wasn't a subwoofer. It might be wise to keep the children's hamster, rabbit or kitten well away in case one of them decides to go exploring...

The impressive 1030x270x340mm (HxWxD) cabinets add to the impression of solid design thanks to their not inconsiderable 31kg mass, and the superb high-gloss finish, which reminds me of that on the old Russian Rigonda radiogram I used to own. A strange comparison maybe, but if you had ever seen the 'liquid' shine on its wood you would know that this is praise indeed! Off the shelf, you can have your Mabons in Maple, Oak, Cherry, Walnut and Figured Anigre, but owing to the handmade nature of each unit, other options are available on request. Go on, ask for purple suede, I dare you!

SOUND QUALITY

Those of you who read our review of the Mellts in the February 2007 issue of *Hi-Fi World* will know that, barring a couple of small concerns, we were very impressed with these loudspeakers. The main exception was midrange harshness when playing Celine Dion (which, incidentally, Bill tells me has now been overcome by a crossover tweak) and so with this in mind I duly started auditioning the Mabons by cueing up 'I'm Alive' [Adam you're such a sucker for punishment! - Ed.].

This time, the Mabons had no problem with Celine's vocals and presented them in a superb manner without any nasties. Her voice was absolutely rock-solid, with the accompanying instrumental outlined in vivid clarity. It was clear very quickly that the Mabons typify what I love most about a good, big speaker in that they have an effortlessness about them. In the same way that a big, unstressed V8 engine burbles away in a relaxed manner most of the time, the Mowgans' reproduction had a superb sense of ease about it.

Twisting the big volume control of the Luxman L-550A amplifier skywards, however, showed that this stayed exactly the same as things grew (much!) louder, the Mabons really getting into their stride without becoming shouty, hard or giving audible compression. They make high volume listening a breeze and you would be wise to make sure you have understanding neighbours before checking them out.

The Mabons' bass is magnificently deep and solid, but has super levels of detail and pace without ever booming, that huge port adding weight without any noise. The underlying bass guitar of Simply Red's 'Sad Old Red' was as clear as I have ever heard it, with hand movements up and down the fretboard easily discernible - something that is definitely not always the case. A track by Jazzanova on one of my testing CDs (I really must find out its name...) which has immense bass punch and pace was positively pummelled into the room in a quite

"they're more like portals into a recording studio than loudspeakers..."

dramatic fashion by the Mabons. Indeed I noticed that they also picked up on a particular bass note that is so low it usually requires a subwoofer to hear it.

Dramatic was also the word that came to mind when I took a listen to Holst's 'Uranus the Magician' as the immense dynamic abilities of the Mowgans allowed the track to soar to a crescendo and then sweep back down to a subtle murmur with ease. In fact, all instruments, from pianos through guitars and saxophones to drums had commanding realism and scale. The Mabons do not seem to favour any particular style of music - they love it all.

Returning the volume to a more sensible level showed that the Mabons can tiptoe as well as stomp when required. Offering superb detail presentation and imagery, they really do sound more like two portals into a recording studio than two loudspeakers. Playing Kate St. John's 'Paris Skies', the intro that features a glockenspiel running down its length and simultaneously panning from left to right was startlingly vivid, each note having a rock-solid start and stop as well as dramatic body and depth. This was aided in no small part I feel, by the tweeter. The SEAS Millennium is a fine unit and Mowgan Audio have extracted the very best from it, giving a crispness and clarity

that tops off the frequency range perfectly.

The final piece of music that I spun was The Yuri Honing Trio's version of 'Walking on the Moon'. The production of this track is nothing short of astonishing and it features a whole range of testing sounds, including delicately stroked cymbals, vigorous drumming and a very closely-miked saxophone. The Mabons absolutely lapped this up and gave a jaw-droppingly good rendition, revelling in both the underlying subtleties and the sudden dynamics of the drum strikes.

CONCLUSION

In Celtic mythology, Mabon was "the son of light, of liberation, harmony, music and unity". Once again,

Mowgan have chosen an apt name for their creation, as these Mabons are equally harmonious with any sort of music and have the ability to liberate it to the full, with the impact, drive and sheer scale that only comes from a well designed, large loudspeaker.

The Mabons offer an magnificent mix of scale, detail and realism that should put them right near the top of the audition list for anyone with around £4,000 to invest in a flawlessly designed pair of loudspeakers.

VERDICT

Immensely capable loudspeakers that offer an addictive combination of scale, dynamics and bass that extracts the very best from music.

MOWGAN AUDIO
MABON £3,800
 Mowgan Audio
 ☎ +44(0)1389 711222
 www.mowgan-audio.co.uk

FOR

- immense scale
- effortless dynamics
- deep, fast and detailed bass
- startling clarity

AGAINST

- nothing

MEASURED PERFORMANCE

The Mowgan Audio Mabons have a generally flat response, with a slight lift in high frequency output in the region from 9-16kHz. This should add good treble detail without inducing any harshness. The only other aspect to note is the 4dB dip in the response just above 1kHz. As this is nowhere near the crossover points of 280Hz and 3.2kHz, I suspect that this is a feature of the midrange driver - it looks like the point at which the cone and surround naturally start to decouple. Only listening will reveal if it has a noticeable effect - if the surround of the driver has good damping then it should go unnoticed.

Bass output is very good from the eight inch driver, only rolling off around 50Hz and the large port reinforces this with its 30Hz tuning frequency. Consequently the Mabons should have a good, weighty low end.

The impedance curve is smooth and well damped, giving an average measured impedance of 8.3 Ohms, dipping to a minimum of around 6

Ohms, so they are quite a mild load. Add to this their sensitivity of 88dB and you have a generally amplifier-friendly loudspeaker that will not need a huge amount of driving. AS

FREQUENCY RESPONSE



Green - driver output
 Red - port output

IMPEDANCE





Home Service

Holding thousands of CDs, Imerge's new fourth generation S3000 Soundserver is touted as the answer to every audiophile's music storage problems. David Allcock takes it for a spin...

Five years back, the idea of a 'music server' was as hard to get your head round as the likes of the new Apple TV is today. Now though, it's nothing revolutionary to store your music on computer hard disks, and use a software 'front end' to organise it – and this is precisely what the Imerge does, but without the need for the computer. This fourth generation design is more than just a digital jukebox though, coming in a variety of different forms, all packing a lot of power – at a price.

The S3000 is available in various configurations, starting with an 80GB single output version costing £1,595 and culminating in a 4 output 400GB version costing £3,895, with versions encompassing 160GB and 250GB versions with 1, 2 or 4 audio outputs, the model I was supplied with was a 160GB, 4 output model which costs £2,795.

The front panel has a CD drawer on the left hand side with open/close and menu buttons immediately to the right, a display in the middle of the panel with four soft buttons beneath

this, which change function depending on menu. A 'D' pad, like you'll find on a video game console, is to the immediate right of the display for navigating the menus, with six further buttons offering basic transport controls on the left hand side of the panel. A small 'on line' LED is above the remote control receiver and standby button.

Around the rear panel things are a lot more complex, with a pair of USB connectors, an Ethernet connector, telephone jack, external IR eye and RS-232 interface all to the left of the back panel, with a VGA 15 pin D connector, S-Video and composite video outputs allowing the S3000 to be connected to almost any type of display. A pair of TosLink optical and S/PDIF digital connectors are next to these, one each for input and output of both types, next to these a pair of RCA line inputs and four RCA line outputs with the IEC power inlet on the far right hand side. The complexity of input/output options betray this unit's heritage from the multi-zone audio market.

The remote control supplied is

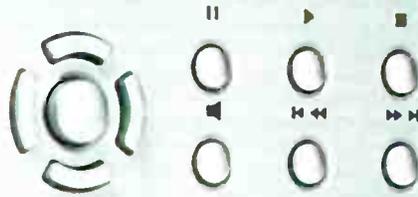
somewhat intimidating even for me. It is festooned with buttons, reflecting the flexibility of this unit and, whilst this makes it rather complex on first encounter, although after a couple of hours it becomes somewhat easier. I cannot help but feel this is unnecessarily complex, though many users of this system will partner this unit with a Crestron or AMX touch screen system which, sadly, will cost another £2,000 or so by the time it is programmed and integrated with the S3000.

Inside the box lies a dedicated computer running a cut-down version of Linux. At the front sits a 160GB hard drive and Lite On CD-RW drive, and the main board is a custom design using a VIA chipset. The sound is provided by a VIA Envy 24HT chipset – a good if not outstanding sound chip – whilst the DAC is a Wolfson WM 8770 S/FT – a mid range ADC/DAC really designed for multichannel operation, hence its use here as it is an eight channel device allowing one chip to support all four audio outputs.

I was somewhat troubled by

iMERGE

Inmerge S3000
 Out Albums CD Server



HARD DISK AUDIO SYSTEM

"products such as this show us the way forward in digital audio replay..."

the lack of shielding in this design. Not only is the front panel display totally unshielded allowing RFI to contaminate the analogue audio board, but the analogue board is right next to an unshielded, uncovered switch mode power supply. Given the high level of RFI emitted by the power supply, and its location, this will result in heavy RFI pollution of the analogue output.

The software in this unit uses a platform called XiVA, which automatically takes care of not only copying CDs to the server, but also downloading cover art and track listings from the Internet. Whilst my listening room is connected to my house wide gigabit network, which allowed me to connect the S3000 to the internet. I was surprised that there was no provision for Wi-Fi, other than using a wireless bridge which connects via the wired Ethernet socket, as Wi-Fi is far more prevalent than the kind of wired network I have here. To copy a CD onto the server, you insert the disc into the unit, the CD is then automatically copied and the server then connects to the Gracenote database and downloads details.

Whilst this works as far as track listing and album names are concerned, the cover art failed to download for any of the albums I copied. Whilst I could install my own cover art onto the server, it

required a knowledge of Windows networking which not all users will possess. The onscreen interface is very good, and is easy to navigate, but I did find it somewhat limiting as far as manual updating of the database is concerned where Gracenote failed.

Music can be copied to the server in one of three formats, Windows Media Audio (wma) at 96 or 128kbps, MP3 at 128, 192 and 320kbps or uncompressed. I tried all combinations of encoding/data rate and only uncompressed gave

good results, wma destroyed high frequency information, and MP3 destroyed imaging data at either data rate. I would have expected to see AAC, which is the best sounding compressed format and the native format of Apple's iPod and iTunes, plus FLAC (Free Lossless Audio Codec, which is licence free), and/or Windows lossless or Apple lossless too. Right now, using uncompressed storage you're only able to store 350 CDs on the machine, which is simply not good enough.



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SOUND QUALITY

After installing the server I started by listening to it in my usual reference system with an Aesthetix Calypso pre, Bryston 3B-SST power amp and Martin Logan Vantage speakers. It was immediately obvious that the sound of this unit left a lot to be desired when compared with the Leema Antila CD player, I can't help but feel that this unit is not really aimed at the serious audiophile.

The sound available from its analogue output lacked the dynamics of a modern CD player - the Shanling CD-3000 at £1,100 offered far greater energy in the room and the Leema was even more dramatic with massive dynamic swings. In comparison the S3000 failed to engage me sonically with a curtailed dynamic range. Frequency extension at both ends of the spectrum also suffered; there was a distinct lack of air in the high frequencies, making cymbals and tambourines sound shut in, as though they had been recorded in an anechoic chamber with no reverb or room information being conveyed to the listener. Likewise, the lower registers lacked definition, speed and extension. Bass notes from the double bass on 'Take Five' from Dave Brubeck Quartet's 'Time Out' told me very little about the instrument or the ability of Eugene Wright to play, the notes lacked power and ran into each other, giving little space around either the notes or the instrument.

Going to something more current, 'Me and My Imagination' from Sophie Ellis-Bextor is a track with superb engineering and Sophie's distinct vocal style, yet the track lacked the airiness and drive which it depends on, making it just another standard pop track with an average vocal recording. Midrange vocals sounded overtly rich and heavy. The fluidity and transparency present in Diana Krall's voice singing 'The Look Of Love' was lacking, her voice lacked the velvety ease and took on sound which sounded

overtly sweet and syrupy with average articulation. I was expecting some damage to be done to the imaging with the lack of hall information and low frequency extension, and my worst fears were confirmed. 'The Look of Love' had its usual depth and space collapsed around Krall's vocals, with her band crowded around her as though they were playing from a space the size of an elevator instead of a stage, and all notions of stage depth were completely destroyed.

Whilst performance with the internal digital convertors was poor, I'm happy to report that things got substantially better using an outboard DAC - suddenly I was back in proper audiophile territory. Bass had real weight and extension, though as a transport it was still not giving the kind of definition and dexterity I would expect even a mid priced transport to deliver, but it was a massive improvement over the internal analogue stage. Likewise the midrange suddenly took on a clarity and ease. Vocals were no longer congested, but were now open and clear with a huge improvement in articulation and intelligibility. High frequencies now had air, and although they were still a little splashy and lacked the absolute focus I have come to expect, the improvement was night and day in magnitude.

Regardless of the DAC used, from an Arcam Black Box 50 to a Perpetual Technologies P-1A/P-3A Signature, the performance was massively improved, attesting to the problems of trying to generate analogue audio in an environment with massive RFI problems, in this case dramatically exaggerated by the power supply design and the internal layout of the unit.

CONCLUSION

Although a good unit, and hugely successful in the custom install marketplace (where undoubtedly as a

REFERENCE SYSTEM

Perpetual Technologies P-1A/P-3A upsampler/DAC
 Arcam Black Box 50 DAC
 Aesthetix Calypso preamplifier
 Mark Levinson 326S preamplifier
 Bryston 3B-SST and 14B-SST power amplifiers
 Leema Acoustics Tucana integrated amplifier
 Martin Logan Vantage loudspeakers
 Hyperion Sound Design HPS-938 loudspeakers

MUSIC USED

Dave Brubeck Quartet, 'Time Out', Columbia
 Diana Krall, 'A Night in Paris', Verve
 Sophie Ellis Bextor, 'Trip The Light Fantastic', Polydor

means of providing background music in multiple rooms it is very well equipped), the Imerge S3000 doesn't quite cut it as a hi-fi component. For most enthusiasts, the single output version is all that's required, saving you £900, which will buy an outstanding DAC, and that is an essential purchase if you want to realise the full potential of this unit. I still feel its almost £1,900 purchase price is on the expensive side given the functionality on offer and the storage, with only room for 350 uncompressed albums; my collection would demand the £3,000 400GB unit. If FLAC had been implemented I could have my entire collection in a bit-perfect, lossless format on the 160 GB machine.

The software is really very good, and whilst a little intimidating initially, a couple of hours will quickly have you navigating and sorting your music effortlessly. The user interface still has problems, however. I think the remote needs reworking and the necessity at this price point for a screen is unfortunate, I would have expected a better display which could display cover art integrated in the unit. Right now, I find it difficult to confidently recommend this unit, but I believe it shows us the way forward in digital audio replay, I just feel it's missing a few audiophile refinements to make it ideal for our market.

VERDICT ●●●

A great idea which is still in its infancy - it needs an outboard DAC to sound good, and be prepared for a steep learning curve!

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AGAINST

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Show time!

May's Munich High End Hi-Fi Show is always a sure bet for getting a sneak peek at products to come, and this year proved no exception, says Jason Kennedy...

REVOLVER REPLAY £1,500

Revolver started out as a turntable manufacturer back in the nineteen eighties, and has now returned to the black stuff with the Replay. It's rather more upmarket than its forebears, with marble plinth and a slick Japanese tonearm. Designer Mike Jewitt hasn't decided whether to use suspension yet but the finished Replay is expected this autumn...



PIONEER S-3EX £5,000

Following last year's high end bargain S-1EX loudspeaker, this year Pioneer France has come up with a smaller S-3EX model which also looks tremendous value. Drivers include a coaxial mid/treble using a ceramic tweeter in a magnesium cone, while the baffle - which is 50mm thick in the middle and 100mm at the ends - has a 3m concave curve to time-align the drivers.

BEHOLD GENTLE G192 £8,000

As well as having the best name at the show this German brand makes an incredibly flexible integrated amplifier, one that starts out with analogue power amp but which can be augmented with digital ones, Gentle also includes digital signal processing, an active six channel crossover, a seven inch TFT display and onboard room correction software. Essentially it's a computer with amplification built onto it, which makes a change!



BAASNER TURNTABLE £???

Germany's LP Magazine was showing reader Herr Baasner's home made turntable on at least half of its entire stand! This beast is a festival of stainless steel and Acrylic and features a parallel tracking arm that literally floats in water(!) - a syringe is supplied in order to adjust VTA, naturally. Other features include shields to deflect air movement and nylon thread drive via pulleys too numerous to count. It even has built in buffing wheels to polish various bearings...



ROKSAN CASPIAN PLATINUM £7,000

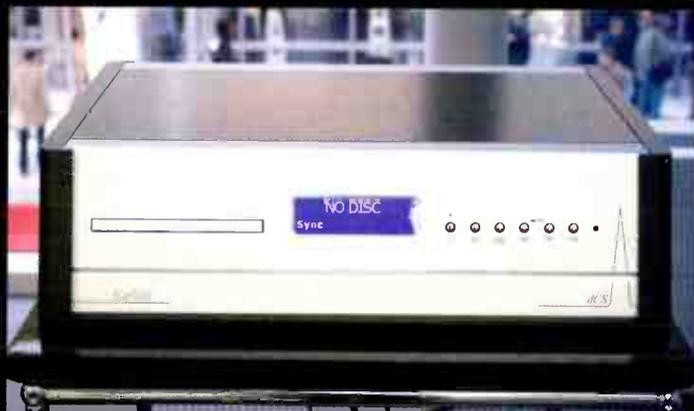
Touraj Moghaddam is taking an age to finish Roksan's flagship ROK pre/power so the company decided to use some of his work in a new Caspian combo called Platinum. The PR15B preamp has balanced and SE inputs and outputs which work in any combination, while the ST1308 delivers 130W per side into 8 ohms, as the name suggests...

**CREEK TURNTABLE £2,000**

Mike Creek has caught the vinyl bug, and to prove it he showed his company's first turntable. It currently has the working title Wyndsor and uses an Acrylic plinth, separate power supply and opposing magnets to take the weight of the platter off the bearing a la Verdier. Creek has also resurrected its OBH11, a more affordable version of its headphone amp.

DCS SCARLATTI £33,000

dCS has clearly decided that if the sky is the limit with turntables, then it can attempt the same with a digital source. Scarlatti is a three box player comprising CD/SACD transport, digital to analogue converter and Master Clock. The DAC features the latest evolution of the dCS Ring DAC, a new digital processing engine and an all-new chassis, while the transport combines dCS signal processing technology with mechanics from an Esoteric VRDS NEO drive.

**WILSON BENESCH TRINITY £4,500**

Wilson Benesch continues to refine the bookshelf speaker with Trinity, which fits in between the Arc and Discovery in the company's range. It incorporates Murata's ultrasonic generator or supertweeter to give the speaker treble extension up to 100kHz. The Tactic mid/bass unit has a new magnet structure and all three drivers are clamped from behind for maximum rigidity.

QUAD MUSIKWIEDERGABE THORENS TD124 £1,000

Quad Musikwiedergabe totally rebuilds old Quad electrostatics and makes models of its own. Now the company has branched out into rebuilding the motors for Thorens' classic TD 124, and they also produce wooden plinths and inner platters, which cost a mint but are beautiful to behold.



The Right Track

Adam Smith remembers the classic ADC Accutrac 4000 turntable...

It is often difficult for a company known for more budget designs to move upmarket, although there have been some successes. Garrard were an exception who threw the book at the design of the 301 and 401 and scored a resounding success. Things were less successful further north at their arch rivals BSR, however, who struggled to move away from the entry level units for which they were known.

Their first attempts, the 710 and 810, were a reasonable effort and are half-decent decks on the rare occasions when they work properly. The problem is that BSR not only still based them around a fully automatic mechanism, but they made said mechanism so hideously overcomplicated that it is a pig to set up. It was not until 1973, with their acquisition of American firm ADC, that BSR were ready to wow the world with a posh turntable...

Enter the ADC Accutrac 4000, which finally arrived in 1976 and certainly made people sit up in surprise. Whilst the central recipe of a two speed fully automatic direct drive design, using the famous Matsushita motor was no big deal, the rest of the deck certainly was. Making use of, at the time, state of the art computing technology, BSR gave the Accutrac the ability to 'read' the record via an infra-red sensor built in to the cartridge; the option to play up to 24 tracks in any order and the ability to remote control the whole shebang.

Selling for the not inconsiderable sum of £300, the Accutrac amazed both the public and the press, with magazines of the time needing around five pages to fully describe the beast! In reality, operation was simple - you placed your record on the platter, selected its size and speed if these were other than the default values of 12 inches and 33rpm and then either selected the tracks you wished to hear in any order you liked, or hit the 'All' button to play the entire side.

At any point you could choose to repeat the track you were listening to, reject it and move on to

the next selected track, or cancel the whole thing, clear the deck's memory and start again with another record. You could even just press 'Cue' to lift the arm, then move it by hand to your chosen point and lower it again, if you felt that you were missing the whole tactile experience!

Flipping an Accutrac over and removing the bottom cover is interesting, as you might rightly expect the unit's sleek base to be absolutely overflowing with componentry and circuit boards. Consequently the sight of a smallish PCB with a handful of components might be a surprise, but two of those components are large ICs, specific to the Accutrac. The designers at BSR really pulled out the stops with this and the internals are very simple.

The cartridge fitted is badged as an ADC LMA-1 and is specific to this model as it incorporates the infra-red track selection LED and sensor. This shines an invisible beam at the record and uses the fact that the shiny gaps between tracks on the record will reflect this beam back to the sensor beside it, whereas modulated grooves will disperse it. Records featuring different gap thicknesses between tracks could be accommodated by a sensitivity control on the front panel. When selecting tracks, the arm uses these gaps and 'counts' its way in from the edge of the record every time a new selection is chosen.

The arm itself is driven by its own motor, and a whole battery of optical sensors are used to determine arm position and monitor its movements. This mechanism is fully disengaged when the record is playing.

Finally, in true 1970s tradition, the remote handset is something of a brick as it operated via ultrasonics, duplicating all the selection controls on the turntable's front panel. The best bit however is the remote receiver. This is a spherical brushed aluminium unit that could have come straight off the set of Star Trek, and plugs into the turntable via a four pin

DIN plug on a long lead, which allows for flexibility of placement.

SOUND QUALITY

Let's face it, you are unlikely to buy one of these to rival your Sondek/GyroDec/301 and you would also be extremely unwise to do so! The Accutrac 4000 is a pleasant-enough sounding beast, thanks to its cartridge being based around a good quality ADC QLM design. However, this cartridge is specific to the deck and cannot be upgraded. The Matsushita motor has well-documented dynamic wow issues, meaning that the platter slows ever so slightly when the stylus encounters a heavily modulated section of grooves and smearing dynamics somewhat. This may be a direct drive deck, but do not expect Technics SP10 levels of bass grip.

So, it's not a top flight vinyl player, but all is not doom and gloom, however, as the Accutrac actually makes quite a pleasant noise. It is rather soft in both the extreme bass and treble, but offers a warm and beguiling midrange allied to a sweet top end that is a world away from budget digital harshness, and sounds quite pleasant as a result. It also makes a fair stab at soundstaging, but won't trouble the likes of a Simon Yorke S9 in terms of atmospherics. Output from the cartridge is quite low even by MM standards, and so you'll have to advance your volume control further round the scale.



BUYING SECONDHAND

Accutrac 4000s are not exactly common, thanks to their high price when new, but there are a few out there still. Interestingly, quite a few



turn up in the USA, as our American cousins seem to have taken automatic decks to their hearts more than we Brits did. Beware that these models will need to be modified by a competent engineer to run on the UK's 240V should you decide to go for one.

Spare parts are non-existent, and even servicing is rather limited, because, as mentioned, there isn't a great deal inside to tinker with. Service manuals crop up on US eBay fairly regularly, but any problems are most likely to be down to the optical sensors failing or the control chips dying. To give you an idea, I'm on my third 4000 now, and, along with number two, it works perfectly, however number one refused to work no matter what I did to it. Basically, unless you are buying one for spares, make sure you see it working with your own eyes - if it doesn't work when you buy it, it is unlikely ever to do so.

Regarding the cartridge, as mentioned the LMA-1 must be used, as it has the infra-red sensor fitted within its body. Replacement styli are still available from sellers in the US - www.lpgear.com sell theirs for \$39.95 but allow for shipping on top of this. Remember that you must use the correct RLMA-1 type - do not be tempted to fit a standard ADC QLM30 stylus even though it will fit. The reason for this is that the RLMA-1 stylus has a special moulding with a hole at the front through which the sensor beam shines. Fit a normal ADC stylus and you'll block the beam, meaning the deck will not

operate properly. I have seen units like this for sale as "working but will not select tracks" - now you know why!

If you've now decided you can't live without an Accutrac 4000, the good news is that it shouldn't bankrupt you. A good, working item, with correct stylus, remote handset and receiver should be yours for around £80-£120 depending on condition. Another good rarity to look out for is the demonstration LP that some came with - most of these seem to have gone to America and are quite rare. I have yet to lay my hands on one.

The 4000 was followed by the Accutrac +6, a belt drive unit with bigger 27 track memory and six record autochanging through a very clever motorised spindle, however this was only sold in the US - patience and around £300 plus shipping will be required if you fancy one of these. The 4000's base components lived on for a few more years in the ADC 3001 motor unit, available with an ADC ALT-1 arm, or with blank armboard. The problem with this was that, if you take a high-tech deck with an averagely good motor, and remove everything but the motor, then all you're left with is a distinctly average motor unit...

TELEVISION STAR

The Accutrac 4000 had a starring role in the 1970s television series *Columbo*, appearing in "The Bye Bye Sky High IQ Murder Case" in 1977. The murderer used the deck's arm as part of an electrical circuit, using its movement when scanning the record to set off simulated gunshots and exploited its return action at the end of the record to knock a book over. All this gave the sound effects of a gunshot and a falling body whilst the perpetrator was downstairs in full view of party guests and had actually killed the victim earlier. Needless to say, despite the use of the world's cleverest turntable, good old *Columbo* wasn't fooled and justice was done!

CONCLUSION

Accutracs are quite addictive (hence the reason why I'm on my third...) and, although not the last word in sonics, make superb vinyl playthings if you're into that sort of thing. Buy one as a second deck for occasional use and to impress visitors and you can't go wrong.

Finally, I feel that I should leave the last word to BSR themselves, with the Accutrac's original advertising tag line - "Its mother was a turntable; its father was a computer". Enough said!



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"so far, I have not personally succumbed to a DAB radio..."



adam smith

News from the Digital Radio Development Bureau (DRDB) this week, that sales of DAB radios have now passed the five million mark, set me thinking recently. Obviously, this was only to be expected, as the public have embraced DAB with great enthusiasm, despite its shortcomings, as a result of the wide variety of stations that are, theoretically at least, available. Flicking through the stations that a DAB tuner can pick up, especially in an area like London, reveals a quite startling array of stations, with output to cater for nearly everyone.

So far, I have not personally succumbed to a DAB radio of my own for a couple of reasons. Whilst I was excited to hear about the new arrival when it first came out, as it meant I could theoretically now listen to London's Jazz FM down on the south coast, a couple of problems then ensued. Firstly, according to the transmission map I found on the internet, Jazz FM wasn't available down on the south coast, much to my disappointment, and then Jazz FM itself changed its name to Smooth FM. I had no problem with the name change, but this was accompanied by it replacing its superb and varied output of "blues, soul and smooth jazz" with the sort of dreary easy-listening 'music-lite' auditory Mogadon reminiscent of Radio 2 about twenty years ago, consequently losing me as a potential listener.

Secondly, even in central London, the DAB signal breaks up with boring regularity, with weaker stations given a background noise reminiscent of a boiling kettle, and making speech indistinguishable. For me, this is one of the disadvantages with digital broadcasting generally, in that any weaknesses in the

transmission or receiving system are not sugar-coated, unlike analogue.

To give you an example, I live in a little village in the Hampshire countryside that has decidedly poor television transmission, especially in the summer, when a large oak tree on a nearby hill right in between the village and the Isle of Wight transmitter that we use grows leaves, making the signal transmission even worse!

Now, the good old-fashioned analogue stations are a little 'snowy' but quite watchable, with digital Freeview stations coming through the same aerial very clearly most of the time - all well and good. However, we have a twisty main 'A' road a couple of hundred yards from us which, during the summer evenings and on bank holidays, is a strong draw for "grey-haired old fogeys having midlife crises" as my wife scathingly puts it, driving up and down on their motorbikes, the engines of which seem to be a common source of interference.

When a poorly-suppressed bike goes past, our picture breaks up, pixellates, and takes a good couple of minutes to recover. Switch back to the slightly snowy analogue picture, however, and all that happens as an offending motorcycle goes past is that a series of white lines appear on the screen, fading away as the bike goes past. I have also noticed that, during high pressure days during the summer, one or two stations completely vanish, with our Freeview box feebly attempting to pluck them out of the ether before announcing "Bad Signal". Somehow, this doesn't seem much like progress to me, and does not give me much hope for obtaining a decent DAB signal at home. FM, on the other hand, is a little hissy, but quite listenable.

As mentioned by Steve Green in his column on page 75, the next big thing to be touted in terms of digital transmission is Digital Radio Mondiale (DRM), which will replace those good old medium wave, long wave and short wave stations that we know and love. DRM apparently has "near-FM sound quality plus the ease-of-use that comes from digital transmissions". The cynic in me cannot help wondering, judging by my experience of DAB, whether this means that your late-night enjoyment of a radio station on DRM from some far-flung corner of Europe is likely to be interrupted by a 747 flying over you at 27,000 feet...

Still, I suppose that this has less of a high standard to live up to than a replacement for FM as I can testify, having spent many a happy hour doing the same things as Van Morrison, if the lyrics in his song 'In the Days Before Rock and Roll' is anything to go by, namely "I am down on my knees, At those wireless knobs, Telefunken, Telefunken, And I'm searching for, Luxembourg, Luxembourg, Athlone, Budapest, AFN, Hilversum, Helvetia..."

There was always something quite romantic (I'm too young for nostalgia, surely?) about flicking through the numerous stations on my old seven-waveband Rigonda Symphony radiogram's radio to see who and what was still out there, and many people have turned this into a steady hobby, spending a fortune on aerials and receiving equipment in order to pluck the furthest stations possible out of the ether, so I sincerely hope that the DRM system does not fail to let this continue. If it gives a DAB or Freeview-type experience with weak signals, then I suspect quite a few people will be disappointed ●

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"Progress with DML technology hasn't been as sure as many of us would have liked..."



dominic todd

Recently I had the pleasure of listening to Quad's latest electrostatic loudspeaker, the ESL-2805. Not surprisingly for a £4,500 design with one of the most illustrious family trees in the hi-fi business, the ESL-2805s impressed. It seems that for a seamless, cohesive sound with excellent imaging, an electrostatic still beats all comers. Perhaps there's nothing especially surprising about this, and yet had you asked me seven or eight years ago I might not have been so sure. The reason is not so much to do with any limitations on the part of electrostatics, although they are expensive to make properly, but more an imminent challenge from new quarters.

Way back in 1991 a Professor working for the Defence Evaluation and Research Agency (DERA) filed a patent for a new type of flat loudspeaker. Word has it that DERA lacked the facilities to properly develop the technology and thus, in 1994, a deal was struck with the Verity group for its exclusive development and licensing. Verity may be an unfamiliar name these days, but back in the mid nineties they were a powerful force and incorporated such prestigious names as Mission, Cyrus and Quad. In a nutshell, this new type of speaker used special resonating panels and became christened the Distributed Mode Loudspeaker (DML).

Mention DML to many, including those with a good knowledge of hi-fi, and the chances are that they'll look at you blankly. Mention NXT however, and the recognition will be widespread. In what was at the time a risky move, Verity decided to take the DML technology and form a dedicated company around it. That company was called New Transducers Ltd and is very much thriving today with the 'Ltd' part long since having become a PLC.

Yet success for the DML loudspeakers hasn't always been guaranteed...

Although launched with great hype by then Prime Minister, John Major, the 1996 arrival of NXT left many perplexed as to the lack of physical products. It wasn't until the following year that we saw the first laptop computers featuring the speakers. This was followed by, after what seemed an eternity later, the first hi-fi NXT transducers. The product was, if I remember correctly, the Mission X-Space and the year was 1998.

The product itself consisted of two NXT satellite speakers and a conventional subwoofer. With the NXT panel handling the entire midrange and treble, the crossover element was restricted to much lower frequencies - the ones that are less critical to musical reproduction. Yet, despite the clear technical ingenuity of the product, it didn't prove quite the revolutionary product that NXT had hoped for. Still, this didn't stop others applying for licenses and it wasn't long before we saw a host of other NXT equipped sat/sub systems. Pioneer, Boston, Gecko and Wharfedale were all there at the early stages with the Wharfedale PPS1s particularly standing out in my mind. Like the X-Space, they didn't sound especially fantastic, but the novelty of the literal picture frame satellite speakers, caught the imagination of many. Perhaps it was this product that set the fate of NXT technology from here on.

Today, the NXT branding has spread broadly, and it's hard to find any application that hasn't been touched by the NXT flat panel treatment. From iPod docking stations to mobile phones, speakers with supermarket mini systems to portable DAB radios, NXT has spread its net wide. In most cases the technology also happens to suit the application. An iPod docking system with NXT

speaker that I recently heard had a smooth, consistent sound that was way better than a similarly priced, conventionally-speakered design.

Another area in which NXT also finally appears to be making inroads into is that of the car industry. Last year saw a couple of Toyota models fitting a hybrid speaker system and now we have the Citroen C4 Picasso as the first mass production car using a full DML (with subwoofer) system. The Philips engineered system is, at the moment, an optional extra, but it's wonderful to see the technology finally being used for an application that so obviously suited it.

What then of the potential as an audiophile loudspeaker system? Sadly, that's where progress with the technology hasn't been as sure as many of us would have liked. The striking Podium Ones reviewed last month notwithstanding, DML technology is near non-existent in today's hi-fi. Sure enough there are good quality surround sound speaker systems that use the panels, but nothing of any consequence. This is a shame, as I well remember the Cyrus Icon.

This £2,500 floorstander from 2001 showed that there was indeed audiophile potential within the NXT panel. With its damped carbon fibre skins on an aluminium honeycomb core, the Icon brought a wonderful sense of realism to music. As with many other hybrid speakers, the match with the conventional bass cone wasn't the best, meaning that the bass proved a little soft and behind the rest of the mix. Still, for a first try at a DML audiophile speaker, it was impressive stuff. Certainly there was a potential here that has still to be exploited. Just think, had Verity pushed the technology with its own in-house quality loudspeaker brand, Quad, then today's ESLs might have been very different beasts. ●

Walrus

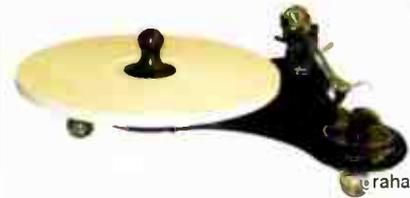
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"when Mobile Fidelity want to change the sound, they avoid electronic EQ and use cables instead..."



paul rigby

As I stare into the mocking face of my forty third year, I find I am increasingly turning into a grump. I can feel the transformation – sense my lip curling with almost Elvis-like precision – when someone tells me fairy stories. For example, that the instigation of the Premier League will ultimately help improve the England football team, or that audio interconnects can actually improve the sound. Ha – this is Emperor's New Clothes territory isn't it? I thought the idea of a bit of wire stuck between two boxes was to *not* sound like anything at all? Neutral, in fact.

Yet, you exclaim, 'what about the positive reviews of top notch cable found in this very magazine?' Don't they mean anything? Well, not to me – I'm unconvinced. They're all suffering from too many loudspeaker super tests, this lot. Hearing things, don't you know...

Then a conversation happened with Shawn R. Britton, Chief Mastering Engineer at Mobile Fidelity Sound Labs. He told me that when he feels moved to affect the tonal quality of a master tape, he tends to avoid boxes of electronics. Indeed, he uses different interconnects only!

Well, my jaw fell open. "We try not to use EQ unless it's absolutely necessary," said Britton. "In fact, I'm looking right now at a hideous spaghetti mix of all sorts of interconnects. Each has different tonal qualities. We'd much rather swap out cabling to achieve tonal differences than use any signal processing devices in the chain because, as soon as you put anything in the chain, even if it's in bypass

mode (that is, it's not switched on to obviously affect the chain), it still affects the sound."

Britton thus uses different cables for different genres. It's a synergistic thing. So would he use cable A for Rock and cable B for Jazz? "Sometimes it seems to fall that way. You can say that, this cable has an open top end so it's going to help the cymbals on this particular type of music. More aggressive top end on a rock title, for example. If, however, I'm recording Coltrane and I want a more buttery sax sound then I might choose a cable with a warmer tonal characteristic rather than that hard edge sax sound. However, most mastering studios don't have as much time as we do to experiment like this. I work at my own pace – most to my boss's frustration!"

Well, I thought, if it's good enough for Shawn... So, selecting a cable outfit with a pin, I rang the Chord Company and (whilst trying to stop sneering at them down the phone) declared, "try and change the sound on my system", and – by George – they did!

I used my prized Stax 007 ear-speakers with SRM-007tII valve energiser (prospective buyers should ask Stax about its 'matched valves' service, by the way) – the best studio monitors in the world according to some mastering engineers – and played several vinyl albums through a T&A G10 turntable with SME arm and Benz MC cartridge, Trichord Dino and Naim NAC 112/NAP 150 pre/power amplifier combo.

Dealer-supplied XLO Pro 125s were compared with the latest Chord Anthem 2s (around £300 for Naim-style DIN connect; phono-to-

phono connects can be around £70 cheaper). Space precludes an in-depth review but the bottom line of my test confirms that cables do make a difference. That difference is subtle but it's definitely there...

The XLOs arrive with their own baggage, a personality that fits the Naim philosophy: tight bass and a focused midrange which complements the amplifier. Initially, the Chords didn't impress. That is, there was no 'wow' factor at all. However, after long term listening the reason dawned – they were almost totally transparent. The Chords were more sympathetic with the vinyl source, smoothing off the top end and encouraging vinyl's naturally warm sound to ooze through. I felt that I was listening to the turntable instead of, in the XLO's case, the cable. The Anthem 2s in fact acted like an ideal interconnect, they didn't interfere, they didn't add anything to the music or colour it in any way, they just did the job of connecting one box with another – which is the biggest compliment I can give them. Are they worth £300 each? Is such transparency worth £300 each? You decide...

One essential bit of advice for anyone buying a set of cables – don't judge them straight away! It might surprise you to know that, like any piece of hardware, you have to run them in first. I'd even recommend a full month of typical use before you get the full benefit. Hence, if asking for a cable test at your local dealer – insist on hearing 'burned in' cables only. So now, after my initial grave cynicism, I can proudly pronounce myself to be a great believer in getting totally wired. ●

Some decisions are just so simple

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wouldn't it be simpler to design a system that was fit-for-purpose in the first place...?



steven green

The BBC is currently building transmitters that will increase coverage of its national DAB multiplex from the current 85% of the population to 90%, but if recent comments made by a BBC radio executive are anything to go by, the remaining 10% of people will never receive digital radio via DAB.

Mark Friend, the new BBC controller in charge of digital radio, told the Westminster Media Forum recently that the cost of building new DAB transmitters was "prohibitively expensive" and that a "hybrid solution" would be required, meaning that other systems would be used to cover the areas that DAB cannot reach. One system he mentioned as providing a possible solution was Digital Radio Mondiale (DRM), which is the new system that has been designed to replace analogue radio in the long (LW), medium (MW) and short (SW) wavebands at frequencies below 30MHz, and which is much cheaper to transmit than DAB.

The BBC also launched a year-long trial of DRM in April, in which BBC Radio Devon is being broadcast to the Plymouth area on the MW band. This makes me speculate about the BBC's long-term plans for domestic DRM, and I sincerely hope that the BBC is not considering DRM on MW as a means of filling the 10% gap in DAB coverage, because the audio quality would be truly dreadful. DRM transmissions on MW are limited to using 9kHz channel bandwidths – which is twenty-one times less than the 190kHz of bandwidth consumed by a typical stereo station on DAB – and because the bit rate that can be used (for a given system) is roughly proportional

to the channel bandwidth, BBC Radio Devon is being transmitted at a derisory 23kbps! Even though DRM uses the very efficient AAC+ audio codec, bit rate levels this low inevitably lead to very poor audio quality, and listening to a recording of the trial transmission bears this out – it sounds even worse than DAB!

The simple fact here is that 23kbps AAC+ should never be used for stereo radio stations, and especially not by the BBC, which is – or used to be – the broadcaster that set quality standards. Proponents of DRM would say that it is better than AM radio, but AM broadcasts began in the 1920s and this is the 21st century, so any new digital radio system should provide good audio quality or, in my opinion, it shouldn't be used at all. But this is just a trial, so if or when the BBC rolls out DRM to places that cannot receive DAB, let's hope the audio quality will be far better than that of the current trial – a BBC spokesman told me that they were considering their alternatives. Yet the mere fact that the DRM MW trial is taking place suggests that they do see it as a viable option, at least in some respects – why else would they waste so much money in conducting a trial?

Also disappointing is the fact that the BBC could have conducted the trial on the 26MHz band, where 20kHz-wide channels are available. This would have allowed the bit rate to be more than doubled, which would have markedly improved the audio quality. Meanwhile, commercial radio is in fact currently trialling DRM on the 26MHz band, but in laughably typical style they are squeezing two stations into the one channel, so the audio quality will be

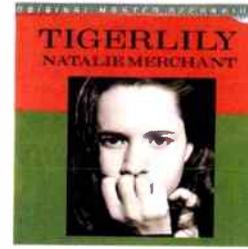
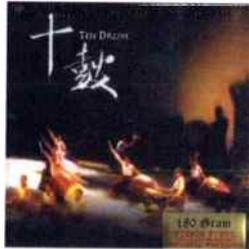
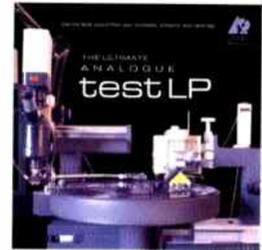
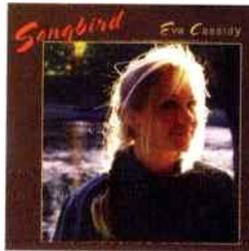
just as bad as that on the BBC trial!

There are also inherent problems with broadcasting at frequencies below 30MHz. The reliability of reception depends on which phase the eleven-year solar cycle is at, and 'sporadic E' propagation can allow radio signals from continental Europe to refract off the ionosphere and interfere with UK transmissions. There's also the problem that channels as narrow as 10 or 20kHz are highly prone to 'flat fading', where the whole signal bandwidth can enter a 'deep fade' and reception is effectively lost for the duration.

I think we should ditch the idea of using frequencies below 30MHz for local or national radio. Instead, the BBC should wait until the new DRM+ system has been completed within the next year or so. DRM+ is an extension of the DRM system that will allow transmissions at frequencies up to 120MHz, thus alleviating the above propagation issues. And the channel bandwidths on DRM+ will typically be 50kHz, which would allow radio stations to use bit rate levels that are over five times higher than the measly 23kbps used for BBC Radio Devon, so this would also solve the problem with the audio quality.

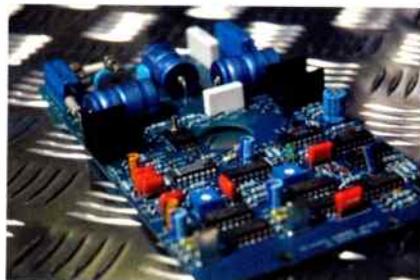
Should the BBC decide to provide their radio stations at decent bit rate levels on DRM+, the result would be a bizarre postcode lottery where the ten percent of people who received the BBC stations via DRM+ would receive far better audio quality than the 90% that receive them via DAB, because DRM+ uses the modern AAC+ audio codec. Wouldn't it have been so much simpler to design a system that was fit-for-purpose in the first place? ●

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WIN DENSEN'S SUPERB NEW BEAT B-410 CD PLAYER IN THIS MONTH'S GREAT GIVEAWAY!

Hi-Fi World gives you the chance to win a fantastic new Densen Beat B-410 CD player in this month's competition. In his July 2007 review, Channa Vithana found it a superb way to listen to silver discs – here's what he said:

"It wouldn't be the first time that a hi-fi manufacturer has claimed better performance for the new model superseding the old. It is a little more original however, for Densen to claim that their new B-410 silver disc spinner comprehensively outperforms the previous B-400 Plus, which was no less than £450 more expensive. Densen says that the reduced price has been reached by using more sophisticated production methods. Indeed, while using the same 'Plus DAC' 24bit DACs as the B-400 Plus, the B-410 now has a much shorter digital signal path. Also for better sound quality, the isolated DAC section is shielded to avoid digital interference on the

analogue stages. Densen have now written all the software to control the transport and the user interface for the optional Gizmo remote. The circuit boards are made from double-sided Teflon while the soldering is applied in a sealed, nitrogen atmosphere to avoid oxidation. Densen's linear power supply for the B-410 has almost doubled with a 90VA rated transformer instead of 2x20VA and four rectifiers capable of storing an accumulated 40,000 micro-Farads versus 25,000. The B-410 uses the company's application of zero feedback (neither global nor local feedback) and a Class A output stage capable of 6 watts.

Here is an exceptionally musical silver disc spinner, with a very clear and free flowing sound. The phrasing of the violin was excellent on the Cho-Liang Lin's 'Sibelius & Nielsen Violin Concertos' disc, where I could follow the instruments effortlessly. The musical structure was wide and deep, with excellent violin timbre. The orchestra had definition and scale,

while demanding crescendos were handled with aplomb. 'Wild Flower' by The Cult showed the B-410's excellent timing; the bass lines and drum track flowed effortlessly while the separation of instruments and vocals was so explicit that I could easily appreciate what the different band members were doing.

'Kiss From A Rose' by Seal was deep and widely revealed, the superb instrumental separation allowing every strand of music to open out the convincing three-dimensional soundstage. Compared to a Naim CDX-2 at over twice the price, the Densen sounded more free-flowing with a wider presentation that allowed better instrumental and vocal tunefulness – an exceptional result. I have always respected Densen products for their understated looks and beguiling sound, and the B-410 continues the theme in earnest, bringing redoubtable performance to the price point. The Densen B-410 is surely one of the very best £1,000 Compact Disc players currently available."

If you'd like a chance to win this superb bit of kit then all you have to do is answer the following four easy questions. Send your entries on a postcard by 31st July 2007 to: **August 2007 Competition, Hi-Fi World magazine, Unit G4, Argo House, The Park Business Centre, Kilburn Park Road, London NW6 5LF.**

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- ONLY ONE ENTRY PER HOUSEHOLD
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QUESTIONS

[1] What is the Densen's optional remote control called?

- [a] Gizmo
- [b] Widget
- [c] Doofer
- [d] Plip

[2] How powerful is the Class A output stage?

- [a] 6 watts
- [b] 60 watts
- [c] 600 watts
- [d] 0.6 watt

[3] Channa described it as "an exceptionally musical" what?

- [a] silver disc spinner
- [b] vacuum cleaner
- [c] washing machine
- [d] roulette wheel

[4] He concludes by saying the Densen is...?

- [a] "surely one of the best £1,000 CD players available"
- [b] "my bag, baby"
- [c] "not bad if you like that sort of thing"
- [d] "one Mars bar short of a picnic"

August Competition
Hi-Fi World Magazine
Unit G4 Argo House
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entries will be accepted on a postcard only

**MAY 2007 ROTEL RB-1092 WINNER:
Richard Pichelski of Enfield London**



HIROMI
Hiromi's Sonicbloom
Telarc

Although she can play straight jazz, and this CD does feature it, it's when Hiromi launches into fusion that the real gal appears and the energy shows amongst the ensemble which features David Fiuczynski on guitars, Tony Grey on bass and Martin Valihora on drums. There are times when you could swear that you were listening to King Crimson, so this CD is recommended to prog rock fans as well as jazz aficionados. As a young one, Hiromi is more sympathetic with technology than some, in fact she not only embraces SACD – this album is available on CD and Hybrid CD/SACD – but actively participates in its creations, as Telarc's chief mastering engineer Michael Bishop explained. "Hiromi actually composes for the surround sound format and takes part in the mixing process. She thinks three-dimensionally about the parts she arranges and realises that things will happen around the room at particular times to

evoke certain emotional responses: everything from the dramatic to the intentionally irritating. Then she can relieve the tension, musically."

Hiromi can be quite specific and detailed in her surround sound requirements. For example, she might ask for this sax to be pushed out of the rear-left speaker at that particular time. "I'll bounce ideas off of her too and maybe try an alternative approach," said Bishop. "Sometimes an artist will convey something to you that makes sense to them but not always to the engineer. So between the two of us, we'll be able to work something out." Hiromi prefers to work live in the studio – there are no overdubs on this album. Hence, it is performed as if you were listening to the group in a club: live!

LOU REED
Berlin: 2007 Tour Edition
Sony/BMG

In 1972 Reed had been enjoying success with 'Transformer', especially the hit single, 'Walk On The Wild Side'. In '73 he decided to expand

what was (and is) his *raison d'être* – unpredictability. With 'Berlin', he shocked his fans by producing a loose concept piece based on the travels of two drug-addled people and their drug-addled romance. No more glam rock of the previous album, this production was depressing, not to mention immensely powerful and acidic...

His compatriots were top notch. Produced by Bob Ezrin, who had done albums by Alice Cooper and would later produce Peter Gabriel and Pink Floyd's 'The Wall', Reed also recorded the album with ex-Cream man Jack Bruce, ex-Traffic chappie Steve Winwood, the multi-talented Aynsley Dunbar and King Crimson's Tony Levin. The album's release received a split response from the media – many saw the release as an adventurous *tour de force*, an artistic statement and the result of a surge of creativity that pushed music boundaries. Others felt betrayed by Reed and struck out in anger at the release.

The album itself has never been performed live – until now. This

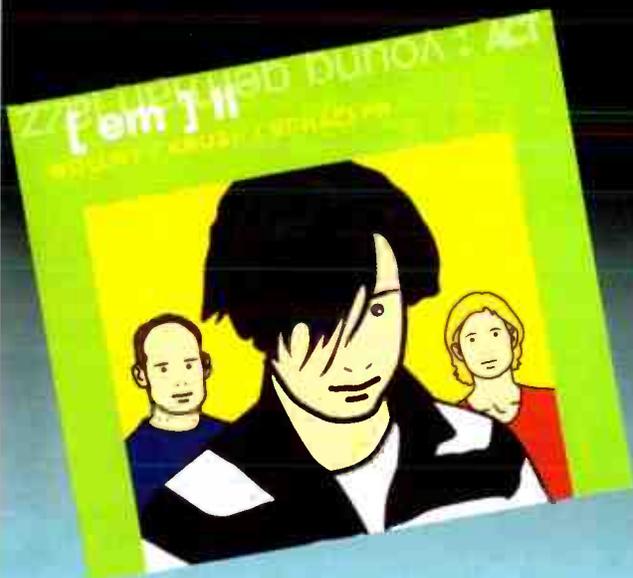
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particular CD is a special release to celebrate Lou Reed's decision to tour Europe and perform the album in full. He's not alone, however, there's a thirty piece ensemble including a string section, horn section, a children's choir and his core rock band. This limited edition digitally remastered edition of 'Berlin' will be sold in a digipack and will also include original artwork and liner notes. It's a unique production and one that all Reed fans should pounce on forthwith.

WOLLNY/KRUSE/SHAEFER
ACT

Scandinavian and German jazz are probably some of the most innovative and exciting forms of the genre to appear in recent times and labels reflecting that output, such as ACT, are doing much to promote that work. ACT label owner, Siegfried Loch, who was the executive producer on this release, declared that, "we make music for people who have the right to get the best music and the best sound." Loch helps to select the right studio for the right artist. For those artists looking to record on old multi-track analogue tape, Loch chooses Atlantis, which features a complete analogue chain. In Oslo's Rainbow studio, the approach is more digital. For example, Wollny, Kruse and Shaefer (who hail from Germany) dislike the vinyl 'warmth' found at Atlantis. "They want to hear the sound as clear as possible without that added tape influence. They feel that what they are creating is better represented on a 100% digital environment."

Superior modern CD mastering helps too, however. Taking an improvisational approach to jazz, the trio display heaps of energy on this album. The largely self-penned works are packed with dynamism which is translated well here, although, the group might disagree. They complained that the process wasn't actually 100% digital because the Rainbow studio still uses analogue microphones! "They don't want any distortion that could be created by the amplification of an analogue microphone," said Loch. "What we see here is a new generation of artists that do not want to hear about analogue recordings."

It's intriguing – refreshing even – to see this passion for digital when that same passion is normally to be found with the vinyl brigade. Will we see crusty old CD collectors, in thirty years time, banging on about digital purity at record fairs to come as vinyl lovers do now?

THE ZOMBIES
Into The Afterlife

After releasing the classic album 'Odessey & Oracle', The Zombies split. While Colin Blunstone retreated to a 'normal' job for a while, Rod Argent and Chris White formed a production company and produced a range of demos. This CD features a range of those demos plus Blunstone's comeback under his *nom-de-plume*, Neil MacArthur. All of Blunstone's work at this time is included on the CD. You'll also find special mixes of Zombies material that showcase the orchestral overdubs that were added for their

aborted RIP project plus a rare vintage live cut. Over half of 'Into The Afterlife's' contents is unissued and indeed ninety percent has never appeared on CD before.

As compilation producer Alec Palao stated, "The [master] tapes came from various sources – the Zombies tapes and Rod Argent/Chris White demos were in the hands of their publisher Marquis Music, the Colin Blunstone/Neil MacArthur masters came from the Universal vault and the producer Mike Hurst's archives. There were no problems obtaining the sources, just obtaining some of the clearances! I have had this compilation on the back burner since putting together the 'Zombie Heaven' box set back in 1997. In fact 'Into The Afterlife' is sort of intended as an accompanying 'fifth disc' to that set. Sometimes a worthwhile project can take a decade or more to come to fruition."

The transfers of the 1/4" masters were done mostly at Sound Mastering in London: some to DAT, as they were done some years ago, others to 24/96 files – all with state of the art D/A converters. A highly recommended purchase for all Zombies fans and fans of top notch 1960s music and, as Palao stated, for those who have already bought the highly recommended box set, this is an essential purchase. PR

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Designing Speakers

Part 9 – WD18BR – A Bass Reflex Project

This month we start our first project, appropriately enough with the most popular enclosure type in hi-fi speakers. Peter Comeau explains.

Last month we discussed ways and means of measuring your loudspeakers with some of the more affordable software tools. I mentioned then that my favourite tool is LspCAD but that this is at the 'high-end' of speaker design software and, therefore, priced accordingly.

Well I am delighted to inform you that Hi-Fi World and World Designs have persuaded IJData, the originators of LspCAD, to produce a 'lite' version of the latest version 6. This is a fully working tool that does

everything the amateur needs and will really speed up your design process – see the LspCAD6 lite box for further details of how to download this innovative program.

So, as we work through our first project, I am going to do it all in LspCAD6 lite, though many of the initial design processes can be run in a similar fashion in other software.

The first thing to do is select our drive units. Obviously you will



want to select those with as smooth a response as possible over the bandwidth you want them to cover, if only to make your crossover work easier to handle. But there are a couple of other characteristics of drive units you need to take into

LSPCAD6 LITE

LspCAD is more, much more, than just a speaker measurement and box calculation program. Within LspCAD6 lite you can start by designing your cabinet and trying out different drive units in it, all in a virtual lab! Then, when you have constructed the real thing, you can measure the output of your drivers, using the MLS function built into LspCAD6 lite, and start on the crossover design.

LspCAD6 lite allows you to construct both active and passive crossover configurations just by dragging and dropping components onto the page. In this way you can construct as simple, or as complex, a crossover as you like and see the results displayed on the output graphs in real time.

If you are unsure what the component values in a crossover should be, don't worry. LspCAD6 lite includes an Optimiser function which can either adjust the crossover slopes to any desired target, or just automatically adjust your crossover values to achieve a flat response.

You can change the component values and characteristics easily just by typing in new values or by using your keyboard arrow keys to move the value up and down, all the time watching the effect on the output graphs.

This really is a boon when you are 'fine tuning' a crossover. For example you can listen to your crossover, change some of the components to make it sound 'better' then immediately adjust those components in LspCAD6 lite to see what effect they have on the output graphs. Once you've measured your drive units there is no need to re-measure the speakers again – LspCAD shows you exactly what is happening automatically.

The output graphs show frequency response, impedance, crossover transfer function, phase, group delay, cone excursion and port air speed, in fact everything you need to know about how your speaker is going to behave as you finalise the design.

LspCAD6 lite is available now from www.world-designs.co.uk. You can try it out as a fully functioning demo for 15 days before purchase. Price is £59 including VAT.



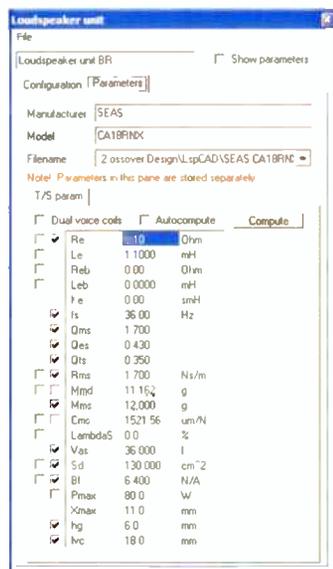
account.

First of all you need to check the suitability for the type of enclosure you want to design. Generally, if the Q_{ts} (driver Total Q) value is lower than 0.5 then the driver may suit a bass reflex, and if Q_{ts} is higher than 0.3 then it may be suitable for Closed Box operation.

Now there is obviously a degree of overlap here, so we can look a bit further into this with a quick calculation. Richard Small (whose work led to the design calculations we now use) suggested a quick rule of thumb for checking whether a bass driver is ideal for bass reflex or closed box. He called this the Efficiency Bandwidth Product (EBP) which is the Driver Resonant Frequency (fs)/Driver Electrical Q (Qes).

Drivers with an EBP > 80 are suitable for bass reflex enclosures, whilst those with an EBP < 60 will suit a Closed Box.

So look up the TS (Thiele-Small) parameters for the drivers you are thinking of using and divide Fs by Qes to see if they are suitable. Let's look at the SEAS H1215 – a nice 18cm (7") driver which has a Q_{ts} of 0.35, so it is not obvious which camp it falls into. But if we divide its Fs of



Entering the driver's TS Parameters into a Loudspeaker Unit file.

36Hz by its Qes of 0.43 we get an EBP of 84 – clearly it is suitable for a bass reflex.

Sometimes things don't work out so well. For example the SEAS H1217 we suggested in our last article has a Q_{ts} of 0.45, again an indeterminate figure. And if we divide its Fs of 40Hz by its Qes of 0.58 we get an EBP of 69, neither one thing nor the other.

So the second check we need

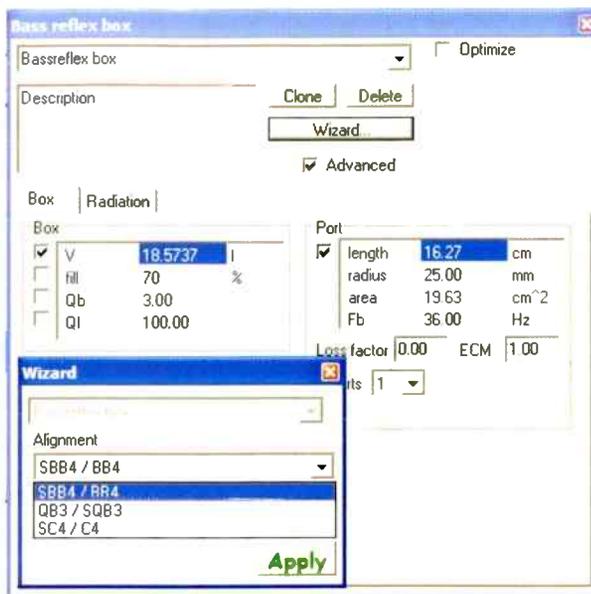
BASS ALIGNMENTS

There are many ways that you can tune a Bass Reflex loudspeaker and there is no such thing as 'perfect' tuning. Each driver and cabinet requires fine tuning to reach its optimum performance, but you can start with some basic, suggested, alignments to begin with.

The alignment that I usually settle on is SBB4 (Super 4th Order Boom Box). This isn't, as its name seems to suggest, a heavy power house but actually delivers a good balance of LF extension and nicely damped performance with accurate transient response. It has a low tuning frequency from a slightly larger enclosure volume with a longish port.

SC4 (4th Order Sub-Chebyshev) requires similar enclosure characteristics as SBB4 but has a tuning which has greater LF power, uses a shorter port, together with a slightly degraded transient performance.

QB3 (Quasi 3rd Order Butterworth) is frequently seen in commercial designs because it often requires a smaller enclosure than SBB4, but note that it has relatively poor transient performance.



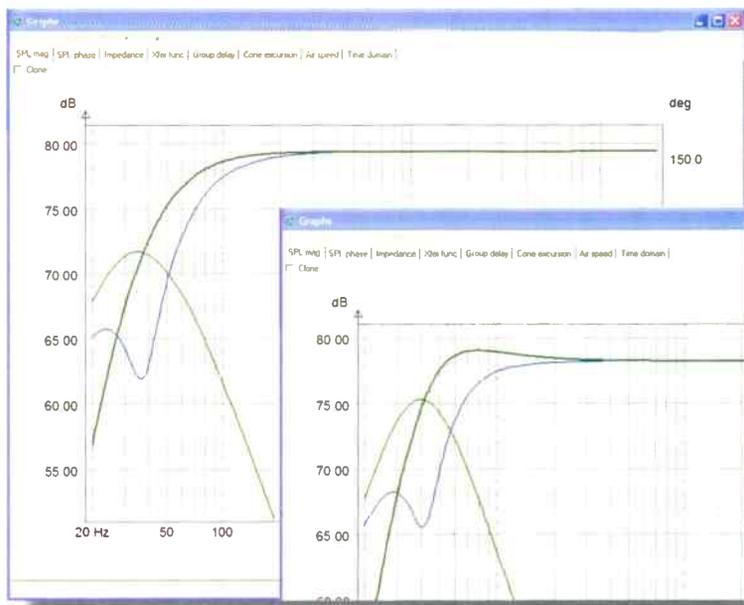
to do is to actually work out how the driver is going to behave in our prototype enclosure. Of course we could actually build several different cabinets and try the drivers out in them, but our software tools can save us a lot of time and woodwork!

Open up your software Enclosure Designer, and here we are going to use LspCAD6 lite, and enter the TS parameters of your driver. Depending on which software you are using you can either enter the details of the enclosure size and port dimensions of the cabinet you want

to use or get the software to suggest it for you.

LspCAD6 lite has a 'Wizard' button that can suggest enclosure sizes for the three, major, bass reflex alignments, SBB4, SC4 and QB3. You can see more info on these in the Alignments box, but I usually choose SBB4 as a good starting point.

With the SEAS H1215 we see a very smooth and well damped alignment in an 18 litre enclosure tuned to 36Hz – the ideal result. Plug in H1217 and we can see that the bass extension is much greater



Comparison graphs of SEAS H1215 & H1217 bass alignments

BAFFLE STEP

I went over the Baffle Step issue earlier in the series but, in case you have forgotten it or just didn't see that article, I'm going to explain it again.

If the driver is placed, say, in a wall then it is effectively radiating into half a sphere. The surface of a sphere is given by $4\pi r^2$ so we call this half sphere radiation 2π for short.

Now when we put the drive unit on a baffle it only radiates into this 2π space as long as the baffle is bigger than the half wavelength of sound radiated - this is a very important aspect of speaker design. Below the frequency where the wavelength is twice the baffle dimension the speaker is effectively radiating into the whole spherical 4π space.

What does this mean in practice? It means that below the frequency where the wavelength is twice the baffle dimension the output of your drive unit will effectively drop by 6dB. We call this step in the measured response of the forward radiation the 'baffle step'.

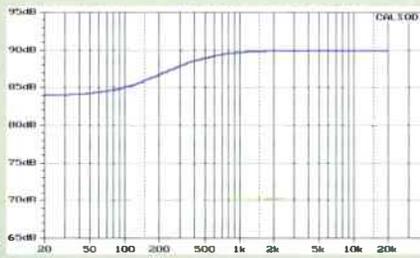
You can easily calculate the baffle step frequency in the equation $f_3 = 17200/W_b$ where W_b is the baffle width.

In our speaker design a narrow baffle width of 20cm will give a baffle step at 850Hz – rather high to compensate for in our crossover and requiring a large value inductor to bring the upper midrange level down.

If we increase the baffle width to 30cm the baffle step goes down to 575Hz, which is a bit more manageable in our crossover.

Of course we've only looked at baffle width as the narrowest dimension. In reality the baffle step is smoothed by the larger dimension of the height of the baffle. For example a baffle height of 50cm gives the lower edge of the baffle step at 345Hz, so the driver on a baffle of 30cm x 50cm will show a smooth transition from a gradual drop in output at 575Hz to a -6dB point around 345Hz.

Where there is a big disparity in baffle width and height, for example in a tall, narrow floorstander, I have noticed that width tends to dominate in the baffle step effect, so don't think you can get around the width problem that way!



but has a hump in it in the 60 – 90Hz range. Now this would be ideal if you want a speaker with an 'impressive' bass for its size, but I suspect it is not going to have as articulate or accurate a bass performance as the smoother H1215.

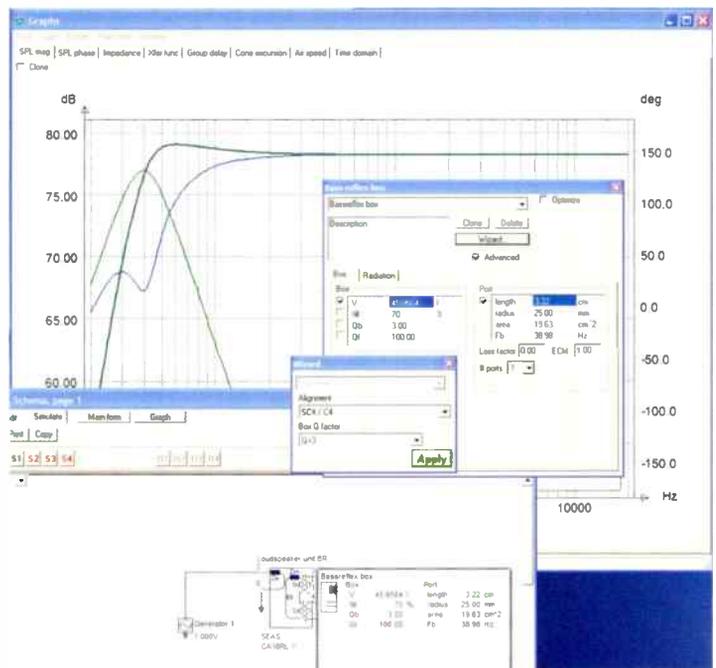
But, in the end, the choice is yours. At least LspCAD6 lite allows you to make an informed decision between maximum extension and power and smooth, natural sounding bass.

BAFFLE SIZE

Having chosen our drive unit we can now see the optimum enclosure internal volume for the bass driver. This does not have to be adhered to absolutely. In practice, because of your ability to change the internal filling and so on you can increase the volume by 20% without affecting the tuning too much. It is not recommended to go much smaller, however, as we will almost certainly want to fit internal bracing, damping pads and crossover, all of which will take up some of the much-needed internal space.

So, with the predicted 18,5 litres

given by LspCAD, I would aim for a true internal enclosure volume of 20 litres to allow for the volume taken up by braces and the rear of the drive unit itself. Now you can start to think about the baffle size.



SEAS H1217 in a SC4 Bass Alignment.

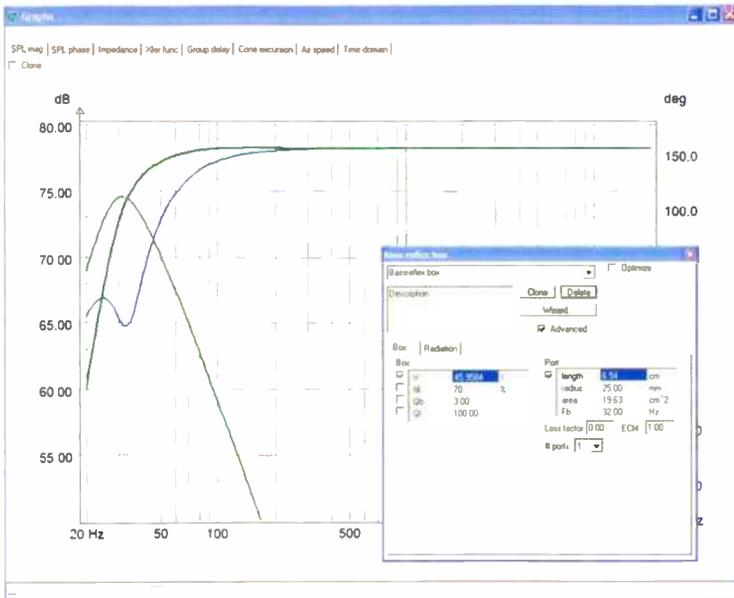
As this is an 18cm unit and the cabinet volume is relatively low it is tempting to go for the current fashion of as narrow a width as possible. But please bear in mind that, by slavishly following this fashion, you will raise the frequency of the baffle step, making crossover design that bit more difficult, and almost certainly lower the sensitivity of the speaker.

Of course, you are the designer, and are free to accept these limitations if you wish. But me? I'm going for the wider baffle look as I know it is going to make my crossover design easier and maximise the sensitivity of the driver as well as provide good coupling with the room back wall (which is something I like to do to enhance speaker-room integration).

Now a nice box size that I have worked with in the past is 265W x 470H x 235D mm. I like the aspect ratio and it gives me an internal volume (without braces) of 20 litres. How did I calculate that? Subtract twice the enclosure wood thickness from each external dimension and then multiply together. So, assuming a wood thickness of 18mm, the internal dims are 229 x 434 x 199 = 19777814/ 1000000 = 19.78 litres (1 litre= 1000000mm3)..

FLOORSTANDER

This size of cabinet will also raise the treble unit to seated ear level when placed on some standard height stands. But what if you want a floorstander? One simple answer is just to build the enclosure as the top half of a floorstanding cabinet. You could use the bottom half to hold the crossover and, perhaps, some dry sand (in a sealed polythene bag) to



Detuning the SC4 Bass Alignment.

provide stability and cabinet damping.

But you might also like to consider an alternative driver, the H1217. Load the TS parameters into LspCAD6 lite and we will start playing with the options.

Now click on the Wizard button and choose an SC4 alignment. This gives us an internal volume of 46 litres and a significant amount of bass power. To my mind it looks a bit peaky in the lower bass. By the time we have added in room gain (as the frequency gets lower so the contribution to the overall sound from reflections from walls, floor and ceiling increases) the bass could well be overpowering.

But we don't have to stick with what the Wizard tells us. It is only a recommendation based on the 'classic' alignments and you can fine tune the system any way you want.

So let's do that in our simulation. The classic way to 'detune' a reflex box is to lower the box tuning frequency F_b . So double-click in the F_b box and use your down arrow on your keyboard to lower the frequency. You'll see how the

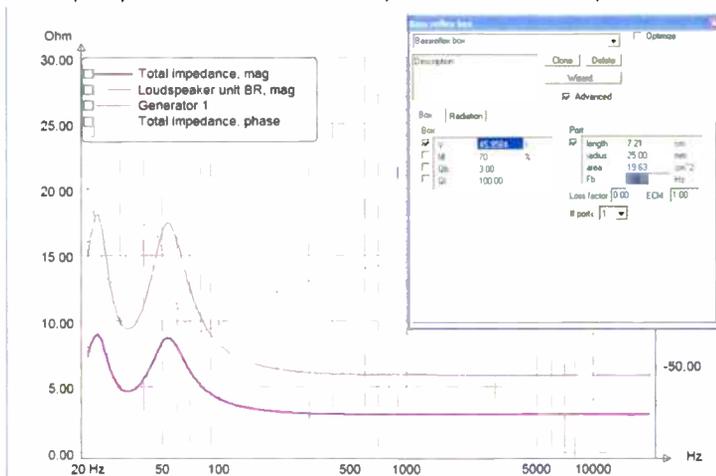
response changes in the graph as you do it. See how it smooths out as you get down to 32Hz?

Obviously we can play around to our heart's content, but how do you know when you've got it right? Short of listening to it (and we haven't constructed our cabinet yet) you can get a fairly good idea of the right 'tuning spot' by looking at the impedance graph.

Click on the impedance tab and you'll see the typical double humped graph for a reflex box. What you are looking at is the impedance of the drive unit only.

At the box tuning frequency the port will be doing all the work and the driver will hardly be moving at all, so the driver impedance will fall to a minimum at this point.

If you look closely at the graph you will see that the dip between

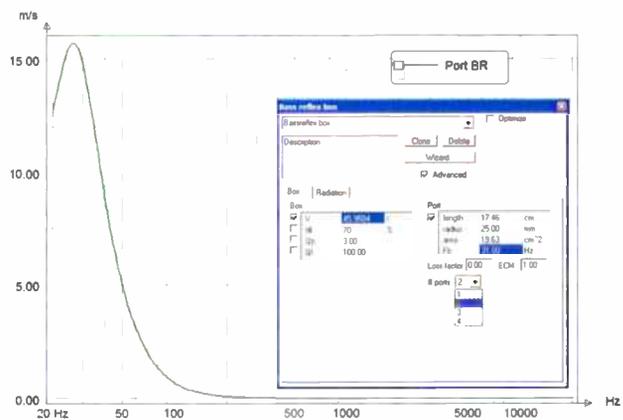


Impedance of SEAS H1217 in optimum Bass Alignment.

the two peaks is exactly at the box tuning frequency F_b . What we can do is make sure that the height of the peaks either side are equal (all this really means is that the box tuning frequency exactly subdivides the impedance peak of the drive unit) which usually indicates the optimum transition between drive unit and port.

You should find that the height of the peaks are roughly equal when $F_b = 31\text{Hz}$. You can get a clearer picture by expanding the graph. Click on Settings in the main window and alter the Display range to 10Hz and 1000Hz.

Now we can work on the port size. I usually work with 50mm diameter ports, but you can use whatever you have available (plastic water pipe from a DIY merchant will allow you to easily cut different lengths of port for experimentation when tuning the final system). LspCAD asks for the radius of the port, so I'll put in 25mm here. (You will need to change F_b back to 31Hz after you've done that).



Air Speed graph with 50W input and twin ports.

This gives me a port length of 70mm – quite short. I can afford to go longer than that if necessary so let's have a look at the air flow in the port. Click on the Generator symbol in the layout window and set to 20V (equivalent to 50W/8 Ohms). Click on the Air Speed graph tab and you'll see it peaks at 30m/sec. This basically gives you an idea of 'chuffing' or air turbulence in the port which can add to bass distortion. This is beyond the limit of introducing audible non-linearity so I would feel safer bringing the air velocity down.

So we can either increase the port size or double the number of ports. I'll keep with the port size I have, so I click on the # Ports to enter 2, set F_b to 31Hz again and, bingo, the air velocity has reduced to 15m/s.

See how easy it is to play

"this system is something of a musical genius"

– What Hi-Fi? Sound and Vision

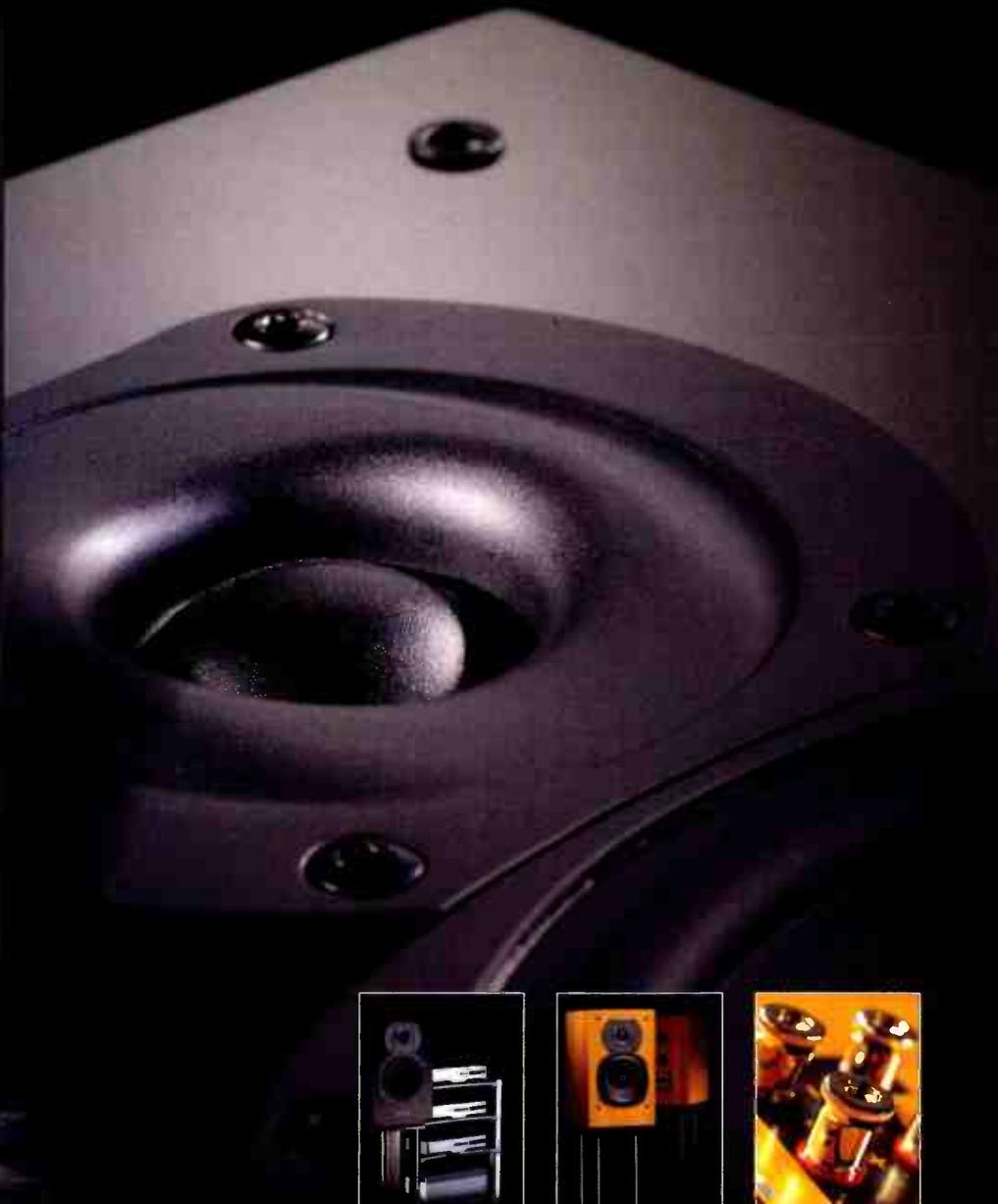
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January 2007

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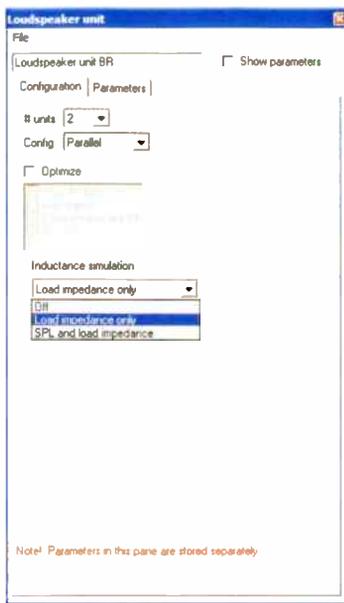
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Configuring twin bass drivers in LspCAD6 lite.

around in this 'virtual' speaker design laboratory? So while we're having fun why not try another method of creating a floorstander?

TWIN DRIVERS

One of the nice aspects of floorstanders is that they give you the opportunity to use more than one bass unit. Providing that your amplifier can drive a 4 Ohm load, and most can, you can increase your speaker sensitivity as well as use the increased internal volume of a floorstander to its maximum potential.

Let us load up the H1215 again from the saved driver files. Before going any further click on the Configuration tab in the Loudspeaker Unit window. Enter # units as 2 and Config as Parallel. If you want to double check the impedance go to the Impedance Tab on the graph and

hold the cursor over the minimum point between the two peaks. You can see in the bottom left corner a readout of the frequency, impedance and electrical phase. Don't worry about the minimum impedance higher up in the frequency range as, by the time you've added a few crossover components, the impedance here will rise considerably.

In fact you might not be viewing the true impedance unless you have included the inductance of the voice coil you entered in the Loudspeaker Unit Parameters. So go to that window, click on Configuration and then select Inductance Simulation – SPL and Load Impedance.

Back in the Bass Reflex Box window we click on Wizard and, for an SBB4 alignment, the required enclosure volume is 37 litres. The

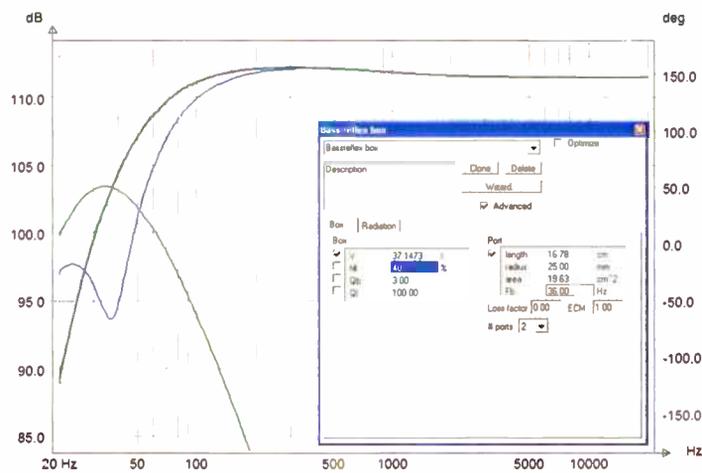
can see its effect on the response and impedance.

COMPARISONS

Can't decide which to run with – one drive unit or two? Let's make it easy to compare them, shall we? I'll show you a neat trick that LspCAD6 lite has up its sleeve to give you instant comparison of any design exercise.

On the Schema window you'll see some buttons 'S1, S2, S3 and S4'. These buttons commit your design to memory. Click on S1, (you can give it a name so you know what it is, say TwinLF). Then change the Loudspeaker Unit back to the H1217 by loading it from the saved driver files, change the Configuration back to 1, and run the Wizard again. Then click the S2 button.

Now you can do a direct



Bass performance of twin SEAS H1215 in a floorstander.

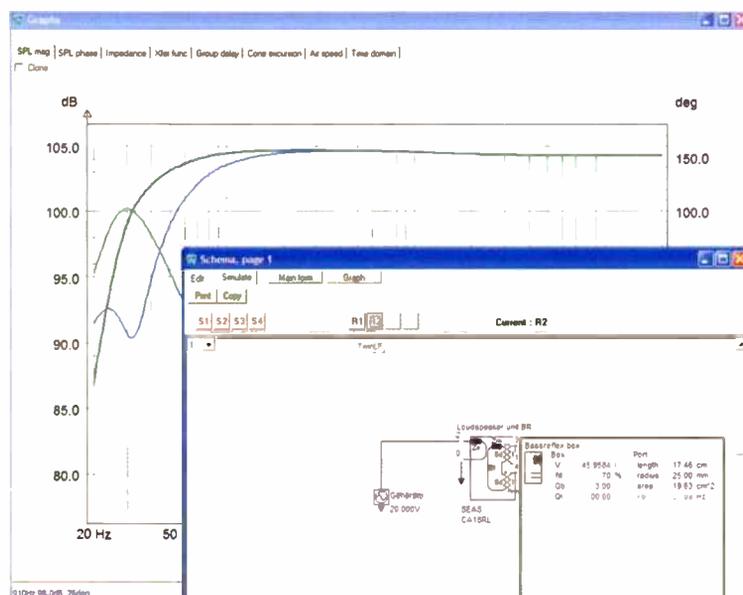
response is much better damped than with the H1217, in fact it is a bit over damped. So reduce the enclosure filling from 70% to 40%. Of course you can adjust this when you build the real thing, but at least you

comparison between the two designs just by clicking the recall buttons R1 and R2. You can instantly see the changes to any of the graphs you wish to view. Now you can make an informed decision on any design project, loading up to four different variations into memory and comparing any of them with a button click!

Which would be my choice? Well, for a speaker that goes near a rear wall I'd choose the double H1215 as I will get quite a lot of room gain boost to the area below 100Hz which will level out the response nicely. But if I wanted a free standing design then I would use the H1217, especially as that bass lift just before roll-off is going to give me an impressive 'kick' which users of bass reflex speakers seem to like.

But why not decide for yourself? Download the trial version of LspCAD6 lite and run through this design exercise on your own computer, in your own time.

Next month: Measurements and Crossover



Using Save (S1, S2...) and Recall (R1, R2...) to compare designs.

Heavy, Nova

Having been impressed with the company's more modest offerings, David Allcock tries the latest and greatest Acoustic Solid One turntable...

In the realm of turntable design, there are two predominant schools of thought - suspended, generally lighter designs which aim to absorb external vibrations and isolate the critical stylus/vinyl interface, and the high mass school, which rely on mass and damping to isolate the platter from its surroundings. Likewise, when it comes to removing dynamic speed instability, the route is either a high mass platter, or a high torque motor with sophisticated speed control circuitry. Acoustic Solid is a company which unquestionably comes from the high mass school of design in every respect, as the new top of the range £4,000 One shows.

It is unusual for a turntable review start with a warning about handling the deck, but this is one of those cases, as the One arrives in a package weighing a formidable 42kg! As someone who is used to large, heavy high end equipment, this was a shock even for me, with the platter alone weighing over 15kg. Like all Acoustic Solid turntables, it's a solid, non-suspended design. The basic chassis is based on a triangle with three feet, onto which is placed the main chassis which contains the bearing, three support feet and a cantilevered arm board. Underneath the chassis are mounting points for two further arm boards, allowing up to three arms to be installed.

The bearing is a conventional well design, but its manufacture is anything but. It starts with a Teflon thrust plate, on which runs a ceramic ball polished to a mirror finish. The actual bearing well then has an oversized brass sleeve inserted, then the aluminium axle, onto which is mounted the ceramic ball, is inserted, but obviously this is a very loose fit. A hard wearing plastic compound is then poured into this well and allowed to set, so when the axle is removed and polished, you have a bearing well with incredibly tight tolerance, and virtually zero wear as the load is taken by the Teflon/ceramic bearing. Essentially, therefore, the sleeve is custom made for each bearing to ensure absolute

precision, whilst the plastic chosen allows for a certain amount of damping, preventing extraneous noise from the bearing from making its way to the platter, an ingenious arrangement given the moving mass of this platter, which is topped with a simple leather mat.

The sophisticated drive system is in three parts, starting with a switch mode power supply which uses a micro controller to precisely regulate the 24V AC sine wave. It has controls for on/off, speed change and precise speed adjustment, and this is supplied with a cable which allows it to be sited up to three metres away from the turntable motor. Final drive is provided via a massive aluminium motor housing, which contains a German Berger motor, a device generally regarded as being vastly superior in performance to the ubiquitous Philips unit, but at a considerable cost penalty, hence the reason it is rarely seen in turntables. It's a familiar sight in the film industry where their motors are favoured in motion control applications due to their precision and consistency.

The actual drive is applied by a thread, and this was probably the most difficult part of the whole setup, as the thread is so fine as to be a right pain to see and handle, but I still had the whole shebang constructed and levelled in under twenty minutes.

The arm mounting is one of the



best I've seen yet. The pod has a detachable top plate.

released with a single revolution of a grub screw, which comes away, allowing the arm to be mounted safely away from the turntable, and it made fitting my trusty Graham 2.0 Deluxe arm a breeze with its SME mount. Again, I had the arm installed and aligned in under fifteen minutes. Fit and finish of each component is superb, and the chrome is finished to a flawless mirror surface even when it won't

REFERENCE SYSTEM
 Basis Gold Debut turntable
 Graham 2.0 Deluxe arm
 Benz Glider L2 cartridge
 Blue Angel Mantis cartridge
 Aesthetix Rhea phono stage
 Aesthetix Calypso preamp
 Bryston 3B-SST power amp
 ML Vantage loudspeakers
 Hyperion HPS-938 speakers
 Isotek mains conditioners

be seen in the final assembled turntable. Despite its weight it was a joy to assemble and use, but is large however, measuring 250x470x420mm.

SOUND QUALITY

The first word which sprang to mind when I fired up this turntable was 'control'. The Acoustic Solid

One was

of stage as easy to discern as those stage front.

Transients were faster, and dynamic range greater, than I expected from a turntable of this price. This is an incredibly fast deck, leading edges appear on the stage with lightning speed then just as rapidly dissipate. This was ably demonstrated on the underrated Jean Michel Jarre 'Waiting for Cousteau', with the One refusing to confuse, smear or distort any of the instruments used. The percussive elements of this track are often layered three or four

scale. Indeed, you're likely to run out of power and extension on your loudspeakers long before this decks runs out of bottom end clout. Still, there was a good deal of subtlety too, with the One spotlighting the tonal differences between a synthesised bass and actual bass guitar very clearly.

Indeed, the One's midband was very open and transparent. Female vocals such as Betsi Miller's lead on Propaganda's 'Heaven Give me Words' sounded just a shade richer than my reference Basis turntable, with a subtly fuller delivery in her lower registers. On male vocals this slight extra richness gave extra depth and weight to voices, though on recordings such as Peter Gabriel's 'So' - which are both very well recorded and balanced - I found this merely gave his voice a hint of extra weight and authority. The synthesisers and cymbals of 'Your Wildlife' sounded very open and airy, whilst remaining superbly detailed.

CONCLUSION

The Acoustic Solid One will not be for everyone, simply on account of its size and weight. However, if this is not an issue for you - or even an attraction (most likely if your marital status is 'single', admittedly!) - then it is an absolutely essential audition. Thanks to the lack of suspended subchassis (with all the fussy springs, etc.), it is surprisingly easy to set up (weightlifting activities notwithstanding) and once correctly fettled delivers superb performance per pound. Indeed, I would certainly rate this turntable as one of the finest I've heard, as it appears to bring such little personality to the sound. Put simply, if a recording doesn't captivate and engross you on this turntable, then it must be the recording or your ancillaries!

MUSIC USED:
 Jean Michel Jarre, 'Waiting for Cousteau', Polydor
 Laura Branigan, 'Self Control', Atlantic
 Peter Gabriel, 'So', Classic Records
 Propaganda, '1234', Virgin

incredibly precise in its presentation - images were not merely placed on the stage, but locked with absolute precision. Laura Branigan's voice on 'Self Control' was located with an accuracy I've only heard from one other turntable to date - the Basis. The One allowed my loudspeakers to vanish into the soundstage leaving beyond a solid stage, extending sonically just beyond the side walls of the room and out through the back wall. All the while, it maintained not just superb focus beyond the physical limits of the room, but excellent intelligibility and clarity of both voices and instruments, making musicians and backing singers right at the back

deep, yet each existed in

its own space on the

soundstage. At the same time, it served up crushing dynamics which, at times, had me fearing for the safety of my loudspeakers. Some records that I've listened to for seventeen years surprised me with their newly found power and articulation.

The lower registers on this deck were outstanding. In my experience, high mass decks always seem to have excellent low frequency extension, and the One was no different - its lower registers seemed to just keep going down without diminishing in



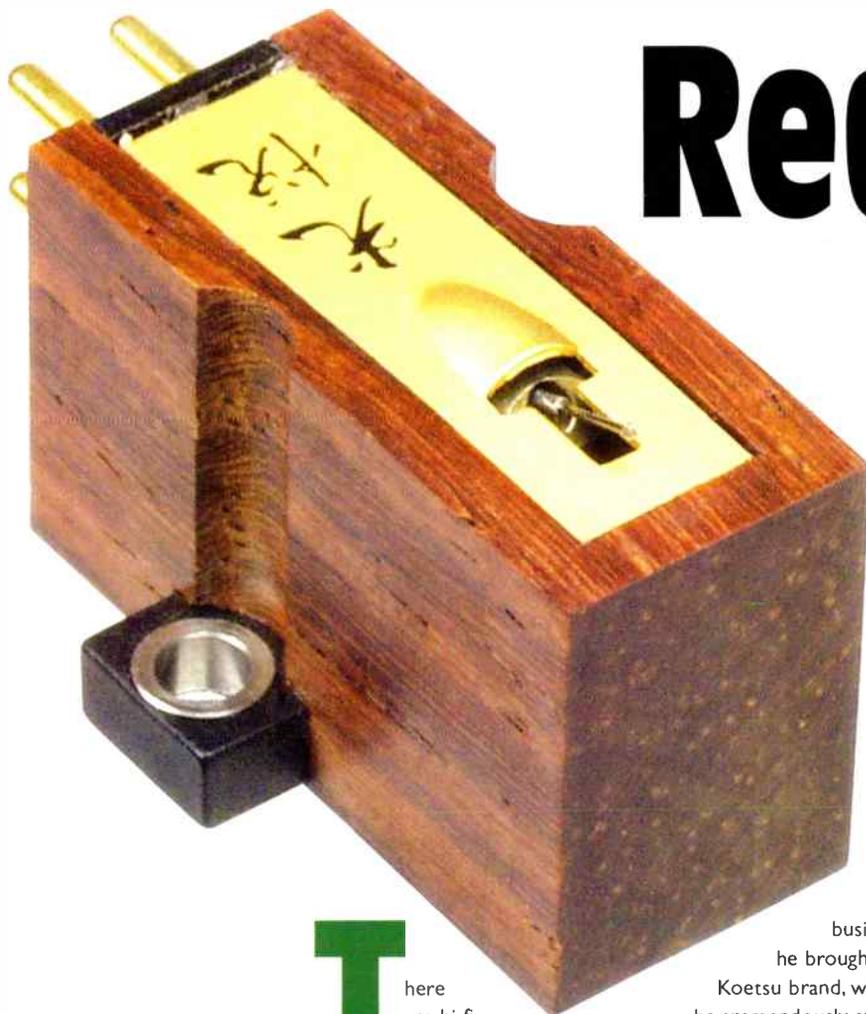
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 - needs strong support!

Red Line



For a select but sizeable number of analogue addicts, there is nothing that compares to a Koetsu – it is the ultimate moving coil pickup cartridge. Three years on from his original review of the Red, David Price auditions the Red K Signature...

There are hi-fi products and hi-fi products. Most come out one year, are replaced the next, and nobody notices. Others – just a few others – make such an impact on the market that they actually become a headache for their manufacturers. First, making so many of them can be a huge logistical challenge, and secondly replacing them is akin to murdering babies as far as the fans of the brand are concerned. Koetsu is one such brand, and the latest Red Signature is surely the marque's most famous design.

Yoshiaki Sugano's unique combination of skills totally defined his Koetsu range of cartridges. He was said to be a musician, artist, calligrapher and even quite handy with swords. The story goes that his life was a study of his hero, the 17th-century Japanese Honami Koetsu. Back in the 1970s, Sugano san brought all his talents to the table with his range of Supex cartridges, which pretty much put moving coils back on the audiophile map at a time when the world was obsessed with high compliance moving magnets such as the Shure V15 IV. It was all the more remarkable that at the time there were few tonearms able to extract the best from them but, arguably because of the likes of the SD900 Super, the replacement to SME's ultra low mass Series III was a

far heavier and more robust affair designed predominantly to track MCs.

Going into business for himself, he brought the world the Koetsu brand, which went on to be tremendously successful, with the Red Signature one of the most distinctive of the line. His cartridges sounded quite simply like no other. I once did a straw poll of senior figures in the hi-fi industry, and well over half (who expressed a love of vinyl) owned this very model. Classic Koetsus (I suppose we have to call them that) became cherished and coveted – few ever appeared on the secondhand market. Then in 2002, the worst happened and Sugano passed away. Through the efforts of his sons however, the products have continued in limited quantities, offering a range of models.

The £2,399 Red Signature comes, like its cheaper Red brother, in a little wooden box without so much as a set of screws bundled. The red 'inkan' (Japanese *kanji* signature) imprinted upon the top surface looks lovely, and it all adds to that mystical ownership experience. Installation isn't difficult – the wooden body is easy to grip and is sensibly designed to make attaching to a headshell a straightforward affair. The lack of documentation makes setting tracking force a rather enigmatic act, but trial and error got me to the point when it sounded happiest at 2.0g, with just a tad less bias.

SOUND QUALITY

First, a quick rewind to my original findings on the Red, in the summer of

2004. I found this a cracking cartridge at the price, noting that it was less romantic sounding than Koetsus of yore, but still more seductive than practically anything modern I'd heard. An interesting counterpoint (if you pardon the pun) was the Ortofon Kontrapunkt c, which at £1,000 was almost half the price of the Koetsu Red. This new Danish design offered more detail, a more spacious and delicate treble and a general feeling of finesse that the Red just didn't have – but despite the 'points win' for the Ortofon, I'd have taken the Koetsu anytime – it was warm, rosy and just lovely in musical terms. The analogy of tube vs. transistor sprang to mind...

The Red Signature, unsurprisingly perhaps, removes at a stroke what I regarded as the 'technical' failings of the Red. It is obviously better in many respects, but loses none of the original Red's character. Here we have what is still a pretty unique sounding moving coil. Having spent the last year with a van den Hul Frog (again a bit cheaper than the KRS), I have enjoyed its light, airy, bouncy and musical sound – but the Red Signature builds on this and adds a lot more too.

Kicking off with a piece of power pop in the shape of Blondie's 'Union City Blues', this new Koetsu dived right in at the deep end, throwing up a wide soundstage inside which there was so much going on. The Signature is obviously more detailed than the Red – whereas the former paints in big and admittedly very deft brushstrokes, the Signature substitutes a finer paint brush and a more varied palette of tonal colours. The basic warm 'orangy-red' tonality is still there (this is a cartridge that

offers the tonal equivalent of striking early autumn mornings, as opposed to grey winter days) but it doesn't just infuse everything with warmth – it does much more than this.

So yes, compared to the already sweet sounding Frog, it is more sumptuous sounding, but the Koetsu's character can't simply be reduced down to a euphonic balance. Rather, it seems to make all the information inside the groove seem like a special musical event, rather than just wiggles in black plastic. It is obviously more refined than the Red, but loses no passion. It is more dynamic, but doesn't sound showy. It has higher resolution, but isn't simply just a more technical performer.

Switching to Herbie Hancock's

"it turned a procession of notes on a musical score into an emotional experience..."

1967 Blue Note outing that is 'The Prisoner', the piano sound was sublime. Big, full and woody, it sounded more like a concert grand than I've ever heard (although it is not), and conversely less like an £200 electronic keyboard than most pickups capable of similar resolution. But again, it wasn't just the tonality, but also the way he played it that made the KRS special. The notes tilted in space, beautifully syncopated with the woodwind, drums and bass. My reference vdH Frog, although doing a manful job, just sounded less emotionally committed to the proceedings.

Another striking point was the image depth, which seemed far more impressive than how I remember the basic Red. The sound seemed less centred around the plane of the speakers, and more able to breathe forward and backward. The Red Signature is still not the world's most expansive sounding moving coil in this respect, and the added stage depth on Randy Crawford's 'You Might Need Somebody' made the whole experience all the more impressive. Once again, within this recorded acoustic, there was a divine sense of musicians playing together as one, rather than as a series of soloists stuck inside a single recording booth. The way the Koetsu let the music

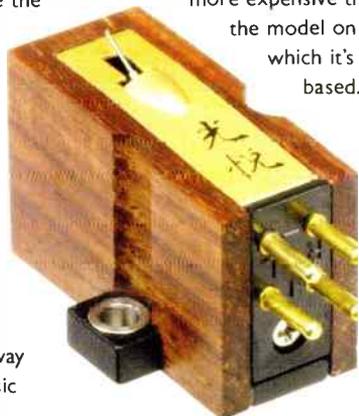
flow with such ease was a joy to hear, and never ceased to be so during the audition period. Such wonderful syncopation will be sadly missed when this goes back!

My well worn but much loved pressing of Beethoven's 'Pastoral Symphony' (DG, Karajan, Dresdner Philharmonic) reached a high watermark with the Koetsu Red Signature. Here we had a chasm-sized recorded acoustic with all the instruments delicately but powerfully rendered in a rousingly emotive way. Cellos had wonderful body (seemingly with more weight than the basic Red), strings were smooth (and obviously smoother than with the Red) but accurately wiry too, and the piece seemed to swell like waves

out at sea, ebbing and flowing in dynamic intensity to great effect (just like the Red). Once again, the Koetsu turned a procession of notes on a musical score into an arresting emotional experience – but this time the listener no longer needed to join the dots to get the information left out. Rather, the Red Signature bristled with detail, and displayed transparency to match anything I've heard at the price.

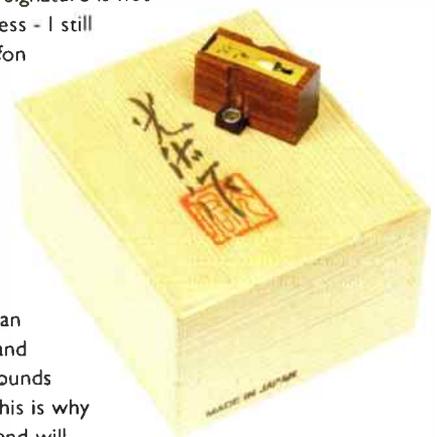
CONCLUSION

Retaining the original Red's speed and attack, maintaining its wonderfully rich and fruity tonal balance, augmenting its already redoubtable musicality and adding several increments of detail, dynamics and finesse as well as improving its tracking stability is no small feat for a cartridge that's not dramatically more expensive than the model on which it's based.



The result is – to use that most misused of terms – an extremely listenable cartridge. Unlike certain other rival designs, with which you sit down and marvel at the forensic detail retrieval or glass-clear transparency, the Koetsu just drops you head-first into the groove (of the music) the second its stylus hits your black plastic. It can do this so much better than the Red because all those little flaws, which you put up with because its whole is so much greater than the sum of the parts, are gone.

The Red K Signature is not absolutely flawless – I still think the Ortofon Kontrapunkt is a more deft tracker, with superior treble detailing – but it hides its few weaknesses so much better than the basic Red, and quite literally sounds like no other. This is why the Koetsu legend will surely live on, long after its creator has gone.



REFERENCE SYSTEM
 Michell GyroDec turntable
 SME Series V tonearm
 van den Hul The Frog MC cartridge
 Note Products PhoNote phonostage
 Linn Linto phonostage
 MF Audio Silver Passive Preamplifier
 World Audio K5881 power amplifier
 Yamaha NS1000M loudspeakers
 Quad ESL-989 loudspeakers

VERDICT ●●●●●
 The charismatic and beguiling Koetsu Red gets extra finesse, power and insight, and the result is magical.

KOETSU RED K SIGNATURE
 £2,399
 Absolute Sounds
 ☎ +44 (0)208 971 3909
 www.absolutesounds.com

MEASURED PERFORMANCE

The Red Signature measures flat across the audio band, like most low impedance moving coils, with a rise in high frequency output on outer grooves. Tracing loss on inner grooves causes this to become a slight fall in output, so overall the Koetsu will give balanced results. Its stylus geometry is a bit more lossy than modern types such as the Geiger profile, but is satisfactory. Tracking performance wasn't quite up with the best from Ortofon or Goldring, for example, but it was good all the same; mistracking should be rare, but some insecurity may occasionally be noticeable with strong vocals. The basic generator works well, producing very little distortion, whilst maintaining wide channel separation. Output was low at 0.35mV at 3.54cms/sec rms (0.5mV at 5cms/sec rms). The Red Signature is a sound design that measures well in all areas. It will give a good account of itself subjectively, NK

Tracking force	2gms
Weight	9gms
Vertical tracking angle	25degrees
Frequency response	20Hz - 16kHz
Channel separation	32dB
Tracking ability (300Hz)	
lateral	63µm
vertical	45µm
lateral (1kHz)	20cms/sec.
Distortion (45µm)	
lateral	0.45%
vertical	2.3%
Output (5cms/sec rms)	0.5mV

FREQUENCY RESPONSE



Red - outer grooves
 White - inner grooves



Tek Talk

Adam Smith waxes lyrical about the wonderful sounding yet affordable Anatek Acoustics' MC1 phono stage...

The choice of high quality phono stages on the market at the moment is rapidly increasing - wonderful news for us vinyl addicts.

Over the past six months or so we've seen the World Designs WDPHono3, Clearaudio Symphono, Lehmann Black Cube Decade, Note Products Phonote and Trichord Diablo, and the highly impressive (and huge!) Aesthetix Rhea at £3,500. Interestingly, however, as far as both Noel and I are concerned, the one to beat is the £1,100 Eastern Electric MiniMax.

Now it may very well be a coincidence, but this is a valve-based unit, something which we have all come to appreciate recently really works wonders in terms of the good old 'Liquorice Pizza'. There are good and not quite so good examples of both valve and solid-state technologies out there in the marketplace, giving different presentations to each other. Each technology has its own strengths, which appeal to different ears. To my own particular pair of lugholes I generally find that the transistor designs have more pizzazz and verve, but can have a tendency to lose out slightly in terms of emotion and the ultimate ability to really immerse you

in the music.

Now and then, however, a new design comes up which aims to combine the best of both worlds and the boys from Anatek Acoustics in Worthing are now finally ready to step up and be counted, with the launch of their MC1 phono preamplifier.

Anatek are a relative newcomer to the audio scene, being formed in 2001 by Martyn Hook and Clive Read, summing their combined experience of the audio industry and passion for the subject. The result is a UK-based electronics company that has not only brought a new face to the market, but also some innovative technology in the form of a patented Class A circuit topology that apparently permits all the advantages of Class A operation without the usual penalties in terms of inefficiency and waste heat.

The new MC1 is a simple yet effective phono stage for moving coil pickup cartridges. It has a fixed gain of 67dB and cartridge loading is also fixed, at 100 Ohms. This makes it suitable for most MCs, although this may result in larger differences in the volume control position compared to more adjustable stages if your cartridge is particularly high or low output.

The circuit incorporates Anatek's aforementioned Class A, zero feedback design, but is also fully discrete and adds in high quality input transformers which, for those of you who followed Peter Comeau's articles detailing the design of the MC stage of the WDPHono3, will know is arguably the best way of doing things.

The MC1 weighs in at 4kgs, measures 100x250x330mm (HxWxD) and is available in both black and silver.

I auditioned it in our current system of Luxman L-550A amplifier and Spendor S8e loudspeakers along with a Pioneer PLC-590 turntable, SME M2-10 arm and Ortofon Rondo Bronze cartridge. I also managed to sneak off with the SME 10A turntable and Series V arm reviewed on page 10 when editor DP wasn't looking...

SOUND QUALITY

There are those components that you find yourself warming to gradually over a period of time, and those that immediately make you sit up and take note from the first bars of any music you play through them. The MC1 is definitely one of the latter and immediately announces itself as something rather special.

The bass performance of the

MCI, which is positively thunderous, was the first thing that leapt out at me, probably because this is the only area in which the MiniMax is less than superb, as a result of its gently rolled-off low end. The Anatek's lack of a low frequency warp filter does mean that the bass drivers of ported loudspeakers, like our reference Spendor S8es, will have a tendency to be given something of a workout with discs that are not perfectly flat or clean, but the other side of the coin is that the MCI does not lose a single note down at the bottom end.

Spinning Michael Jackson's 'Who Is It?' from the 'Black or White' album, almost blew me off the sofa with the force of the bass notes. The Anatek has a magnificently solid and weighty low end but keeps everything under a firm grip, meaning there is no wallowing, no sluggishness, no boom and no hesitation, just bass that goes down and down, seemingly without stopping.

Moving away from the floorshaking material, the MCI

was given by 'Uranus the Magician' from Holst's 'Planets', which went from a whisper to thunder seemingly without even pausing for breath, making this track a truly spectacular listen. The action seemed to zip around the room as different instruments dropped in and out of the performance and it almost left me breathless trying to keep up with the speed and agility of the MCI.

All in all, no matter what I threw at the Anatek, it turned in a consummately composed, dynamic and, above all, musical performance. It has a startling ability to really show you what is lurking in the grooves.

CONCLUSION

The quality and abilities of a phono stage, or indeed amplifier phono input, can be something that can makes or breaks the enjoyment of vinyl replay, I find. This is the first - and most important - step of turning it all into music. And boy, does this phono stage turn the wiggle of a stylus into music...



that the MiniMax has as a result of its valves, the gains the Anatek offers in terms of soundstaging and atmosphere, along with its superb bass performance, are enough to nudge it ahead of the Eastern Electric for me.

The MCI offers a vivid window right into the heart of vinyl reproduction; a heart that is still beating strongly and will continue to do so as long as products like this keep coming along.

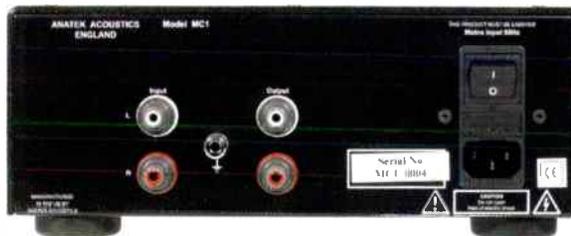
"it offers a vivid window right into the heart of vinyl reproduction..."

proved equally accomplished in other areas. Michael Hedges' acoustic guitar and Michael Manning's fretless bass interplayed stunningly on their instrumental version of 'After the Gold Rush' with every single note perfectly weighted and cleanly held. Both instruments had superb realism and a palpable sense of scale to them - something that can sometimes be lacking in terms of the fretless bass. It really just seemed to be the three of us in a room, far away from anyone else.

Yes, maybe the lack of cartridge load and gain adjustment are negative points but, taken all-in, I feel that the Anatek Acoustics MCI is one of the best phono stages I have heard to date. Whilst it is true that it does lack the very last smidgen of top end sweetness and clarity

The feeling of realism continued courtesy of the Eagles' 'King of Hollywood', from 'The Long Run' album. Here Don Henley and Glenn Frey's vocals were incredibly detailed, seemingly hanging in the air above the loudspeakers, with the backing hi-hat parked right beside me and tapping away steadily and solidly in a way that I have not heard of before. The MCI offers up a capacious soundstage that seems to stretch in all directions around both the loudspeakers and the listener, its clean and composed midrange and sweet treble serving to locate both instruments and singers with almost mathematical precision.

Even further proof of this



MEASURED PERFORMANCE

The Anatek MC1 has a small emphasis at high frequencies with a +0.3dB lift at 20kHz and around -0.2dB below 1kHz, so there's a 0.5dB lift of high frequencies overall, as our analysis shows. However, this apart, the stage reaches down smoothly to 0.3Hz. So there's plenty of low frequency gain, but it is not excessive so there should be none of the wallow that comes from bass lift. There is no warp filter though.

Gain is high at x2528, making the stage best suited to low output moving coil cartridges, as overload occurs at a modest 3.3mV in (8.3V out). Equivalent input noise was very low at 0.07uV, making this stage very quiet.

The Anatek measures well in all areas. It should have a good sense of clarity and even bass. NK

Frequency response	0.3Hz-40kHz
Separation	62dB
Noise (e.i.n. A wtd)	0.07uV
Distortion	0.01%
Gain	x2528
Overload	3.3mV in / 8V out

FREQUENCY RESPONSE

VERDICT ●●●●●
 Absolutely first class phono stage that offers scale, detail and emotion - all underpinned by an authoritative bass.

ANATEK ACOUSTICS MC1 £800
 Anatek Acoustics
 ☎ +44(0)1903 524602
 www.anatekacoustics.co.uk

FOR
 - immense soundstaging
 - superb atmosphere
 - clarity and insight
 - deep, detailed bass

AGAINST
 - no gain or load adjustments

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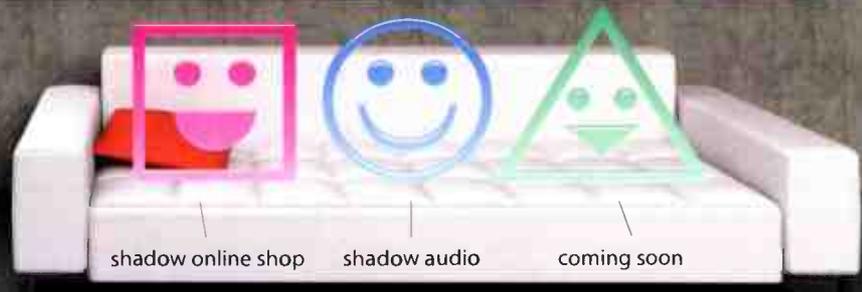
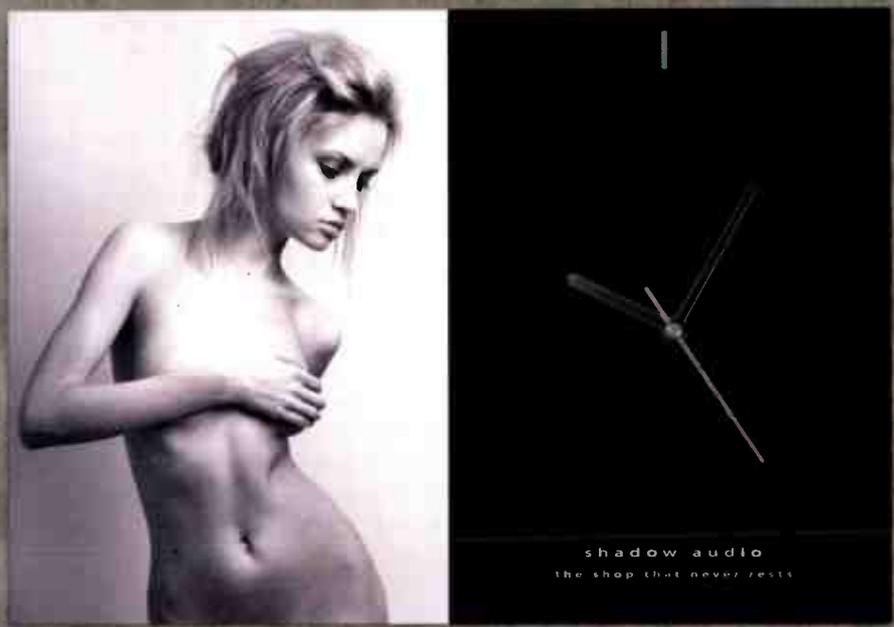
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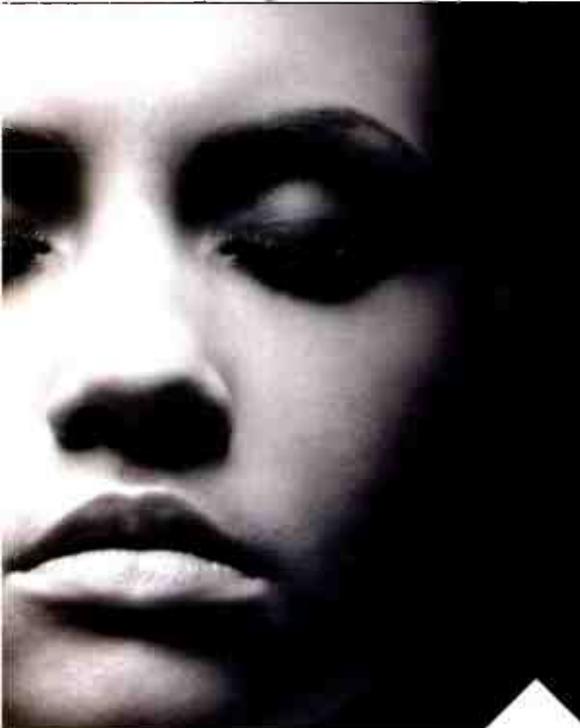
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marantz

(NEW) CD/SACD Player: SA-7S1 £5,000

Are technical accomplishments important in themselves or important for the benefits they bring? Marantz firmly believes the latter and proudly presents the SA-7S1 as a technical tour de force with one goal – to let you hear more musical detail than you thought possible from CDs and SA-CDs. After all, what else is Marantz about?

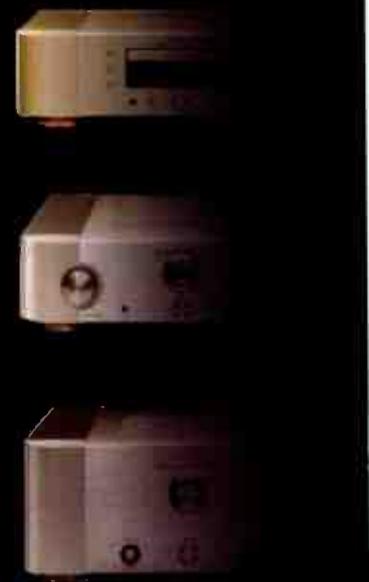
(NEW) Pre-amplifier: SC-7S2 £5,000

The SC-7S2 thoroughly updates the distinctive voice of the original Marantz Model 7 preamplifier and further improves on the acclaimed SC-7S1. This work of art defines new horizons in both musical performance and contemporary elegance. It is an enduring testament to the synergy of today's technologies with frequency response and channel separation far exceeding conventional requirements. The best from Marantz just got better.

(NEW) Monoblock: MA-9S2 £5,000 each

We began with the historic Model 9. We improved that distinctive voice with the MA-9S1. And now we present the MA-9S2 as the latest step in our relentless pursuit of sonic accuracy. It defines new horizons in both musical performance and contemporary elegance.

The MA-9S2 represents over 50 years of expertise in amplifier circuitry, and sincere love of music.



Shadow are one of only two Marantz Legendary dealers currently in the UK!

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The NEW 550K Supercharger boosts a lower-powered amplifier (50W to 200W) to 550W for up to 10dB increase in dynamic range.

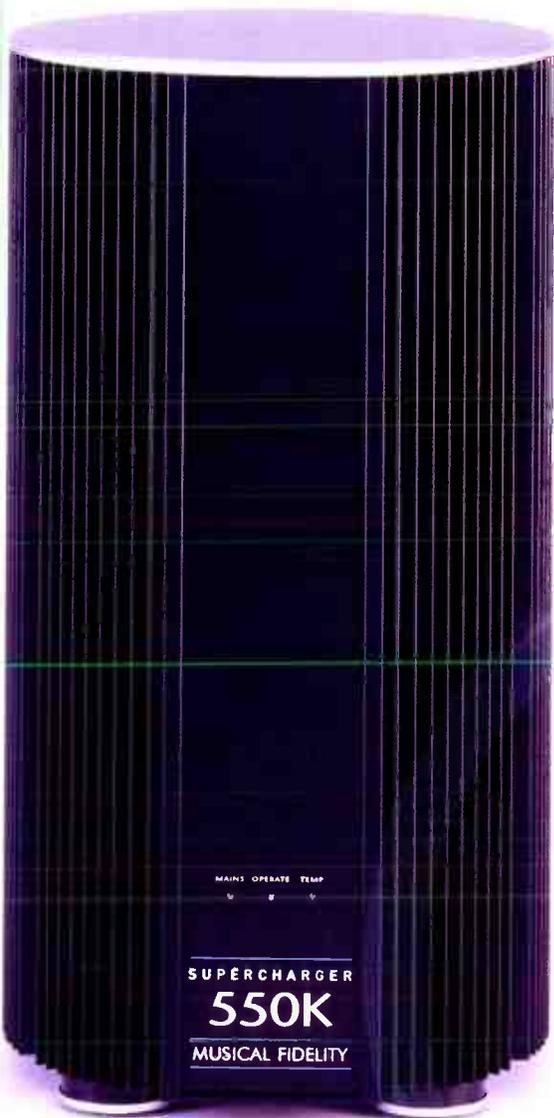
Roughly speaking, most systems are about 10dB deficient in their dynamic range capability. Our magnificent new product, the 550K Supercharger, increases the dynamic range of most systems by about 10dB or more.

The 550K Supercharger uses the kW550 power amp circuit in a low gain configuration. The 550K Supercharger is connected to the system just before the loudspeakers. All you have to do is disconnect the existing loudspeaker cable from the loudspeaker. Connect that cable to the Supercharger's input. Connect the Supercharger's output to the loudspeaker and connect the Supercharger to the mains. Switch on and that's it.

When you use the Supercharger you get three major improvements. First, the dynamic range is dramatically increased because of the 550K's high power (550W/27dBW) second, there is a huge qualitative improvement because the existing amplifier is able to perform almost perfectly, and lastly the power and subtlety of the kW550 circuitry.

The results of using the Supercharger are astonishing. It turns even a modest integrated amplifier into a state-of-the-art amplification system.

At £1,499 per monoblock the Supercharger offers stupendous value for money in that it really does deliver a substantial upgrade.



A1008 CD Player

Stunning new top-loader from MF...



We have very few details about the new A1008 CD Player, but we knew you would appreciate a picture.

What grabs the attention the most is the new top loading mechanism that A1008 employs. A hint of something truly special? You bet!!! Call for more details and availability.

A1008 Amplifier

Stunning new Integrated Amplifier from MF...



A1008 is the brand new amplifier from Musical Fidelity. Battleship build, advanced circuitry, built-in DAC and separate external power supply deliver a truly breathtaking performance.

Interesting! Did you know that MF amplifiers work wonderfully with electrostatics?

World Radio History

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- John P

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Used Product Listing

Remember !! List is updated on Our web site daily!

DIGITAL

Micromega Aria, black, ex HiFi Choice review model (£2150) £1395
 AudioNet Art V2, silver / blue finish, immaculate cond, boxed, remote (£2400) £1595
 Gamut CD-1, mint condition, only 18 months old!, fully boxed (£2995) £1995
 Micromega CD132, ex-dem, black finish, as new condition! (£849) £595
 Primare CD21, mint, black, boxed, Great entry level system! (£800) £595
 Audio Research CD3 MK1, excellent condition, black faceplate (£5000) £2295
 Musical Fidelity DM25 DAC + Transport, only 1 month old (£4000) £3395
 Musical Fidelity KW 250S, All-in-one CD, DAB Tuner, Amplifier, mint (£4999) £3795
 Shanling CDT300 Omega Drive, ex-dem, immaculate cond (£4000) £2249
 AVI Lab Series CD, current spec, boxed, unmarked, only 4 months old! (£1499) £1195
 Resolution Audio Opus 21, 2 box cd player, boxed, black/silver (£2950) £2295
 Marantz SA-1151, mint, 2mths old, silver finish, boxed (£1995) £1395
 Marantz SA15-S1, silver finish, unmarked condition, high end SACD! (£1100) £795
 Unison Research Unico CD, only 3 months old!, mint (£1250) £895
 Theta Chroma DAC, box, manual, immaculate, 5 yrs old £250

AMPLIFIERS

Mark Levinson 380 Pre, mint, fully boxed with manual, 3 years old (£6500) £2695
 Cairn 4810 Integrated, silver, immaculate cond, just over a year old (£2700) £1795
 Bryston 4B-SST Power Amp, 2 months old!, like new, 300wpc (£2750) £2249
 EAR Yoshino 834T Hybrid Int, mint, boxed, 8 months old! Bargain! (£2800) £1995
 Qimpu A1.0x, ex What HiFi review model, boxed in immac cond (£300) £230
 Qimpu A-8000 MK II, ex HiFi World review model, boxed as new (£1295) £795
 Musical Fidelity A5 Int, 250wpc, 6 months old, boxed, as new (£1499) £995
 Musical Fidelity A5 Pre, mint, only a few months old, fully boxed (£1499) £995
 Bryston B-100 SST Int amp + DAC, unmarked condition, boxed (£3750) £2995
 McIntosh C220 Pre, only 2 months old!, boxed, mint. Simply stunning! (£3300) £2795
 Jadis DA30 valve integrated, mint, 2yrs old, fully boxed, 30wpc (£4000) £1995
 Bel Canto Evo 2i Integrated, boxed, mint cond (£2800) £1595
 Musical Fidelity KW550 Integrated, only a few months old!, mint (£5000) £3995
 AVI Lab Series integrated, immac cond, only a few months old! (£1599) £1095
 AVI Lab Series Power Amp, immac, less than 1yr old, boxed (£1650) £995
 Pathos Logos, brand new sealed box, canc order, great opportunity (£2700) £2295
 Audio Research LS15 Pre Amp, imma, fully boxed, stunning value! (£3500) £995
 Eastern Electric M520 Int, What Hi-Fi 5 star review, 4 months old (£1539) £1095
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 Manley Labs Neo Classic 300B Monoblocks, 25wpc, mint! Sensational! (£5895) £3495
 Nagra PSA Power Amp, very rare, only 6 months old!, immac, stunning! £3395
 Musical Fidelity NuVista Pre-Power, immac, consec serial numbers! (£4500) £2495
 Moon P3 Pre, immac, black with silver legs, one owner from new (£2500) £1495
 Flying Mole PA-S1 Digital Pre, immac, only 6 months old!, fully boxed! (£999) £795
 Bel Canto S300i Integrated, mint condition, only 2 months old (£1799) £1495
 Audionet SAM V2 Integrated, mint, silver with blue display (£2400) £1405
 Shanling STP-80 Int, 18 months old, few slight marks, fully boxed (£1350) £795
 ATC SIA2-150 Integrated, immac, one owner from new, fully boxed! (£2500) £1099
 DK Design VS-1 Reference, only 6 months old, immac (£2500) £1995
 Moon W3 Power Amp, mint, black with silver legs, fully boxed (£3500) £2495
 Pass Labs X1 Pre Amp, mint, less than 1yr old!, sep power supply (£4700) £2995
 Musical Fidelity X150 Integrated, mint, boxed, Bargain £395
 Musical Fidelity KW Pre-amplifier, 18 months old, mint (£2995) £1895
 Musical Fidelity KW750 Power amplifier, only 4 months old, mint (£5995) £4995
 Exposure 3010 Integrated, box, manual, remote, immac, 2 yrs old £595
 McIntosh MCD201, mint, 6 months old £2795

LOUDSPEAKERS

Hyperion 938, gloss black finish, immac cond, very low hours (£3750) £2895
 Acoustic Energy AE1 Classic, ex-display, never been played, fully boxed (£845) £650
 Wilson Benesch Arc, silver stands and side cheeks, immac cond (£2600) £1795
 Wilson Benesch Discovery, mint, silver stands, silver side cheeks (£5700) £3995
 JM Lab Diva Utopia BE, exc cond, boxed, tweeter covers and spikes (£7500) £3995
 PMC FB1+, cherry, boxed, immac cond, few months old! (£1695) £1295
 Soundlab Millennium M3 Electrostatics, black with black cloth, exc (£8995) £2795
 PMC OB1, in oak, boxed as new, 6 months old, simply stunning! (£2700) £1995
 JAS Orior, birds eye maple finish, mint, 10 months old!, fully boxed (£2300) £1495
 JAS Audio Orsa, ex HiFi Plus review model, poplar, tumor (£1399) £1149
 Zingali Overture 3S, cherry, exc cond, orig packaging, 1 year old (£4250) £2250
 B&W PV1 Subwoofer, mint, only 2 months old!, fully boxed (£995) £795
 Monitor Audio RS6, black finish, immac, fully boxed, superb value! (£600) £449
 Spendor S6E, cherry finish, only 4 months old!, immac, fully boxed (£1545) £1195
 ATC SCM10A-2 Active's, 2 months old, mint, all original packaging (£1995) £1649
 ATC SCM20SL, rosewood finish, very low hours, superb condition (£2400) £1395
 ProAc Studio 140, mahogany finish, brand new - never used but box opened, recent 5 stars What Hi-Fi, evenly balanced sound with high quality finish! £1195
 JAS Audio Supertweeters, Review pair, sound awesome!! (£649) £495
 Monitor Audio GR10s, Cherry, mint (£800) £595
 Dali On Wall speakers, box, manual, immaculate, 1 yr old £295

ANALOGUE

SME 20/2A, immac, inc factory silver tonearm wire upgrade!, less than a year old (£6300) £4495
 Trichord Dino PhonoStage, black, excellent condition, 1yr old (£325) £225
 Trichord Dino+ PSU, silver, excellent condition, 1yr old, boxed (£249) £175
 Clearaudio Emotion, immaculate condition, only a few months old! (£690) £575
 Wilson Benesch Full Circle, boxed as new, exc cond. Inc Ply Cartridge (£2100) £1495
 Musical Fidelity Kw Phono, immac, fully boxed, ex Hi-Fi News review model, yes, the price is correct!, not to be missed!! (£2400) £1250
 PJ Scout inc JMW-9 tonearm, immaculate condition, boxed (£1650) £1195
 Graham Slee Elevator MC Step Up Transformer with PSU1, mint £295

MISC

Nordost Blue Heaven Speaker Cable, ex-dem, 4m pair, bi-wire (£489) £349
 Isotek GII Minisub, silver front, current spec, immac cond (£545) £395
 Isotek Nova, only 5 months old!, immac, fully boxed, great opportunity (£1700) £1295
 Black Rhodium Polar Crusader DCT, 1.5m mains cable, as new! (£375) £249
 Black Rhodium Requiem 2 DCT, 1m RCA Interconnect, as new (£1750) £995
 Hovland Reference Speaker Cable, exdem, 8ft pair, single wired (£1200) £795
 Townsend Supertweeters, titanium finish, boxed as new, exd (£800) £649
 Nordost Thor, ex-dem, immaculate condition, boxed, Valhalla wired (£1600) £1195
 Isotek Titan mains conditioner, few months old, boxed (£1500) £1095
 Nordost Valhalla Speaker Cable, 3m per side, bi-wire with z-plugs (£5700) £3995

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Clearly, you can upgrade to the next version at a later date if you wish.

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Whatever version you choose the Emotion loudspeakers has a way of communicating music that is rare at any price.

"The Emotion Signatures emerged triumphantly, not only in the most difficult material and challenging material make sense and communicate."

Paul Messenger, Hi-Fi+ Issue 51, ART Emotion Signature



Mini Monitor

ATC's new range has something for everyone...

New Speaker series from ATC.

We love the new look. A new soft dome tweeter is used and it all change on the inside as well.

Stylish monitor loudspeakers with a genuine sound to match! (SOM 7, 11, 19 and 40)

"With heavy-weight construction and fabulous tones, this is a classic, studio-friendly ATC design for the home. If you want to hear the nuts and bolts of favourite discs and are prepared to cope with their shortcomings, its nigh on unbeatable." ATC SOM19 Hi-Fi Choice, October 2006



Valve lifestyle

A wonderful sounding, space saving system...



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Demand is going to be very high for the MC-30, so place your order early!!

Baby Integrated

£899 really can buy you a lot of amplifier...



Its essence is simplicity and attention to detail. The MiniMax is the product of a company that firmly believes in the adage, less is more.

If you are looking for a simple, straight forward path to great sound on a budget, look no further than the MiniMax. No amplifier under £1000 comes close...

Avi Laboratory Series

Products that really get the measure of music....



The Laboratory Series Integrated Amplifier is much larger and heavier than its predecessors; it is built from large chunks of milled aluminium and thick steel sheet to ensure mechanical rigidity and absolute integrity of construction. This Integrated is one of the best integrated amplifiers we have heard!

The Laboratory Series CD player is the result of months of painstaking development and meticulous attention to detail. The artefacts that spoil the sound of CD players are at such low levels, they are incredibly difficult to detect. Only with time and patience can they be found



and eradicated. So often do we see emphasis placed on the technology whilst scant regard is paid to its application; yet this alone explains the difference in sound between competing players? It just shows that you can give half a dozen Cooks the same ingredients and they will all produce a different cake!

The Laboratory Series Pre and Power Amplifier, was designed for those who simply want the best. A no compromise design, delivers a performance that is truly breathtaking at a price that's affordable!

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Letter of the Month

SPARES PART 1

In his June 2007 HFW column extolling the virtues and benefits of DIY, Adam Smith stated that RS would only sell electronic components to business users. This isn't strictly correct, as I recently discovered when assembling a Hypex UCD180 power amplifier for which many parts were sourced from RS. I placed an order by 'phone rather than online and deliveries arrived the following morning – a truly excellent service. Something to bear in mind is that because RS has a minimum delivery charge, components should be ordered in a single batch to avoid excessive transport costs.

The notion of my DIY project was ignited a few months ago when an old friend alerted (and a contributor to another hi-fi magazine) alerted me to Hypex when reviewing a Meridian surround/receiver, which uses the same UCD modules.

As I had never listened to a Class D amplifier, building a DIY prototype seemed an act of faith. Although being adept at DIY this project was to prove quite challenging, particularly when sourcing casework. I originally hoped to find a clapped out amplifier with a suitable DC power supply on eBay or at a car boot sale and then strip out its guts, but eventually realised that would take too much time and effort and have no guarantee of success.

I therefore opted to build my own enclosure based around an 18-gauge polished copper etching plate (sourced from a fine art materials supplier) for the main chassis, which was folded by a local sheet metalworker. Side cheeks are offcuts of solid English oak floorboards, cut and planed to size. Other hardware came from disparate sources: B&Q, useful for small section aluminium framing angles; Orbital Fasteners, who stock a wide range of stainless steel Resistorx button-head security bolts and self-tapping screws; and a local ship's chandlers in Newhaven, where I picked up some heavy duty PTFE-sheathed marine-grade

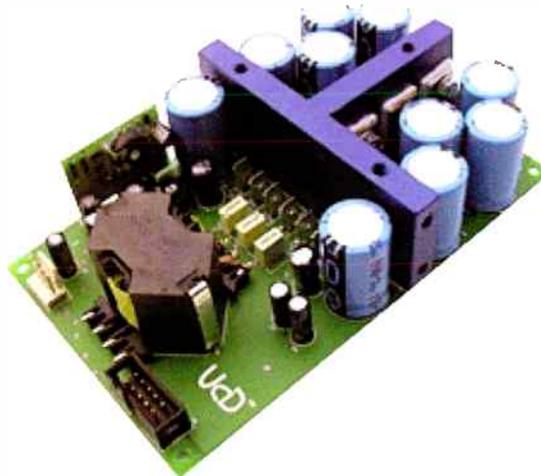
nickel-plated stranded copper cable for internal wiring for 60 pence per metre.

Instead of a transformer-based linear power supply suggested by Hypex, each module is fed by Lambda switch mode power supply, adjusted to optimum output voltages and smoothed by a pair of 10,000uF BHC/Aerovox capacitors. Module heatsinks and power supplies are bolted onto the copper chassis base to ensure good heat transfer and cooling.

Aside from the logistics of sourcing components from diverse sources and trying to synchronise deliveries, the final stage of assembly proved painless and speedy, taking less than two days to complete. I was very grateful to have my electronics whizz kid nephew on hand to oversee the internal wiring and prevent the amplifier from bursting into flames when first switched on. One of the more interesting characteristics of

reflecting David Price's June 2007 review of the Channel Islands Audio D100 class D amplifier, which uses identical modules. Power and dynamics are effortless and able to drive my Harbeth Monitor 20 loudspeakers with no hint of strain or shrillness, even at high volumes. The soundstage is wide and deep and, as DP found out with the CIA Class D, it has an organic, natural and spacious sound. For instance, when listening to solo acoustic piano - in my view the best test of any system - I truly believed that Keith Jarrett's Steinway in 'The Carnegie Hall Concert' was in my room, just behind the speakers.

I have proved beyond doubt that at a total cost of £375, including VAT, an amplifier based on Hypex UCD180 modules is astonishingly good value for money and I can recommend it to other readers who have limited financial resources but aspire to high quality



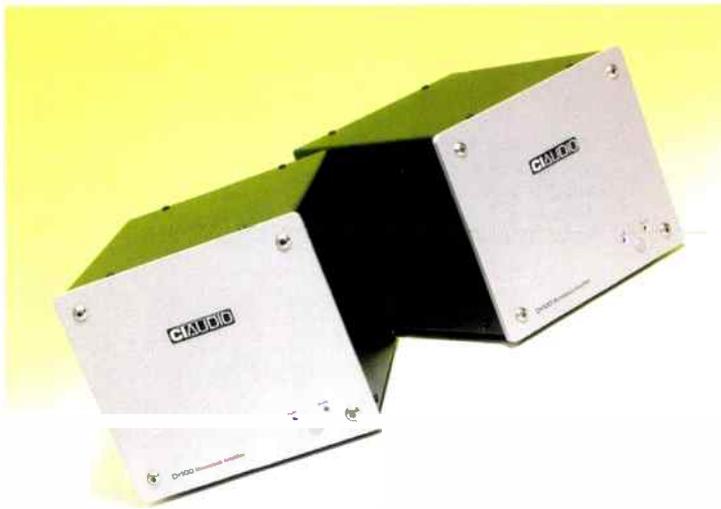
The Hypex UCD700 Class D 'digital' amplifier module: tiny, powerful and efficient. It can be bought from Hypex in 180, 400 and 700 Watt versions, along with power supply and mains transformer.

Hypex modules is that they are over 95% efficient and combined with the two SMPS units draw less than 40 watts – hardly a major contributor to global warming!

Sound quality? In a word staggering,

sound. Now, egged on by my nephew, the next step is to build a second prototype, this time with a smaller SMPS drip-charging much larger (soup-can sized!) capacitors.

Anyone wanting to find out more



Channel Islands D100 power amps., part of a great range of audiophile products from California.

about these tiny miracle modules should check out the Hypex website at www.hypex.nl

David Lewis

Well, they say that everyone makes mistakes, and I am happy to be proven wrong by David. After receiving this news I went onto the RS website, have successfully registered myself, and am currently planning my first order. I had tried this in the past, but previously the site would not allow you to register without your Delivery Point Code (effectively your account number) and, of course, you only have one of these when you have an account, which are still restricted (I think!) to business customers.

As to the Hypex modules, they do indeed look like an ideal base for a DIY amplifier, or even an active loudspeaker project, with much opportunity for power supply and functionality 'fiddling'. If yours sounds even half as good as the Channel Islands Audio D100s then you should have a very fine amplifier indeed. **AS**

The Hypex modules are the most impressive Class D technology amplifiers I have measured, and by quite some margin. Hypex apart, Class D is unrefined at present, which is why Class D amps all sound so different and also why they have their own strong individual character. Trouble is, whilst such character can be aurally arresting, shall we say, generating a lot of "wow it's amazing" on the 'net, it isn't necessarily right or accurate. And what can be amazing in the short term can be wearing in the long term, especially when there is so much high frequency distortion and noise present. So I am slightly sceptical about Class D generally at present.

The Hypex module is an

exception. The technology hails from Philips Laboratories in Eindhoven, which explains a lot. But although the Channel Islands aren't far away from Eindhoven, Channel Islands products do not come from a Philips employee who drank too much Heineken one night, took a wrong turning on the way home and ended up there. They hail from a California company situated on Channel Islands Boulevard, a more prosaic explanation! Their Class D amplifier, based on the Hypex module, is currently alone in matching 'linear' amp distortion levels, not having d.c. on its output terminals and having wide bandwidth without penalties such as high frequency switching noise, etc. It is also load insensitive. Putting it into a copper chassis with oak end-cheeks from floorboards is DIY at its finest - congratulations! I am unsure about using switch mode supplies, but then I have little experience with these things, something I hope to rectify soon. You are likely to have a fine amplifier as the Channel Islands Audio D100s, with quality 'linear' power supplies, sounded as smooth as silk, yet clean and punchy. **NK**

SPARES PART 2

I see in your column in the June edition that you state that RS will only deal with business customers - this was also stated as a fact in a previous edition. Certainly in the past they had a special limited catalogue that you could register for and order from as an amateur. Several years ago they abandoned this system and when I queried what to do I was told to order from the main catalogue.

Since going on to broadband the online catalogue is pretty user friendly and I have registered as a customer with a user name and password and can order items on line and pay by

credit card. When logged in I can get their information sheets. I place an order every couple of months with no problems at all. They are most reliable with deliveries and their stock control system seems pretty reliable.

Mike Hounsell

Hi Mike. When I originally spoke to RS about this, they told me that a commercial account was needed. This raises the issue of credit of course, one that doesn't occur if you pay by card. So I can only presume that RS have subtly changed their policy on this matter. I order parts regularly and can confirm their speed of delivery is outstanding. There is a £20 minimum order ceiling though, below which you incur a £2 handling charge, all of which is very reasonable. RS have some attractive cut price monthly offers too, including tools, clothes, meters and all sorts of other goodies not available on the High Street. Go to www.rswwww.co.uk **NK**



RS Components - still the best port of call for the electronics hobbyist.

ARMED FORCES

I have been an avid reader of your magazine over the last three or so years and really enjoy your coverage of new and not so new equipment. I very much look forward to each month's edition. I have assembled the system below over the last couple of years and would now like some advice on what to do next.

My current system is an all-Cyrus affair (6v amp and 6s CD player). Whilst entry-level components, these have provided me with much enjoyment and are far superior in reproducing music than the lifestyle system I had to endure for many years (due to a bout of the dreaded WAF). Speakers are Sonus Faber Cremona Auditors, these replaced Wharfedale Diamond 9.1s and have shown what the Cyrus pieces are capable of. Interconnects and speaker cable are DNM Reson with Eichmann plugs.

Vinyl is taken care of by a Technics SL1210 Mk2 sitting on Vibrapods, Denon 103R cartridge and Denon AU-300LC step-up transformer. Phono stage is the Project Phono Box and interconnect is Chord Cobra. I have recently added the KAB tonearm damper mod which has improved sound quality and tracking noticeably and would highly recommend this to other Technics owners.

I am now eager to improve the turntable set-up over the next twelve

months and am looking for some advice on this matter. First, the phono stage. I have been looking at a number of different units. Unfortunately, it is very difficult to try before you buy so I need to be sure that any potential purchase is right in my system. The stages I am looking at are Project Tube Box, Dynavector P-75, and the Era Gold V. Is there anything else in this price range you would recommend?

The final model you mention, the Ortofon Rondo Bronze, is in a different class, being a high quality moving coil design, and this will transform things. The only thing I would say here is that you may well be pushing or even starting to exceed the limits of the standard Technics arm with this. The SL1210's arm is not a bad item and I personally do not think it is quite

1042 in the Technics arm – anything else is just pushing it too far, including I suspect the low compliance Denon DL103. I have to stress though, that as a fellow Technics SL1200 owner, and having just done an arm transplant to a Rega RB250 derivative (more of which next month – yes really!) that the SL1200 is a great deck in search of a great arm. If you possibly can, you should be looking at fitting a Michell Tecnoarm a or Origin Live OLI to it, along with the Origin Live mounting plate – this would bring a dramatic improvement right across the board. This done, an Ortofon Rondo Bronze would be a joy. As for phono stages, my preference would be for the Graham Slee Era Gold V for its gentle but beguiling sound. **DP**



Technics SL1210 MkII turntable - fitted with an arm able to get the best from it!

My second step would be to upgrade the cartridge. The 103R certainly improved bass when compared to my previous cartridge (Shure M97XE) and generally provides a more lively sound. However, at times the treble can sound a little harsh to my ears. Cartridges under consideration include the Dynavector DV-10X5 and DV-20X, Goldring 1042 or the Ortofon Rondo Bronze.

My musical tastes are predominantly rock and pop, with a smattering of jazz and acoustic thrown in. Your advice/assistance in this is greatly appreciated.

Savas Mavridis

I would definitely point an accusatory finger at the DL103 as the source of your treble hardness as the dear old thing can be a little challenging in this area. Its measured rise in treble adds atmosphere and detail but it can be a little ragged and, consequently rather tiring after a while.

Of the cartridges you mention, we would always happily give the Goldring 1042 a big thumbs-up, as it is still a wonderfully competent and enjoyable unit despite the fact that it is also a few years old now. Its treble in particular is beautifully sweet and, in some ways, still better than the brand new Goldring 2400 I reviewed last month. Another one to consider if you like a generally lively presentation, would be the Ortofon 2M Blue - this is a real rocker with verve and punch which would still be less harsh than the DL103, although not quite a match for the 1042 or 2400 in smoothness terms.

as 'evil' as many people would have us believe but, that said, it is an old design and is unlikely to extract the very best from the likes of the Rondo Bronze. If you do not have the funds to consider an arm transplant to the likes of a Rega RB300, then I would stick with one of the aforementioned cartridges.

As to the phono stage, a dearer cartridge would indeed benefit from a better stage than your Phono Box, good budget item though it is. To your list I would also add the Lehmann Black Cube (£350) and the Heed Audio Questar (£225). The Heed in particular has a slightly softer top end which, although still nicely detailed, will help to ameliorate any front end-related harshness. **AS**

Hi Savas – Adam's right to say the Technics SL1200's arm is "not a bad item", but I think that's about as far as you can go without being accused of delusions of grandeur. Not to put too fine a point on it, it's a cheap OEM Japanese sourced item that is made in massive volumes to low tolerances, with a cost price that might surprise you (less than a Cornish pasty at a motorway service station, I'd wager!) I'm not having a go at Technics, because the SL1200 motor unit itself is a very nice bit of kit indeed, and puts a lot of our home grown mid-price belt drive designs to shame, but the sad thing is that the deck is capable of oh-so-much more!

Anyway, given that you're sticking with your existing S-shape, I would definitely recommend the Goldring

GETTING THE BALANCE RIGHT

If there is one thing I am learning about as I get older then it is 'life balance'. At thirty two years old I still have plenty to learn, achieve and experience. Now happily married to a great lady and with a wonderful six month old son and a mortgage, we have so far overcome those challenges that life has thrown at us, the most important of all is finding the time, money and space for decent hi-fi!

When single and carefree I could happily spend hours tinkering and spending silly amounts of money on bits of wire, cartridges, tonearms and the like, with no real thought for anything other than my own personal goal of audio perfection (whatever that is). Now times are different, I have my family to think about and our (very close) neighbours - wires just don't seem quite so important now.

I have been through all manner of hi-fi components, from one fancy to the next, but never in my life have I been more happy than with my current slightly odd system. I love all sorts of music on vinyl, from the best of what the 'Now' albums have to offer, to Jazz, Classical, Rock and Blues and I have to say that my current system plays all these records more enjoyably and consistently than ever before.

Sure, you're all waiting to discover my secret, why I don't spend lunchtime trawling eBay, hi-fi shops and classifieds for the next 'I promise myself this is the last' upgrade? Well here it is, you may get disappointed at it not being interesting, expensive and full of cottage industry components, but it works for me.

The line up consists of a Technics SL1210mk2 turntable with a shielded mains cable, KAB silicon fluid arm damper, Goldring 1012GX cartridge, plus a Goldring PA1 phono stage and AudioQuest G-Snake Interconnect.



Klipsch RB-25 speakers are Blu-tacked to Atacama Nexus 7 stands to keep them stable.

Amplification comes courtesy of a Rotel RA-1060 amplifier with Russ Andrews Yellow power cable sat on Polipods, and two 5m runs of Kimber 4PR speaker cable connected to a pair of Klipsch RB-25 speakers Blu-tacked to Atacama Nexus 7 stands.

Now, apart from a couple of mains conditioners dotted about that's pretty much it. It's not the most expensive hi-fi to play in this house or ultimately the most capable, but the music it makes brings us happiness at a price, size and convenience we can cope with. Happy listening!

Rob Stevenson

Wise words, Rob. It does seem that all too often we audiophiles can have a tendency to forget what the whole point of our hobby/obsession is, namely playing music. I have always thought that the source material you are playing is, in many ways, far more important than the reproduction equipment as, if a song has a particular meaning to you, then it will touch you emotionally if it's played through a grotty mini system just as much as through a high-end setup.

I found a similar situation when I first moved into a larger house two years ago and was finally able to liberate my 'collection' from my parents' loft. In a hurry to have some music, I set up the first things I laid my hands on which happened to be a battered NAD 5240 CD player, an old Quantum Electronics IA100 amplifier with a 'scratchy' volume control and a pair of Mordaunt Short MS20i Pearl loudspeakers. Of course it was possible to be picky about their sound quality, but they let me have access to my music after a gap of a couple of months and in that respect, made some of the best noises I have ever heard.

Along a similar line, I had a very interesting conversation recently with Bill Low, CEO and designer of AudioQuest cables, who postulated the theory that music is almost like a drug, and that the act of listening gives us a 'high' that is directly related

to not only the reproduction, but also the music itself and the situation in which we first heard that music. His theory continued by saying that the rigours through which we put ourselves when upgrading effectively represents the search to reclaim that original high with the same intensity in which we first experienced it, as it inevitably declines over time.

With this in mind, it looks like we're all addicts, but you appear to have weaned yourself off the 'hard stuff' very well. Spare a thought for those of us who are so badly hooked that we have no hope of redemption!

AS

SLATING A REVIEW

Sirs, I must take issue with you over the recent review of your own World Design Slatedeck Garrard 401 plinth system. Your contributor Mr. Smith opens his review by lambasting multi-layer plinths generally, and then goes on to explain the operating principles of this type of plinth. This may be correct for Mr. Bastin's Maxplank plinth, but it is not correct for Aphelion plinths. I have designed and made by hand over seventy "Decoupled path" Foundation/Architecture plinths and these were designed for "hands-on" enthusiasts at a completely philanthropic £200 price point.

I believe that Mr. Smith was referring to my own plinths in his review, my decoupled plinth paths work by completely decoupling the armboard from the motor board by using a full-sized base board supporting, via four tubular pillars, the minimally sized motor board and three full-sized layers of HDF with compliant coupling for the armboard. This method of construction is employed because I believe in an "ideal model" that provides infinite stability between motor unit platter bearing and tonearm pivot and not, as most of our industry would have it, infinite rigidity.

The fact that your magazine reviewed my product over nine years

ago, that World Designs had an Aphelion decoupled path Foundation 301 plinth, Garrard 301, Origin Live-modified RB300 and Ortofon MC25E turntable for several months as a demonstration front end in the World Audio demo room at Newport Pagnell must be purely coincidental (or is it)?

A few facts for you - firstly I have never used marine ply as it is far too variable for plinth use; my plinths were never taller than 150mm and were also always minimally sized in terms of width/depth dimensions (and anyway, are we to exclude the Clearaudio Master Reference or the Platine Verdier for being too tall?). Finally my new decoupled 'Dawn' plinth was in room 1149 directly opposite World Designs at last year's Heathrow Show (coincidence again!) and the fact that I also achieved the above whilst suffering from various serious medical conditions just goes to show that credit is not always given where it is due. You, Mr. Smith have been 'used' to 'damn with faint praise' and anonymity, my own and Mr. Bastin's plinths, ridiculing our efforts for all Garrard owners, not just those with deep pockets.

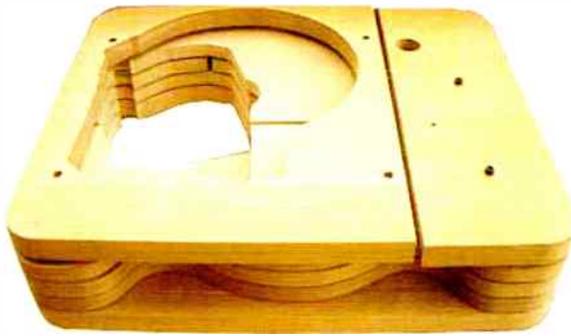
I will only make one comment on your "new" plinth, and that is to point out that it uses exactly the 'same topology as my ten year old design and challenge your magazine to both answer the points listed above and to run a comparative review, independently judged by mutually agreed reviewers (Noel Keywood perhaps?).

Trevor Jones, Proprietor/Designer/Craftsman, Aphelion Audio

Thank you for your letter Trevor, but before I go on to respond to your comments, may I just clear up one aspect that you seem to be a little confused over, namely referring to the Slatedeck plinth as "ours". We have had absolutely no hand in this item, which was conceived and designed by Slatedeck, a company with which we have no connection,



Slatedeck plinth comes from Slatedeck, not Hi-Fi World.



The Aphelion plinth for Garrard turntables. A unique design, hand crafted, say Aphelion.

but whose products are distributed by World Designs.

Moving onto the plinths themselves, I have re-read my article closely and can see no point where I intimated that wood-based plinths are out-and-out bad, in fact the phrase "undoubtedly good units" leapt out at me when referring to modern designs - hardly faint praise, I feel. My intention was merely to point out the inherent limitations of wood as a material when compared to slate, which is naturally denser and has better innate damping properties. This is where I feel the Slatedeck really scores, as opposed to the actual physics of its design ethos, which does indeed appear outwardly similar to yours. My initial point about the hopelessness of some plinths was referring to the resonant, sometimes sprung, units that were abundant when the 301 and 401 were new, and how these failed to extract the full potential available from the turntables. I have heard Dr. Bastin's Maxplank plinth and it is an excellent unit that works superbly - indeed Noel has one himself for his 401!

I myself use a solid wooden plinth for my 301 that was custom-made to my own design by a professional woodworker and it works very well - I had no desire to change it until I heard the Slatedeck plinth. Yes, it is expensive, and I can see that, as a result, it may be out of reach price-wise for many people, consequently there will, of course, always be a market for less expensive but still well-designed plinths made from less exotic materials. However, of all the plinths I have heard for the 301 and 401 to date, I still believe the Slatedeck to be the best.

Finally, regarding your own designs and your assertion that you believe that I was referring to them in my review I can categorically state that this was not the case as, to my shame, I did not know of the existence of your company or products until your letter arrived

on my desk - "my bad" as our cousins across the Atlantic would say, especially for someone who has a reputation as something of a Garrard fanatic. I can appreciate all the points you make with respect to their design and construction, and they look to be very well made. Consequently, if you wish to send us one of your latest examples, I would be more than happy to take a listen to it, or pass it on to someone else for evaluation if you feel that I am still not to be trusted! **AS**

Hi Trevor - let me assure you, the only reason you have for not 'trusting' Adam to review one of your plinths is that he may like it so much that you might have to 'send the boys round' to get it back! **DP**

THE OLD AND THE NEW

Due to my globe trotting travels and gypsy lifestyle I have a number of hi-fi components. I'd now like to consolidate and upgrade my system, using the good components I have and putting the rest on eBay! I have just purchased a Panasonic TH37PX70 37" Plasma TV, along with their latest HDMI DVD Player with upscaling. I do not want a surround sound solution, as I am more interested in getting the best hi-fi performance from music, though I will connect the TV to the system to at least get quality hi-fi sound when I listen to music DVDs and movies.

I currently have a Rotel amp (about 10 years old now), a Yamaha cassette deck (10 years old), Castle Kendal speakers (Castle refurbished drivers 3 years ago, and never used since), Mission

820 speakers (10 years old), a Marantz MX820 mini system bought in Dubai (10 years old), an Apple iPod Photo (2 years old), a Bose Sounddock (2 years old), a TEAC DAB/CD SRL50DAB (new) and a Pure Excite DAB Prestige (new)

I also have some U.S. (110V) components from my life in California, along with a transformer for the UK, namely a Denon CD Player (older model), a Sony CD Recorder (2 years old) and a good quality pre-amp/power-amp (I can't remember the brand!). What I am looking for is a good hi-fi system that includes DAB radio, CD, iPod playback and something I can connect the TV too.

I bought the Bose Sounddock because I was impressed with its sound, having been disappointed by connecting the iPod to a hi-fi with a Monster cable and hearing a "coloured" sound, I assume caused by the compressed format. But I do enjoy the convenience of the iPod for playing a playlist instead of swapping in and out with CDs. It would be great if I could get amazing sound quality from music stored on a hard drive, wirelessly managed from my PC, but I guess that is in the future? I am not interested in wireless streaming from a PC as that seems a dumb idea having to have your PC switched on to play music.

So what do I do? Would it be best to keep the U.S. amp and one of my speakers and buy a new CD/DAB, or buy an all-new system comprising CD/amp/DAB/speakers? Furthermore, would it be best to stick with the Sounddock for iPod or buy an amp that has ability to add an iPod dock? Would it also be fine to plug the Pure Excite into a new amp to achieve DAB radio, or would I be better off with a dedicated DAB tuner?

I don't want ten remote controls so I prefer a single brand solution if I am replacing amp/CD/DAB, and I have been considering the likes of Rotel, NAD and Denon, along with B&W speakers which have been recommended to me. I am not interested in spending £2000 on Arcam separates. There is the Arcam Solo but I still assume I am better with three separate components for £1000 than a single compact box? I would spend a maximum of £1000 on CD/AMP/DAB, and £500 for speakers



Arcam Solo Movie 5.1 - a new all-in-one surround-sound machine with all bar a tea maker as standard...

if I really need to, but I would prefer to spend less and retain some parts of my existing kit if I can. I listen to jazz music primarily as I am a saxophonist and have a critical ear for music. What advice can you give me?

Thanks,

Geoff Shutt

Well personally I would proceed as follows - if it is good quality and you like it, then I would keep the pre/power amplifier and then add a good quality CD player and an iPod dock. The Pure connected to this should suffice for DAB duties for the time being, as I would hold on now and wait for DAB+ to arrive before buying a dedicated DAB tuner. This would then free your budget for a good CD player and £800 spent on the likes of the Cambridge Audio Azur 840C, or £1,000 on the Vincent CD-S6MK will give superb results. The Cambridge is rather smoother and the Vincent a bit more upbeat and lively, but both are superb players. For the iPod, an Arcam rDock for £130 which impressed DP in our June issue has serious audiophile credentials and should comfortably beat the Bose in terms of sound quality when connected to your amplifier.

Regarding loudspeakers, the 820s are not a Mission model I'm familiar with, but the Kendals were well thought of in their day and if yours have new drivers then they should sound rather good - if you like them, keep them. However, if you fancy something a bit more modern and are keen to go down the B&W route, then £500 will buy you a pair of DM602.5S3 (with a bit of change, as they are £400), or you could stretch to the DM603.5S3s at £600. However, to widen your choice a bit, do also consider the ALR Jordan Entry Ls (£500) and the Mordaunt Short Avant 908i (£500).

Finally, regarding the Arcam Solo, Arcam do have a knack of coming up

with some very competent products and I was impressed when I heard it at the Bristol Hi-Fi Show earlier this year. However, I have yet to really spend any time with one to see how it compares to a separates setup. **AS**

Hi Geoff. I suggest you check out the Arcam Solo, as it is a classic Arcam balanced engineering job with not a weakness anywhere, unless you feel their unusual SDR VHF/FM + DAB tuner module from Radioscape is too left field. Personally, I think it's fine in this role, unless you are an ardent and critical Radio 3 listener, whereupon slight background noise may be occasionally detected. Otherwise, the Solo is the most refined all-in-one available, my only gripe being its slowness of control response. **NK**

UPGRADE TIME

I've been an avid reader for over 10 years and a subscriber for two, and the monthly drop onto the door mat really is one of the highlights. I discovered hi-fi about 15 years ago after completing an Open University course in music. The course required "active" listening to music - until then it was just background to me. Through the course you were guided to really listen to what was happening; to modulations, key changes, effects of different instruments, decoration, repeating themes etc. The skills apply to all genres of music from the interplay of tenor and alto sax on "Kind of Blue", to the gentle optimism of pre-Altamont James Taylor and the cynicism of post-Altamont Hotel California. Really listening becomes a way of life and that is what brought me to hi-fi. Without good reproduction you simply cannot listen effectively - it's the detail and performance that gives music life otherwise it becomes no more than a tune whistled in the bath.

Over the years I've gradually upgraded and improved, as funds permit, using your comments, especially in the



WAD 300Bs need attention now and then, like all valve amps. Pick up the phone to World Designs at 01832 293320.

Letters pages, as my guide and now as I approach retirement I have about £8,000 to spend on a system that will see me out. My room is 11ft X 13ft. It's a dedicated room with the speakers on the 11ft wall. My source components are: Michell GyroDec turntable (AC motor) with QC power supply, SME IV arm and Dynavector 20x High Output cartridge. Other sources are a Naim NAT03 tuner and Arcam FMJ CD33 CD player. My amplification, you'll recognise your influence here, is a WAD Pre II, WAD Phono II and WAD 300B PP mono-blocks. The speakers are a Wilmslow Audio Isis kit - standmount, two way with Scan-Speak drivers. In the 60s I was a Radio Officer at sea and used to build and maintain valve Radars and Radios so I'm reasonably capable at building.

The mid-band sound I have is stunning and the transients are fast and realistic, but there is a lack of bass depth on the Orchestral pieces, and certain pieces (Beethoven 9th for example) give me a "wall-of sound" where the music vanishes as all the instruments seem to rush over one another. Also the 300B PPs have a fairly intrusive hum which is distracting on quiet pieces, and the Phono II seems to have developed a fairly loud noise floor which is audible at normal

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listening levels. The 300B PP has also started intermittently blowing fuses on switch-off, about once every two weeks. Consequently I think it's time for a change.

I've spoken to three dealers: the first recommended replacing the amplification with Naim NAC 202, NAP 200, NAPSC, HiCap, and Stageline. He was good enough to lend me the kit for the weekend. I played my demo selection ('Brothers in Arms', Du-Pre's Elgar Cello concerto, Miles Davis 'In a Silent Way') and it lacked the musicality of the valve system. Somehow the Naim made the reflective mood of 'In a Silent Way' seem aggressive and the bass kick-drum on 'Brothers in Arms' became a very intrusive 'thump' in the mix. The 202/200 combination seemed less musical than my valves.

The second Dealer recommended changing all but the source to: a Noteworthy Audio PhoNote phono stage; MF Audio copper pre-amp; Audion Silver Night SET 300B Mk II power amp; and Audio Note AN-J speakers. I've not heard this yet but my slight concern is the Phono Stage. At £1,500 for the MM version it is expensive. A posting on your forums compares it with the Phono II, at a fifth of the price. The posting says the circuit topology and design is almost identical to the Phono II and that the Phono II is equally as good.

The third Dealer recommended an Arcam FMJ C31 preamp with the phono-board option plus two Arcam monoblocks; or replacing all with Cyrus amps, although Cyrus have now withdrawn their phono-stage.

I would appreciate your thoughts on the best way forward. I have an open mind, leaning towards valves, but the main requirement is a musical sound that I can listen to for many hours at a time.

Edward Martin

You have obviously discovered that solid-state equipment does not agree with you as well as valve amplifiers do, and you are not alone in this opinion! So you should be careful not to get carried away with 'upgraditis'.

As we see it the safe and sensible options would be:

- 1) repair your existing WAD equipment
- 2) build the latest WVD kits

Now option 1) is the most economical and shouldn't be too difficult. If you want to do it yourself there are lots of valve enthusiasts on the World Designs Forum (www.world-designs.co.uk/forum) that can chip in and help. Alternatively you are most welcome to contact us at World Designs and we will either point you in the right direction or have our engineer sort it all out for you.

However if you really do feel like a change and want to build something new then the new WDPPhono3S and WD88VA will certainly give your system a new lease of life.

The only aspect of your system we cannot vouch for are the speakers, which are unknown to us and, for all we know, might be the source of your discontent with lack of bass power and muddled midband. You might want to investigate some alternatives here, the WD25T is an obvious contender if you want to keep to the kit build side, but get the amplification sorted out first and take it from there.

Peter Comeau, World Designs

Hello Martin. Getting rid of 300Bs is sacrilegious! I sort of understand your predicament though. It's the case that valve based equipment ages and, in the end, goes phut. You really have to accept this and plan for it if you want to run such products untended for much more than five years. My 300B has thrown a few wobbles in the past but has been soldiering along for at least five years now without a murmur. It's my KLPP1 preamp that is in bits! Bear in mind also that the 300B should not hum, and that the WD forum is likely able to provide you all the info you need to fix this, repair, upgrade, etc. Personally, I would restore the 300Bs and get a pair of modern, sensitive loudspeakers to go with them. Look for good modern floorstanders such as Revolver R45is, as these need little power.

If this is all too much for you, then by all means trade in for solid-state which needs less attention, according to the hardware (switches, relays etc) used, as these items tend to go first. You should be able to sell the 300Bs for a useful amount. The best alternative is likely to be one of the excellent Vincent hybrid amplifiers. **NK**

TWEETING NO MORE

I'm not sure if you can help but I have blown my KEF T27 tweeter and KEF U. K. either don't have stock, or don't manufacture anymore. Wilmslow does not reply to emails. Can you help in some or other way? Or as a last measure suggest a replacement from another manufacturer?

Marius Bezuidenhout

You are quite correct in that the T27 is no longer made by KEF. However, a brief check of eBay revealed no less than four pairs for sale at the time of writing, so I would say this is your best bet if you wish to keep your loudspeakers original. As to

equivalents, I am surprised that Wilmslow Audio have not replied to your emails, but you might like to try giving them a ring on +44(0)1452 286603 as I have always found them to be very friendly and helpful. **AS**

STOP PRESS! - Even closer to home, I've just spotted a pair for sale in this month's classifieds, which start on Page 123.

A COG IN THE WORKS REVISITED

Firstly thanks for producing a consistently great magazine. The reason for the quick email is the Letters section in your July issue, namely "A Cog in the Works" (p100). The tray drive cog teeth are indeed the Achilles heel of the Philips CD9 transport that is used on the Alpha 5+ CD player, amongst others, and they do have a tendency to strip as old-age plasticisation sets in or if undue force is used to close the tray.

I'd just like to confirm that if a customer does indeed require a new tray drive cog, we do have them in stock and we can make them available along with some simple cog replacement instructions for the Alpha 5, 5+ and 6 CD player models. Unfortunately we do not carry a stock of the tray drive belts, although I've never seen cause to replace a belt within a CDM9 mechanism. Keep up the great work!

Andy Moore,
Senior Engineer, Arcam

Many thanks for your email, Andy, and I have passed it on to Martin Derby, the reader with the original query. **AS**

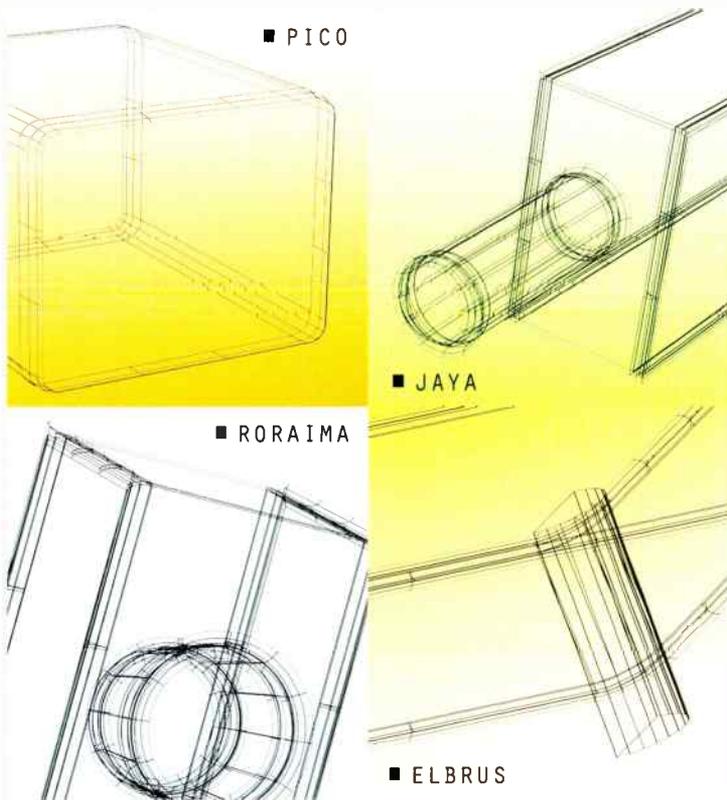
YOUNG AT HEART

Dear Hi Fi World,
I wondered if you would consider the following for your letters page. This is Stanley Simpson, surely Hi-Fi World's youngest reader, with proud father Andrew perusing the pages of his dad's favourite magazine. At only ten days old, he's already got his eye on a Quad 33/303 combo, but didn't we all at that age! Stanley's favourite pastime is being gently rocked to Tim Buckley, Nick Drake and Captain Beefheart played on his dad's Pink Triangle Export GT1 turntable. Best regards and we're looking forward to next month's issue!

Andrew Simpson



Hi-Fi World's youngest reader - even younger than its editor - yes, really!



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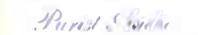
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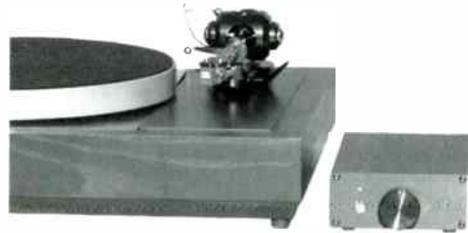
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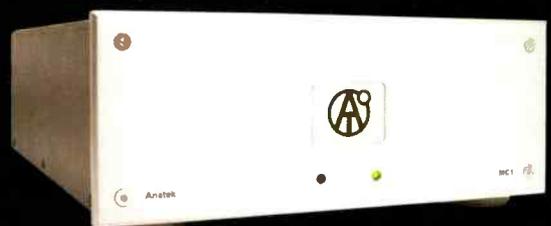
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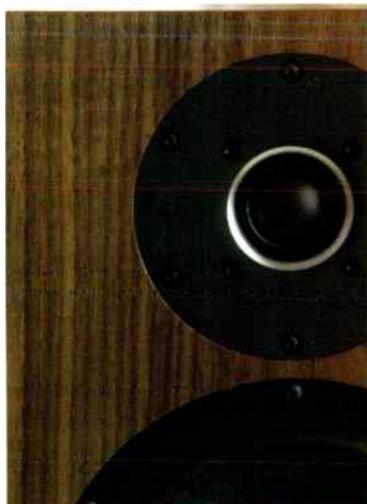
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Nola Viper Reference



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WORLD AUDIO Design Headphone II. Upgraded spec. Few hours use. Mint. £325. Creek Evo CD player, mint, boxed, warranty. £350. Tel: 01639 641 043

B&W CMI speakers, maple, £290. Merlin Chopin interconnect, boxed, (unused) £40. QED Silver Spiral interconnect, 0.5m £20. Tel: 077847 01629 or 0161 480 7880

PRIMARE CD110 CD/FM/DAB All-In-One unit, Hi-Fi Choice Gold Award £800. Unison Research Unico integrated amplifier, hybrid valve design, £650. Both mint. Quad 99 remote control £25. Tel: 023 8073 8935

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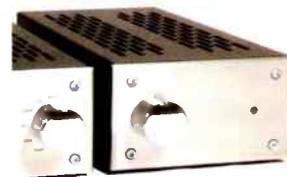
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300B MONOBLOCS custom build WAD Andy Grove feed-backless monoblocs with Black Gates, Gold Grid valves, Mills resistors, silver valve sockets wiring 26 watts push pull stunning sound. £975 07793749178 kingjuancho@yahoo.com

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LINN LINGO LP12 P/S latest version with surface mounted components. Big plug and play upgrade on old model. 9 months use, immaculate, £600 (£990). Tel: Peter 01302 854 426 or 07711 772 232

NAIM 82s HiCap 250 amps, olive. Naim CDI. Chord Anthem. Black SNAIC. Musicworks 6 way mains block. 3x1 metre leads (IEC) Ruark Sabres. Atacama stands. Mana bases (SBL) £3300 the lot. Tel: 01722 334 694 (Salisbury)

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TWO LEAK Sandwich speakers (2060) Good condition. Offers please. Buyer collects. Tel: 01582 792 899 (St. Albans)

MERIDIAN 502 pre-amplifier, with MM phono option. Balanced and unbalanced inputs and outputs. Complete with manual, box and accessories, £450. Tel: 07729 626598.

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LEAK 2075 speakers 4 way design 55kg each with boxes and manuals, in great condition a really detailed sound, 6ohms £395. Tel 01554 771116

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GUIDELINES FOR BUYING AND SELLING SECOND-HAND EQUIPMENT

FOR THE BUYER

1. Not everyone is honest - Buyer Beware!
2. Don't send cash!
3. Accept no verbal guarantees.
4. Have you heard the item or something similar? If not, why do you want it?
5. Don't pretend to have knowledge - it's your fingers that will get burnt!
6. Is it working? If not, why not?
7. Has it been modified and, if so, have notes been kept?
8. Was it any good in the first place?
9. Don't send cash!
10. If you are in the slightest doubt, arrange an audition (see point 5) If it's too far, wait for another time.
11. Either buy it or don't: vendors are excusably impatient with 'consultation' exercises.
12. Don't send cash!

FOR THE SELLER

1. Not everyone is honest - Seller Beware!
2. Make no verbal guarantees.
3. Even 'nearly new' is still second-hand. If the manufacturer's guarantee is no longer in force, your price should reflect this.
4. There is very little intrinsic value in second-hand hi-fi; it's only worth what someone will pay for it.
5. The best guide to pricing is last month's Classifieds: that a 'classic' was worth £xxx a year or two ago is no guide. Values fall as well as rise.
6. Amateur second-hand dealing is not a big money game: you win some, you lose some.
7. Be prompt with despatch. If in doubt about buyer's bona-fides, either wash out the deal or send C.O.D.
8. There will always be time-wasters; be tolerant within reason!


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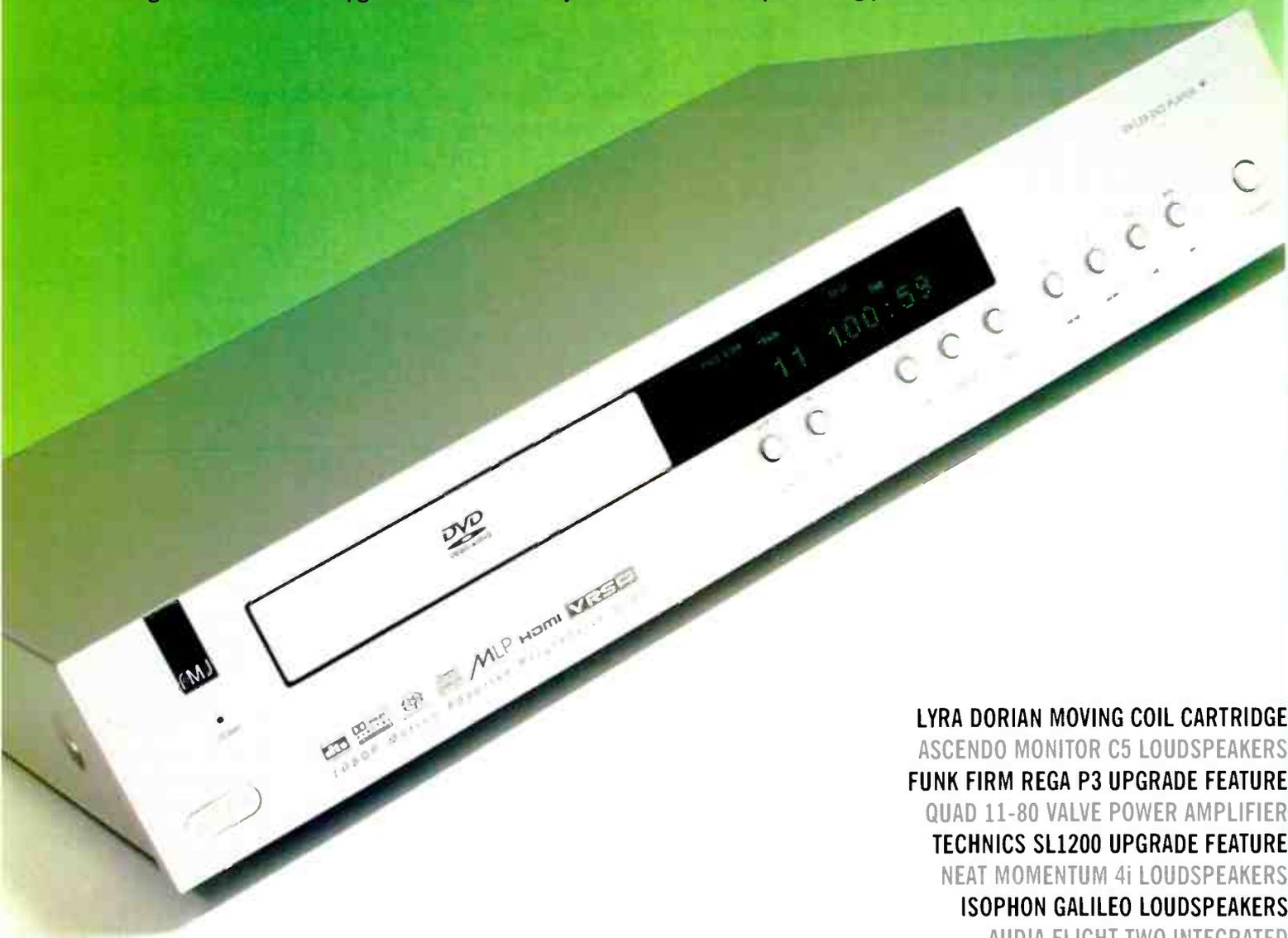
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NEXT MONTH

Just as you'd expect from *Hi-Fi World*, the September 2007 issue is a veritable cornucopia of great audio separates, including the superb new Arcam DV139 universal disc player [pictured], which promises to be a great way to play high resolution digital and CD alike, while for those of the Red Book persuasion we audition MBL's high end 1431 CD player. Amplifier fans aren't overlooked, with everything from Quad's stunning 11-80 valve power amplifiers to Plinius's 9200 integrated. Speaker wise, there's everything from Ascendo's Monitor C5s to Isophon's charismatic Galileo, and analogue addicts will love the new Kuzma Stabi S turntable and – yes, really – our long awaited Technics upgrade feature! Here's just some of what hope to bring you:



LYRA DORIAN MOVING COIL CARTRIDGE
ASCENDO MONITOR C5 LOUDSPEAKERS
FUNK FIRM REGA P3 UPGRADE FEATURE
QUAD 11-80 VALVE POWER AMPLIFIER
TECHNICS SL1200 UPGRADE FEATURE
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THE EMT TURNTABLE STORY
ARCAM DV139 DVD PLAYER
KUZMA STABI S TURNTABLE
PLINIUS 9200 INTEGRATED
MBL 1431 CD PLAYER

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SEPTEMBER 2007 9TH JULY 2007

OCTOBER 2007 9TH AUGUST 2007



THE DOUGHNUTS IN GRANNY'S GREENHOUSE

THE BONZO DOG BAND 1968

"a wonderful array of genuine comedic genius combined with psychedelic vibes..."

If you remember them from their earliest days, they were called The Bonzo Dog Dada Band or, later, The Bonzo Dog Doo-Dah Band. Whatever, The Bonzo Dog Band (the name they adopted when creating this album) combined a delightful mixture of rock music and comedy which was both innovative and stylish and surely had a significant influence on the likes of Monty Python. However, the comedy would never have survived the music industry's own turbulent years if the quality of the band's own musicianship and songwriting wasn't up to scratch...

Both Neil Innes and the band's lead singer, Viv Stanshall, would write the band's best material, although the other members of the group would also pitch in with quirky ditties. Of course, a selection of high profile marketing successes also helped to ensure the band's longevity – even after they split following their last album in 1969: an appearance in the Beatles' *Magical Mystery Tour* was one such move and the hit single, 'I'm The Urban Spaceman', produced by Paul McCartney (under the pseudonym Apollo C. Vermouth) also helped. Viv Stanshall also made a star appearance as the narrator on Mike Oldfield's 'Tubular Bells'. Neil Innes would come to have a significant input on the musical direction of Monty Python and with Python member Eric Idle on the later documentary spoof of the life of The Beatles, 'The Rutles'.

EMI is to be applauded in its decision to re-release the entire Bonzo oeuvre. Apart from 'Doughnuts...', you can also look forward to 'Gorilla', 'Tadpoles',

'Keynsham' and 'Let's Make Up And Be Friendly'. Each album will also arrive with bonus tracks so, even if you have the original albums, these new re-releases are certainly worth checking out. The mastering for 'Doughnuts...' was performed by Peter Mew at Abbey Road. A long standing employee of Abbey Road, Mew has worked with just about everyone who was anyone, from Pink Floyd to The Beatles.

The master tapes themselves were well cared for in the EMI tape archive. Mew told *Hi-Fi World*, "they were very good. Tape is very difficult to do anything nasty to, I've have tapes with mould on them that still played perfectly well. The only problems we've had is via the old Ampex tape which suffered from Sticky Syndrome."

(A quick explanation - the Ampex problem stemmed from that esteemed company's ill-advised decision during the 1970s to change the formulation of the binder used to glue the magnetic tape particles to the plastic base material on their 456 professional tape. Unknowingly, the new formulation attracted moisture and, eventually, enough accumulated to make the tape "sticky". Fortunately though, that didn't occur here.)

The Bonzo tapes didn't come with any of the production notes relating to EQ. "It's unusual to find that sort of information and, even when you do, they're not that relevant because they refer to the vinyl cut. Some of the EQ is done for physical reasons: you can't put too much bass on, distortion and the like.

So, it's never possible to tell whether the EQ has been done for sound or technical reasons. Hence, you go back and you use your experience."

With forty two years of experience, Mew was working when this album was initially recorded so he has an insight into how the music should sound, "I hopefully try and make the tracks as the engineer heard them at the time which is not always what is on the tape because monitoring conditions were not very good in those days, you got a lot of noise from the equipment and so on. So, quite often what you heard on the tape is a corruption of what the producer and the engineer actually heard on the studio floor."

'Doughnuts...' was the band's second and best album with a wonderful array of genuine comedic genius combined with effectual psychedelic vibes. Stanshall and Innes were the principle songwriters. Between the two, the band proceed to turn the spotlight on British popular music, taking a pin, laced with wit, to burst the egocentric, oh-so-serious, pretentious balloon filled with blues, psychedelia and other pop, jazz and music hall styles.

While vinyl fans continue to search for rare originals, CD fans have a choice. EMI did release a box set of 3CDs called 'Cornology', featuring all the Bonzo albums plus bonus cuts back in 1992. However, CD technology has come on leaps and bounds in the past five years, never mind the last fifteen, so the new releases should be your purchase of choice. **PR**

exposure



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